INFORMATION ABOUT PRINCIPAL INVESTIGATORS/PROJECT DIRECTORS(PI/PD) and co-PRINCIPAL INVESTIGATORS/co-PROJECT DIRECTORS

Submit only ONE copy of this form **for each PI/PD and co-PI/PD** identified on the proposal. The form(s) should be attached to the original proposal as specified in GPG Section II.B. Submission of this information is voluntary and is not a precondition of award. This information will not be disclosed to external peer reviewers. ***DO NOT INCLUDE THIS FORM WITH ANY OF THE OTHER COPIES OF YOUR PROPOSAL AS THIS MAY COMPROMISE THE CONFIDENTIALITY OF THE INFORMATION.***

PI/PD Name: Kwok-Bun Yue

Gender: ☒ Male ☐ Female

Ethnicity: (Choose one response) ☐ Hispanic or Latino ☒ Not Hispanic or Latino

Race: (Select one or more)
- ☐ American Indian or Alaska Native
- ☒ Asian
- ☐ Black or African American
- ☐ Native Hawaiian or Other Pacific Islander
- ☐ White

Disability Status: (Select one or more)
- ☐ Hearing Impairment
- ☐ Visual Impairment
- ☐ Mobility/Orthopedic Impairment
- ☐ Other
- ☒ None

Citizenship: (Choose one) ☒ U.S. Citizen ☐ Permanent Resident ☐ Other non-U.S. Citizen

Check here if you do not wish to provide any or all of the above information (excluding PI/PD name): ☐

REQUIRED: Check here if you are currently serving (or have previously served) as a PI, co-PI or PD on any federally funded project ☒

Ethnicity Definition:
Hispanic or Latino. A person of Mexican, Puerto Rican, Cuban, South or Central American, or other Spanish culture or origin, regardless of race.

Race Definitions:
American Indian or Alaska Native. A person having origins in any of the original peoples of North and South America (including Central America), and who maintains tribal affiliation or community attachment.
Asian. A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam.
Black or African American. A person having origins in any of the black racial groups of Africa.
Native Hawaiian or Other Pacific Islander. A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.
White. A person having origins in any of the original peoples of Europe, the Middle East, or North Africa.

WHY THIS INFORMATION IS BEING REQUESTED:

The Federal Government has a continuing commitment to monitor the operation of its review and award processes to identify and address any inequities based on gender, race, ethnicity, or disability of its proposed PIs/PDs. To gather information needed for this important task, the proposer should submit a single copy of this form for each identified PI/PD with each proposal. Submission of the requested information is voluntary and will not affect the organization's eligibility for an award. However, information not submitted will seriously undermine the statistical validity, and therefore the usefulness, of information recieved from others. Any individual not wishing to submit some or all the information should check the box provided for this purpose. (The exceptions are the PI/PD name and the information about prior Federal support, the last question above.)

Collection of this information is authorized by the NSF Act of 1950, as amended, 42 U.S.C. 1861, et seq. Demographic data allows NSF to gauge whether our programs and other opportunities in science and technology are fairly reaching and benefiting everyone regardless of demographic category; to ensure that those in under-represented groups have the same knowledge of and access to programs and other research and educational oppurtunities; and to assess involvement of international investigators in work supported by NSF. The information may be disclosed to government contractors, experts, volunteers and researchers to complete assigned work; and to other government agencies in order to coordinate and assess programs. The information may be added to the Reviewer file and used to select potential candidates to serve as peer reviewers or advisory committee members. See Systems of Records, NSF-50, "Principal Investigator/Proposal File and Associated Records", 63 Federal Register 267 (January 5, 1998), and NSF-51, "Reviewer/Proposal File and Associated Records", 63 Federal Register 268 (January 5, 1998).

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PI/PD Name: Sharon Perkins-Hall

Gender: ☐ Male ☒ Female

Ethnicity: (Choose one response) ☐ Hispanic or Latino ☐ Not Hispanic or Latino

Race: (Select one or more)
- ☐ American Indian or Alaska Native
- ☐ Asian
- ☐ Black or African American
- ☐ Native Hawaiian or Other Pacific Islander
- ☒ White

Disability Status: (Select one or more)
- ☐ Hearing Impairment
- ☐ Visual Impairment
- ☐ Mobility/Orthopedic Impairment
- ☐ Other
- ☒ None

Citizenship: (Choose one) ☒ U.S. Citizen ☐ Permanent Resident ☐ Other non-U.S. Citizen

Check here if you do not wish to provide any or all of the above information (excluding PI/PD name): ☒

REQUIRED: Check here if you are currently serving (or have previously served) as a PI, co-PI or PD on any federally funded project ☒

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List of Suggested Reviewers or Reviewers Not To Include (optional)

SUGGESTED REVIEWERS:
Not Listed

REVIEWERS NOT TO INCLUDE:
Not Listed

COVER SHEET FOR PROPOSAL TO THE NATIONAL SCIENCE FOUNDATION

PROGRAM ANNOUNCEMENT/SOLICITATION NO./CLOSING DATE/if not in response to a program announcement/solicitation enter NSF 01-2

NSF 01-62 **05/01/01**

FOR CONSIDERATION BY NSF ORGANIZATION UNIT(S) (Indicate the most specific unit known, i.e. program, division, etc.)

FOR NSF USE ONLY

NSF PROPOSAL NUMBER

0122997

DATE RECEIVED	NUMBER OF COPIES	DIVISION ASSIGNED	FUND CODE	DUNS# (Data Universal Numbering System)	FILE LOCATION
				042916627	

EMPLOYER IDENTIFICATION NUMBER (EIN) OR TAXPAYER IDENTIFICATION NUMBER (TIN)

746001399

SHOW PREVIOUS AWARD NO. IF THIS IS
☐ A RENEWAL
☐ AN ACCOMPLISHMENT-BASED RENEWAL

IS THIS PROPOSAL BEING SUBMITTED TO ANOTHER FEDERAL AGENCY? YES ☐ NO ☒ IF YES, LIST ACRONYMS(S)

NAME OF ORGANIZATION TO WHICH AWARD SHOULD BE MADE

University of Houston - Clear Lake

AWARDEE ORGANIZATION CODE (IF KNOWN)

0117119000

ADDRESS OF AWARDEE ORGANIZATION, INCLUDING 9 DIGIT ZIP CODE

University of Houston - Clear Lake
2700 Bay Area Boulevard
Houston, TX. 770581098

NAME OF PERFORMING ORGANIZATION, IF DIFFERENT FROM ABOVE

PERFORMING ORGANIZATION CODE (IF KNOWN)

ADDRESS OF PERFORMING ORGANIZATION, IF DIFFERENT, INCLUDING 9 DIGIT ZIP CODE

IS AWARDEE ORGANIZATION (Check All That Apply)
(See GPG II.C For Definitions) ☐ FOR-PROFIT ORGANIZATION ☐ SMALL BUSINESS ☐ MINORITY BUSINESS ☐ WOMAN-OWNED BUSINESS

TITLE OF PROPOSED PROJECT **NSF Scholars Program**

REQUESTED AMOUNT	PROPOSED DURATION (1-60 MONTHS)	REQUESTED STARTING DATE	SHOW RELATED PREPROPOSAL NO., IF APPLICABLE
$ **400,000**	**48** months	**09/01/02**	

CHECK APPROPRIATE BOX(ES) IF THIS PROPOSAL INCLUDES ANY OF THE ITEMS LISTED BELOW

☐ BEGINNING INVESTIGATOR (GPG I.A)
☐ DISCLOSURE OF LOBBYING ACTIVITIES (GPG II.C)
☐ PROPRIETARY & PRIVILEGED INFORMATION (GPG I.B, II.C.6)
☐ NATIONAL ENVIRONMENTAL POLICY ACT (GPG II.C.9)
☐ HISTORIC PLACES (GPG II.C.9)
☐ SMALL GRANT FOR EXPLOR. RESEARCH (SGER) (GPG II.C.11)
☐ VERTEBRATE ANIMALS (GPG II.C.11) IACUC App. Date _____
☐ HUMAN SUBJECTS (GPG II.C.11)
Exemption Subsection _____ or IRB App. Date _____
☐ INTERNATIONAL COOPERATIVE ACTIVITIES: COUNTRY/COUNTRIES INVOLVED _____
☐ HIGH RESOLUTION GRAPHICS/OTHER GRAPHICS WHERE EXACT COLOR REPRESENTATION IS REQUIRED FOR PROPER INTERPRETATION (GPG I.E.1)

PI/PD DEPARTMENT

Division of Computer Engineering

PI/PD FAX NUMBER

281-283-3869

PI/PD POSTAL ADDRESS

School of Science & Computer Engineering
2700 Bay Area Boulevard
Houston, TX 77058
United States

NAMES (TYPED)	High Degree	Yr of Degree	Telephone Number	Electronic Mail Address
PI/PD NAME **Kwok-Bun Yue**	**PhD**	**1988**	**281-283-3864**	**yue@cl.uh.edu**
CO-PI/PD **Sharon Perkins-Hall**	**PhD**	**1980**	**281-283-3868**	**perkins@cl.uh.edu**
CO-PI/PD				
CO-PI/PD				
CO-PI/PD				

CERTIFICATION PAGE

Certification for Principal Investigators and Co-Principal Investigators:

I certify to the best of my knowledge that:

(1) the statements herein (excluding scientific hypotheses and scientific opinions) are true and complete, and
(2) the text and graphics herein as well as any accompanying publications or other documents, unless otherwise indicated, are the original work of the signatories or individuals working under their supervision. I agree to accept responsibility for the scientific conduct of the project and to provide the required progress reports if an award is made as a result of this proposal.

I understand that the willful provision of false information or concealing a material fact in this proposal or any other communication submitted to NSF is a criminal offense (U.S.Code, Title 18, Section 1001).

Name (Typed)	Signature	Social Security No.*	Date
PI/PD **Kwok-Bun Yue**			
Co-PI/PD **Sharon Perkins-Hall**			
Co-PI/PD			
Co-PI/PD			
Co-PI/PD			

SSN's are confidential and are not displayed *ON FASTLANE SUBMISSIONS*

Certification for Authorized Organizational Representative or Individual Applicant:

By signing and submitting this proposal, the individual applicant or the authorized official of the applicant institution is: (1) certifying that statements made herein are true and complete to the best of his/her knowledge; and (2) agreeing to accept the obligation to comply with NSF award terms and conditions if an award is made as a result of this application. Further, the applicant is hereby providing certifications regarding debarment and suspension, drug-free workplace, and lobbying activities (see below), as set forth in Grant Proposal Guide (GPG), NSF 01-2. Willful provision of false information in this application and its supporting documents or in reports required under an ensuring award is a criminal offense (U. S. Code, Title 18, Section 1001).

In addition, if the applicant institution employs more than fifty persons, the authorized official of the applicant institution is certifying that the institution has implemented a written and enforced conflict of interest policy that is consistent with the provisions of Grant Policy Manual Section 510; that to the best of his/her knowledge, all financial disclosures required by that conflict of interest policy have been made; and that all identified conflicts of interest will have been satisfactorily managed, reduced or eliminated prior to the institution's expenditure of any funds under the award, in accordance with the institution's conflict of interest policy. Conflict which cannot be satisfactorily managed, reduced or eliminated must be disclosed to NSF.

Debarment Certification

(If answer "yes", please provide explanation.)

Is the organization or its principals presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency? Yes ☐ No ☒

Certification Regarding Lobbying

This certification is required for an award of a Federal contract, grant, or cooperative agreement exceeding $100,000 and for an award of a Federal loan or a commitment providing for the United States to insure or guarantee a loan exceeding $150,000.

Certification for Contracts, Grants, Loans and Cooperative Agreements

The undersigned certifies, to the best of his or her knowledge and belief, that:

(1) No federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, ''Disclosure Form to Report Lobbying,'' in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

AUTHORIZED ORGANIZATIONAL REPRESENTATIVE	SIGNATURE	DATE
NAME/TITLE (TYPED) **Edward J. Hayes, Senior VP & Provost**		**05/01/01**

TELEPHONE NUMBER	ELECTRONIC MAIL ADDRESS	FAX NUMBER
281-283-3000	**hayese@cl.uh.edu**	**281-283-3009**

*SUBMISSION OF SOCIAL SECURITY NUMBERS IS VOLUNTARY AND WILL NOT AFFECT THE ORGANIZATION'S ELIGIBILITY FOR AN AWARD. HOWEVER, THEY ARE AN INTEGRAL PART OF THE INFORMATION SYSTEM AND ASSIST IN PROCESSING THE PROPOSAL. SSN SOLICITED UNDER NSF ACT OF 1950, AS AMENDED.

NATIONAL SCIENCE FOUNDATION
Division of Undergraduate Education

NSF FORM 1295: PROJECT DATA FORM

The instructions and codes to be used in completing this form are provided in Appendix II.

1. **Program-track** to which the Proposal is submitted: _____
2. Name of **Principal Investigator/Project Director** (as shown on the Cover Sheet):
   Yue, Kwok-Bun
3. Name of submitting **Institution** (as shown on Cover Sheet):
   University of Houston - Clear Lake
4. **Other Institutions** involved in the project's operation:

Project Data:

A. Major Discipline Code: **99**
B. Academic Focus Level of Project: **UP**
C. Highest Degree Code: **M**
D. Category Code: ___
E. Business/Industry Participation Code: **PSP**
F. Audience Code: **WMD** _ _ _ _ _
G. Institution Code: **PUBL**
H. Strategic Area Code: **IT**
I. Project Features: **2 3 4 5** _

Estimated number in each of the following categories to be directly affected by the activities of the project during its operation:

J. Undergraduate Students: **58**
K. Pre-college Students: **0**
L. College Faculty: **0**
M. Pre-college Teachers: **0**
N. Graduate Students: **0**

PROJECT SUMMARY

The University of Houston-Clear Lake (UHCL) serves a population whose dynamic growth radiates from Texas' largest city and the fourth largest city in the nation. UHCL's proposed NSF Scholars Program strengthens linkages to community colleges, supports the interests of the high technology companies that aggressively recruit in the four disciplines and advances the academic and professional careers of talented students. It also reflects our commitment to academically-talented persons whose educational and career goals are foreshortened due to a lack of means.

The project's objectives focus on recruiting students to high technology disciplines, increasing retention through mentoring and support and facilitating career placement through industry partnerships. To these ends, the School of Natural and Applied Sciences (NAS) will award 29 NSF scholarships in each of four years in the areas of Computer Science, Computer Information Systems, Computer Systems Engineering and Mathematics. Several points signal UHCL's ability to achieve the project's recruiting, mentoring and placement objectives:

- UHCL is an upper division and masters level institution with vital links to community colleges in Southeast Texas.
- 100% of CSEMS curriculum-related professors are full-time Ph.D. level professors; there are no graduate student teachers.
- Student access to faculty is direct and encouraged.
- 85% of UHCL graduates find employment in the region.
- Southeast Texas has a predominantly high technology and aerospace-oriented industry base that seeks well-trained specialist graduates.

Implementation begins with recruitment, which will expand existing partnerships with community colleges and utilize UHCL's advertising resources to target low income, academically-talented students. Recruiters will promote scholarships through highly successful efforts currently underway at community colleges and high schools. To increase applications from underrepresented minorities - particularly burgeoning numbers of Hispanic students in Harris County and Southeast Texas, NAS will develop promotional materials designated toward these groups.

A strong mentoring component grounds the project. In addition to joining an NSF Scholars Organization, students will meet with faculty and peer mentors regularly to address academic, career and personal progress. Mentoring strategies will tap institutional resources as well as established industry linkages to further career goals. UHCL's impressive linkages to technology industries will initiate opportunities that introduce students into industry circles and co-operative education.

Mentoring includes ensuring academic support services available within NAS and through instructional facilities. Additionally, this project will link students to an abundant employment network through UHCL's Career and Counseling Services, which covers employment from counseling through placement. A Steering Committee, composed of industry, community college and institutional representatives, will ensure effective integration and communication of all project components and resources.

TABLE OF CONTENTS

For font size and page formatting specifications, see GPG section II.C.

Section		Total No. of Pages in Section	Page No.* (Optional)*
Cover Sheet (NSF Form 1207) (Submit Page 2 with original proposal only)			
A	Project Summary (not to exceed 1 page)	1	
B	Table of Contents (NSF Form 1359)	1	
C	Project Description (plus Results from Prior NSF Support) (not to exceed 15 pages) **(Exceed only if allowed by a specific program announcement/solicitation or if approved in advance by the appropriate NSF Assistant Director or designee)**	15	
D	References Cited	1	
E	Biographical Sketches (Not to exceed 2 pages each)	4	
F	Budget (NSF Form 1030, plus up to 3 pages of budget justification)	7	
G	Current and Pending Support (NSF Form 1239)	2	
H	Facilities, Equipment and Other Resources (NSF Form 1363)	2	
I	Special Information/Supplementary Documentation	13	
J	Appendix (List below.) **(Include only if allowed by a specific program announcement/ solicitation or if approved in advance by the appropriate NSF Assistant Director or designee)**		
	Appendix Items:		

*Proposers may select any numbering mechanism for the proposal. The entire proposal however, must be paginated. Complete both columns only if the proposal is numbered consecutively.

PROJECT DESCRIPTION

1. Results from Prior NSF Support.

UHCL has received no previous NSF support related to the proposed project.

2. Project Objectives and Plans

The NSF Scholars Program centers on recruiting students to high technology Disciplines in four degree programs: Computer Science (CS), Computer Information Systems (CIS), Computer Systems Engineering (CSEN) and Mathematics (MATH). The NSF Scholars Program provides mentoring and supports increased retention and facilitating career placement by fostering partnerships between students and industries. The project objectives and plan advance that focus.

Project Objectives

1. Recruiters will build on partnerships with community colleges and utilize UHCL's advertising resources to target and recruit low income, academically talented students.
2. Special consideration will be made to applicants from underserved populations, including women, racial and ethnic minorities, and persons with disabilities, via promotional materials, by recruiting in high-minority community colleges, and through undergraduate seminars.
3. The PIs will strengthen partnerships with community colleges, especially those serving large populations of underrepresented groups, by augmenting existing transfer programs that target CSEMS students.
4. The Scholarship Committee will employ selection criteria and procedures that facilitate the selection of the best-qualified Scholars on the basis of predicted success.
5. PIs will enlist existing student support structures to improve performance, retention and career placement.
6. Faculty and peer mentors will complement institutional student support to position students for advanced studies or industry careers
7. PIs will link this project to existing collaborations with high technology industries to foster opportunities for mentoring, co-operative education and career placement.
8. PIs will meet at least once each semester to review Scholars' progress, coordination of support resources, and the effectiveness of recruiting, mentoring and placement activities.
9. Each semester, PIs will collect data to evaluate the project.
10. Using a well-defined set of metrics, the PIs will disseminate evaluation findings in an annual report to the Chair of the division of Computing and Mathematics, and the Dean of the School of Natural and Applied Sciences (NAS) before submitting them to NSF.

The project's objectives define activities that support recruiting, mentoring and career placement goals.

Project Plan

a) Advertising and Recruiting

Advertising and recruiting will begin three or four months before each semester. Because UHCL advertises throughout the year, NAS can promote this endeavor through the institution's advertising channels at any time. Similarly, a number of Community College Recruitment activities take place year-round, allowing Recruitment Coordinators to publicize the program with

little delay. Already, the PIs have initiated partnerships for the Scholars program, as with Houston Community College System.

In addition to promoting the project through linkages with community colleges, NAS will utilize existing University advertising resources, which include Web sites and traditional media channels. On-campus advertising will include postings and the distribution of flyers and applications at Enrollment Services, Financial Aid, Student Information Office and in classrooms. UHCL recruiters and guest lecturers will distribute these same materials at community colleges.

Recruitment activities, described in detail in the ensuing Student Selection Process of this proposal, will center on the aforementioned publicity and linkages with 11 community colleges (Appendix I) and in counties throughout Southeast Texas. This project's design includes a detailed recruitment component that will draw on existing University strategies and resources. The PIs will meet with UHCL's Enrollment Services and Community College Recruitment coordinators to review recruitment activities and to monitor progress. All personnel, procedures and resources supporting effective recruitment on and off campus are in place (Appendix II).

New and existing advertising channels and linkages to community colleges support recruiting activities.

b) Mentoring and Support

At the beginning of each semester, all Scholars must attend an orientation workshop, which, in the first year of funding, will form the NSF Scholars Organization. At the workshop, Scholars will meet their faculty, peer mentors and other Scholars. The PIs will describe the program's objectives, requirements and resources along with the nature and structure of the Organization and will introduce its Web site. Mentoring of Scholars will occur on several fronts to tap institutional resources and industry linkages.

Faculty Mentoring Activities

All NAS students have both academic and faculty advisors. However, each NSF Scholar also will be assigned a faculty mentor from his/her discipline. All Scholars must attend monthly meetings with faculty mentors to monitor their progress. In addition, Scholars are expected at seminars and workshops with faculty-led discussions on ethics, communication and design skills, research and research topics. At the end of each year, Scholars will submit a brief annual report to their faculty mentors describing his/her academic progress and participation in NSF Scholar support programs. Faculty mentors involved with Scholars will use a checklist to identify, monitor and address problems as early as possible. The mentor will monitor courses taken, GPA, progress toward degree completion, co-operative education experiences and participation in student support programs.

<u>Peer Mentoring Activities</u>

Peer mentoring, an extension of faculty mentoring, is designed to foster helpful relationships that extend past graduation, building a supportive network that will not only enhance personal careers, but also increase project recruitment capabilities. Each Scholar will be assigned a senior Scholar mentor. Scholars and their student mentors will meet at least twice each semester, and both parties will submit synopses of these meetings to the new Scholar's faculty mentor via

e-mail. Within the last thirty hours of his/her degree requirement, each Scholar must serve as a mentor to students entering the program.

Peer activities will center on the NSF Scholars Organization, comprised of all Scholars and supervised by the PIs. Each Scholar must join the Organization. Activities will include developing a Web site for sharing resources and communication, maintaining a discussion board, chat rooms and custom designed software to facilitate communications; promoting comradery, organizing study groups and tutoring. The Organization also will assist other University units in study-related functions, such as maintaining Web sites or adding Web functionalities. Scholars may take an independent study course for substantial study-related work with the Organization. For example, the Organization Webmaster may take an independent study course to set up the Organization's initial Web site. When NSF funding expires, the Division of Computing and Mathematics will attempt plans to integrate the Organization into an existing or new student organization such as the ACM student chapter.

Mentoring and support activities undertaken by The NSF Scholars Organization, faculty mentors and peer mentors enhance retention and support mentoring objectives.

Research and Academic Advancement

The mentoring component of this project positions CSEMS faculty to nurture student achievement through research and publication. Mentors and instructors will invite Scholars to participate in research projects and to submit papers to the annual UHCL Student Research Conference and other regional conferences, such as the South Central Conference of the Consortium of Computing for Small Colleges, which publishes reviewed student papers. Faculty mentors will assist Scholars in preparing and submitting papers. If a Scholar's refereed paper is accepted for presentation, NSF and NAS funding will be used to support travel and registration costs.

Involving Scholars in research and publication enriches mentoring activities, supports academic advancement and develops credentials that enhance career placement.

c) Career Placement

Career enrichment activities center on relationships, with industry representatives in unison with institutional structures.

Industry Program Activities

The workplace recognizes the value of our graduates. Industry partnering builds on UHCL's historical connections to the business community. This university's founding, in 1974, came in direct response to a critical need for a highly-educated, well-trained workforce in Southeast Texas - whose own growth expanded with the advent of NASA building Johnson Space Center. For 27 years, UHCL has fostered close relationships with the business community, and this project's designers mined those relationships to determine appropriate industry partners for the initiative. The NSF Scholars Program will expand the use of CIS and CS industrial advisory boards, whose industry members provide input regarding curriculum. In addition, local industries involve degree program candidates in research projects and capstone projects, which target real-world team projects. In one example, United Space Alliance has awarded eleven research grants totaling $192,393 to fund research assistants in the four disciplines. In addition, Barrios Technology has pledged $10,000 each year for five years to support computing program endeavors Houston Endowment, a prominent foundation, has matched $50,000 for the endowment. Capstone courses are required for all CS and CIS graduate students.

The PIs will meet with members of each program's existing industry advisory boards and Career and Counseling Services (CCS) to organize industry activities. These activities may consist of field trips to local companies or seminars on co-op education opportunities and research topics presented by panels of industry representatives. All Scholars must attend at least one industry program organized by the PIs in each semester.

Industry partnering facilitates contacts, plus opportunities for co-operative education, research projects and capstone projects, which support mentoring and career placement.

Career enrichment program activities

CCS links students to a large employment network. CCS covers all phases of employment, from counseling through placement. All Scholars must attend a CCS co-op education workshop in the first semester of the scholarship, with the goal of enrolling in a beneficial co-op program. To improve professional and career skills, all Scholars must attend at least one CCS academic counseling session, one career seminar and one personal seminar in each regular semester. Project staff will encourage Scholars to attend other professional enrichment programs offered by their degree programs and the University's writing center. Complementing the efforts of CCS, the PIs will meet with each program's industry advisory boards to engage local companies in the placement of NSF Scholars.

Cooperative education programs, academic counseling, career seminars and personal contacts with industry advisory boards support career placement.

3. Activities on Which the Current Project Builds

Each of the project's components utilizes and expands on existing resources and strategies:

- Recruitment - maximizes advertising channels and recruiting at community colleges
- Mentoring and Support - builds on academic and faculty advising activities by matching each NSF Scholar to his/her own faculty and peer mentors
  a) promotes and facilitates research projects, capstone projects, conferences and publishing opportunities to Scholars (which are already open to every student)
  b) enlists NSF Scholars Organization and career enrichment programs to increase retention and facilitate career placement
- Industry partnering - capitalizes on established links to industry to further expand opportunities in co-op education, research projects, capstone projects and career placement, and to enlist their service in the CSEMS Steering Committee.

Another institutional advantage supports this project. UHCL is an upper-level, two-year undergraduate and graduate institution linked to community colleges in southeast Texas. Because students enter UHCL having completed 54 hours toward their undergraduate education, NSF Scholars will usually graduate within two years. *Scholarships could conceivably benefit twice the number of students within the 4-year period (compared to a traditional four-year institution), allowing NAS to double the impact of NSF funds.*

No previous NSF funding relates to this proposed project.

The project's recruiting, mentoring and support, and industry partnering components build on current activities.

4. CSEMS Project Management Plan

a) Staffing and Faculty Support

Dr. Kwok-Bun Yue, Principal Investigator, will administer this project with the assistance of Co-PI, Dr. Sharon Hall. As the recipient of distinguished teaching awards and curriculum and equipment grants, Dr. Yue has extensive experience implementing similar endeavors. Dr. Hall was the former faculty senate chair of the University. Her experience working with constituents both inside and outside of the institution signals her qualifications for this project. Both of these individuals will work with University faculty and staff to coordinate the project's elements: recruitment, mentoring/support and career placement.

Dr. Yue, Associate Professor of Computer Science and Chair of Computer Information Systems, will interact with NSF. Yue will meet with UHCL faculty and staff to identify venues for recruitment, discuss mentoring issues and assign mentors. He will select businesses for industry activities and work with each degree program's industry advisory boards, soliciting the support of local companies in placing Scholars after graduation. Dr. Hall, Associate Professor of Computer Science, will meet with UHCL recruiters to arrange the project's promotion in targeted community colleges. In addition, she will communicate with industry representatives to coordinate and establish effective partners. Yue and Hall will collaborate on project evaluation.

Dr. Yue will head the CSEMS Steering Committee that will monitor the project. The committee will allow relevant UHCL units and industry representatives to raise issues and suggest improvements. Its composition will include the PIs, the Chair of the Division of Computing and Mathematics; Katherine Kochis, Academic Advisor, NAS; Steve Sutton, Associate Dean of Students; Al Kahn, Director, Career and Counseling Services, one community college spokesperson, and two industry representatives. The Committee will meet at least once each semester to ensure that each entity involved in the project fulfills its function. The meetings will provide opportunities to enhance partnerships and obtain feedback from participating colleges and businesses.

UHCL's Office of Research Administration, under the direction of Dr. Robert Hodgin, will administer the grant. Charles Tarantino, CPA, Director, Research Operations, will establish the budgeted account, monitor expenditures and prepare financial reports. The Dean of NAS is committed to one course release per regular semester for the PIs to use in their preferred way. NAS will also provide $1,500 for Scholar travel to conferences. NAS will also provide secretarial and accounting support. Michael MacDonald, NAS Business Coordinator, will monitor all accounts and prepare monthly reports for the PIs.

The Chairs of the four undergraduate disciplines that this project targets - Computer Science, Computer Information Systems, Computer Systems Engineering and Mathematics - will support the endeavor by promoting the program to students, serving on the Scholarship Committee, assisting with industry mentor programs and identifying faculty mentors. Additional faculty support will come from faculty advisors, who will promote the scholarships to students. Other faculty members may serve as mentors and help organize the industry activities component.

Except for the Steering Committee, all project staff, faculty and institutional personnel are in place, providing a cohesive administrative structure from which to initiate recruiting, mentoring and placement objectives.

b) Advertising and Recruiting

These activities are described in the preceding Project Plan and again in Section 5.

c) Student Selection

Application packets will include an application form, official transcripts in sealed envelopes, a FAFSA form, a statement of purpose, up to three letters of recommendation and an agreement to participate in required program activities. Donna Barrett, NAS Associate Dean's staff will screen applications to determine students' eligibility. She will check the packets for completion, setting aside incomplete applications, which will not be considered. She will then verify compliance with NSF CSEMS eligibility requirements. Finally, she will request copies of transcripts from UHCL registrars to confirm GPAs and FAFSA forms from Financial Aid to verify need.

To select recipients for NSF Scholar awards, a Scholarship Committee within the Division of Computing and Mathematics will meet two months prior to each semester. The Committee will consist of the PIs and a faculty representative from each of the disciplines involved in the project. The Scholarship Committee will select students using the following criteria:

- NSF-CSEMS basic eligibility requirements
- Financial need as defined by the difference between the institutional cost of attendance and the Estimate Family Contribution
- Whether the applicant is a current NSF Scholar
- A minimum GPA of 3.00
- Statement of purpose
- (optional) Up to three letters of recommendation – instructor, counselor, employer.

The committee will not use a fixed-formula selection process for selection. Instead, members will first identify cases that clearly should be accepted or rejected. They will then debate the marginal cases on their relative qualifications, based on the selection criteria, ranking them by a point system, until all awards are filled. This mechanism allows the committee to identify the most qualified students while respecting basic requirements. Scholarship Committee members will document their rationale for selecting every scholar. Realizing that some candidates may have not have yet developed the interpersonal skills or have had prior need for references, we will not require letters of recommendation. Applications from those who qualify but fail to garnish awards will be filed for consideration in the next semester. As with UHCL's experience with Success Through Education Program (STEP) Scholars, re-entrant women, and other students who may not meet traditional criteria, we encourage applicants from diverse backgrounds with diverse career goals to make application to the program.

Well-defined selection criteria and procedures support selecting the best-qualified applicants.

d) Records Maintenance

Donna Barrett, Associate Dean's Office, NAS, holds master files of Scholars' records.

e) Reporting Responsibilities

Using evaluation data, Dr. Yue will draft a report on each activity, which he will submit at each year's end to the Chair of the Division of Computing and Mathematics departments and the Dean of the School of Natural and Applied Sciences for approval, before sending it to NSF.

f) Oversight for Student Support Services

Because mentoring and support are key elements of this endeavor, the PIs have involved the individuals, services and resources that Scholars need to achieve their goals and maximize the

benefits of this program. To address diversity and individual circumstances, initial interviews between Scholars and their mentors will determine unique needs. Mentors will identify, discuss and monitor issues as early as possible, checking on courses taken, GPA, progress toward degree completion, co-op education and participation in support programs. Mentors will notify the PIs immediately of individual needs that have not been addressed.

The PIs will monitor the Scholar's progress and the cohesiveness of the support network to ensure that Scholars have full and unimpaired access to all appropriate personnel, facilities and resources. These actions uphold mentoring and support objectives.

g) Replacement of Students Losing Eligibility

Scholars must demonstrate eligibility in each semester. Although NAS will award scholarships at the beginning of each academic semester, some scholarships may be available in the second semester. Therefore, the Scholarship Committee will meet prior to each semester to determine the availability of scholarships and to select new Scholars, using the same selection criteria. Failure to meet any of the requirements may result in the revocation of the scholarship. See Appendix III for the summary of the requirements for maintaining Scholars' status.

h) Mechanisms for Providing Scholarships

NAS will award 29 scholarships of up to $1,562.50 per semester (not to exceed $3,125 per academic year), to be charged against tuition and fees, followed by a purchase order for the balance of funds in textbooks. The number of awards considers undergraduate enrollment in the four disciplines that this project targets the number of undergraduates in those disciplines who apply for financial aid and undergraduate demographics. An example of the Cost of Attendance for a student taking 12 hours, $1,142 for resident undergraduate tuition and fees, lab fees $40 per course with laboratory component, and approximately $300-$400 for books. Current statistics support that a good pool of eligible scholarship candidates exists. Spring 2001 data from Financial Aid regarding current UHCL Pell-eligible students in CSEMS degree-related curriculum appear in Table 1.

GPA	*CIS*	*CS*	*CSE*	*MATH*	*Undecided*	*Total*
New students (no GPA)	3	5	2	1	0	**11**
GPA < 3.0	12	22	1	3	14	52
GPA >= 3.0	8	13	2	11	2	**36**
All	23	40	5	15	16	99

Table 1 Counts of UHCL Pell grant recipients by GPA in each of four CSEMS-related degree programs, Spring 2001

A sufficiently large candidate pool is available to accommodate 29 criteria-based scholarship awards. Excluding new students—those who have not yet established their GPA at UHCL, 36 of 88 have a GPA of 3.0 or above. Using this ratio, 4 out of the 11 new students will have a GPA of 3.0 or above. The result is an estimated 40 (= 36 + 4) Pell recipients who are eligible for the NSF Scholars program. These data exclude consideration of new recruitment efforts and new enrollment growth patterns.

Additional institutional data report a retention rate of 85% for full-time UHCL students after one academic year, with nearly three-fourths graduating in less than four years. Underscoring the relevance of the project to NAS' technology partners, over 60 companies recruit in CSEMS programs each year, and 85% of graduating students remain in the area, supplying a well-trained technical workforce within the region. These data support offering at least 29 scholarships each year. Because 37% of all UHCL financial aid in FY 2000 went to students representing racial or ethnic minorities, NAS anticipates a similar representation among Scholars.

Direct analysis of Pell grant recipients supports awarding 29 scholarships each year. Providing an adequate number of awards will strengthen partnerships between NAS and the technology industry and will enhance career placement.

i) Evaluating and Disseminating Program Outcomes

The PIs will conduct the project evaluation using a well-defined set of evaluation metrics. Project staff will obtain evaluation data throughout the project. Using exit surveys along with attendance figures from career enrichment programs and all mentoring activities, the PIs will obtain statistics on Scholars. The PIs will use these data to compare Scholars with other students in the degree programs, measuring improvement in degree completion rates, job placement and grade point averages. In addition, the PIs will monitor the success of the NSF Scholars Organization and activities to assess the number and effectiveness of career enrichment program events, and the success of partnerships with community colleges and technology industries. The PI will submit the project evaluation to the Chair of the Division of Computing and Mathematics and the Dean of the School of Natural and Applied Sciences for their independent evaluation. In addition, the PI will use program evaluation data to draft a final report discussing the relative successes of each activity.

Evaluators will determine the program's success using the following outcome measures:

- 90% or more of Scholars maintain their Scholar status
- 85% or more of Scholars complete their degrees within three years
- 85% or more of Scholars find jobs in their areas within two months of graduation
- Average GPA of Scholars is 0.2 higher than average of non-Scholars with the same majors
- 85% or more of Scholars express satisfaction with the program in exit surveys
- Community college partnerships and recruiting efforts meet or exceed proposed activities

One and three years after the Scholars graduates, the PI will conduct two surveys to track their career advancement and continued graduate studies.

Evaluation of the program's activities is systematic, broad-based, interrelated and appropriate.

j) Time-frame and Milestones

NAS will implement the project in the first full semester that follows notice of funding. Assuming a fall start date, NAS will implement the following timetable:

<u>Academic Year Timetable</u>

May Implement advertising strategies and recruiting efforts

August	PIs finalize industry programs for the Fall semester
September	Form NSF Scholars Organization (Year 1)
	Annual Scholars Organization meeting to select student officials
	Scholars program orientation workshop
November	Steering Committee meeting to evaluate Fall semester Scholars
	Scholarship Committee meeting to select Spring Scholars
December	PIs finalize industry programs for Spring semester
January	Scholars program orientation workshop
April	Steering committee meeting
	Division Scholarship committee meeting to select Fall Scholars
May	Annual tabulation of collected Scholars' evaluation metric data completed
	Scholars submit annual reports
June	PIs write the annual report

5. Student Selection Process and Criteria

a) Recruitment Process

Recruitment for Scholars will focus on a general population of students demonstrating financial need paralleled with academic talent in computer science, computer information systems, computer systems engineering and mathematics. Recruiting will be sensitive to students who are traditionally underrepresented in these disciplines: women, persons with disabilities, African Americans, Hispanics, Native Americans and other minorities. Recruiters, NAS faculty, and student personnel will be well-versed with CSEMS' purpose and selection process as an information source to prospective students.

The endeavor holds promise for persons historically underrepresented in these disciplines. Survey results describe a NAS student profile that is 43.1% female, 20.7% Asian, 51.9% Euro-American, 7.9% Hispanic, 3.7% African American and 15.8% international. According to the 2000 US Census, the Houston area's minority population is 25% African American, 5% Asian, and 37% Hispanic. As a State assisted school, UHCL is required to uphold the Hopwood Ruling and not set goals based on admission of specific ethnic groups. Although UHCL does not make race/ethnicity quotas, the University actively recruits among high-minority areas, where most of the feeder institutions are located. Also, NAS undergraduate profile and regional census data indicate a steady increase in minorities, particularly Hispanics, suggesting successful recruitment of this population.

Undergraduate students comprise 62.5% of NAS students, 60.3% of who transferred from two-year institutions. Recruitment efforts will center on publicity and linkages with community colleges. To attract a sizeable pool of qualified candidates, NAS will rely on existing relationships with the 11 community colleges that are a integral part of the pipeline for most UHCL undergraduates, along with other colleges in Southeast Texas that serve minority populations. UHCL recruiters will visit college faculty, explain eligibility criteria and enlist faculty efforts in distributing promotional materials, asking them to identify candidates, and encourage applications. In addition, the PIs will help community colleges that have not applied previously to compete for NSF funds. A partnership with Houston Community College System (HCCS), a Hispanic-serving institution with an NSF Scholars program in place, will include provisions for encouraging applications from their Scholars who enroll at UHCL. An agreement with HCCS, developed to support this project (see Appendix IV), anticipates similar partnerships with other community colleges.

- UHCL NSF Scholars Program faculty mentors will meet with HCCS NSF Scholars to promote the program
- HCCS will assist UHCL in promoting its NSF Scholars program
- HCCS NSF Scholars may participate in UHCL industry programs
- HCCS NSF Scholars will have access to UHCL NSF Scholars faculty mentors
- HCCS and UHCL Scholars Programs will share data about Scholars transferring to UHCL
- HCCS NSF Scholars will receive preferential consideration for NAS awards.

Drawing from existing UHCL resources, NAS will involve Enrollment Services Admissions Counselor Angie Woodfolk-Sprowl and Community College Recruitment Coordinator Wendy McCann in recruitment endeavors. Working at UHCL, Woodfolk-Sprowl will target students applying for undergraduate degrees in the four disciplines. McCann will contact this same population at the community colleges. Both recruiters will aggressively pursue qualified applicants (including underrepresented groups), distribute promotional flyers and application forms to students and promote the scholarship program in semi-monthly student interviews. Bolstering these efforts, NAS faculty will guest-lecture in relevant community college classes to meet students, promote UHCL and publicize the program.

NAS will draft and distribute special promotional flyers encouraging applications from underrepresented groups parallel and in addition to Enrollment Services' and Student Information's marketing efforts. Efforts to recruit women, first-generation college students, persons with disabilities and ethnic and racial minorities will include visits to colleges and universities that sustain significant populations of these students. Currently, UHCL's Enrollment Services pursues outreach to high school classes in economically disadvantaged and broad ethnic areas throughout Southeast Texas, sharing educational opportunities and advantages through the 2+2 and UniLINK transfer plans (see Appendix V). An effective UHCL scholarship-recruiting program, entitled Success Through Education Program (STEP), targets high school students from underserved populations who indicate an interest in teaching careers, then mentors them throughout their tenures at community colleges and UHCL.

The project builds on successful recruiting strategies and partnerships at community colleges to achieve recruiting objectives.

b) Scholarship Selection Process

NAS will award NSF scholarships each regular semester. Students must first meet basic NSF CSEMS eligibility requirements, demonstrate financial need, and have a GPA of 3.00 in all coursework. Along with their application form, students will complete a FAFSA form, screened by Financial Aid. To facilitate evaluation of personal qualities that suggest academic excellence, professional success and personal integrity, candidates will submit one-page personal statements. The selection process will be sensitive to the inclusion of underserved populations and will encourage creativity by granting students wide latitude in the design and content of their personal statements. All students are eligible, including existing students and those from areas that are not recruited. Optional letters of recommendation could come from instructors, employers or other persons familiar with their academic performance, work ethic and character. Finally, to achieve the full benefit and intent of the scholarship, students must agree to participate in mentoring, support, career enrichment and employment activities with faculty, peers, student support services

and industry representatives. Semi-annual reviews will decide the continuing eligibility of CSEMS students.

Specific criteria and a well-defined process facilitate the orderly, equitable selection of the best-qualified candidates.

6. CSEMS Student Support Services and Programs

The University demonstrates its sensitivity to the needs of the students and community through a comprehensive array of support services.

a) Recruitment to Higher Education Programs and Careers in CSEMS Disciplines

NAS builds partnerships with public and private industry and other academic institutions, developing and maintaining outreach programs to meet the changing needs of economic and academic communities. NAS efforts to facilitate career placement begin with Career and Counseling Services, described in detail below. However, NAS undertakes separate recruitment efforts, soliciting the companies that participate in co-operative education programs with NAS students. Among those companies are United Space Alliance, Raytheon, Barrios Technology, Boeing, Enron Networks, Equiva Services and Arthur Andersen. (See Appendix VI for external representative letters of support.)

Outreach programs with academic institutions and industry and institutional placement resources support retention and career placement

b) Student Support and Mentoring by Faculty and Industry Representatives

This project's focus and design reflect UHCL's commitment to the mentoring process. This institution and the four disciplines behind the project are grounded in teaching but stimulated by symbiotic relationships with industry. Accordingly, the mentoring component of this project, described earlier, includes not only a faculty mentor for each scholar but also links to industry mentors through co-operative education, internships, seminars and research projects organized through industry advisory boards.

Mentors both on-campus and throughout the surrounding highly technical industrial community support mentoring and retention.

c) Academic Support Services

UHCL provides academic support services within individual Schools and through instructional facilities designed for all disciplines. Two academic advisors in the School of Natural and Applied Sciences, Cynthia Ustoy and Katherine Kochis, assist with pre-admission for undergraduates, degree plans, petitions and appeals, adding or dropping courses, and grievances. At the Mathematics Center and Writing Center, tutors, software and reference books help students strengthen and improve skills. Instructors and academic advisors in each discipline encourage student study groups and direct students to supplemental tutoring services.

Accessible advisors and tutoring resources enhance mentoring, support, retention and career or higher education placement.

d) Industry Experiences or Internship Opportunities

Combining practical experience, student marketability and recruitment, UHCL and NAS programs arrange internships with local businesses. Both NAS and Career and Counseling

Services have strong relationships with companies that offer internships and co-op opportunities. Co-op students can work from 16 to 40 hours a week. Over 50 companies participate in these programs with CSEMS students.

Established programs with industry partners support mentoring, retention and career placement.

e) Community Building and Support among Scholars

Student life and off-campus involvement is essential to the academic experience. UHCL's Student Services division offers student support services, enhances learning and promotes student participation in social, cultural, recreation and governance programs. The Office of the Associate Vice President for Student Services and Dean of Students provides support and direction for the offices of Student Life (Student Organizations; Special Events; Women's Resources; Health, Wellness and Recreation); Career and Counseling Services; Health and Disability Services; Multicultural and International Student Services; Student Information and Assistance; and Financial Aid. Community College students who enlist in the 2+2 or UniLINK transfer plans are welcomed to join UHCL's student organizations while attending community college, that affords the opportunity to begin collegial experiences with faculty and student peers.

A comprehensive student services network supports performance, retention, and career or higher education placement.

f) Participation in Meetings and Conferences

UHCL instructors promote conference participation to complement experience gained in course work. NAS encourages computer students to participate in IEEE and ACM regional conferences; the MAA (Mathematical Association of America) conference poses opportunities for MATH students. Also, NAS instructors promote regional publishing opportunities. UHCL holds an annual student research conference. Faculty mentors help Scholars publish their papers through organizations such as the South Central Conference of the Consortium of Computing for Small Colleges, which has previously published reviewed student papers. Faculty mentors will help Scholars publish their papers; the NSF Program and the School of NAS will fund travel and registration costs.

Faculty and institutional support of student achievement in research and publication enhances mentoring, retention and career and higher education placement.

g) Access to Technology and Technological Support Personnel

The UHCL Academic Computing laboratories open to all students, has 260 NT Workstations. Its five staff persons and 29 teaching assistants troubleshoot software, hardware and network problems, assist with software classes and provide lab orientation. Students can access the Help Desk 49 hours each week. In addition to this lab, NAS has its own designated labs staffed with support personnel. The CS/CIS lab offers Linux, Solaris and Windows NT/2000 on 102 computers, 24 hours a day. This lab has two full-time staff providing technical support and lab orientation. NAS's Math lab runs Windows NT on 22 computers. The lab is open 24 hours a day and provides technical support and orientation. It employs one full-time person. The CSEN program maintains several laboratories with one support staff for its hardware-oriented courses.

State-of-the-art technology sharpens skills that enhance career or higher education placement.

h) Career Counseling and Job Placement Services for Scholars

Because UHCL enrolls a substantial number of professional students with career goals, Career and Counseling Services (CCS) is a high priority for the University. To establish or advance careers in their degree fields and find jobs while they are enrolled, students access an impressive range of tools through CCS. One program, Counseling and Testing Services, helps students improve personal, academic and professional skills to ensure academic success. Staff help students meet these needs by providing short-term individual counseling sessions, seminars, workshops and small group experiences.

For students in or entering the job market, CCS's resources include: job search assistance; part-time and full-time job listings; resume critiquing; career and job search counseling; computerized career information; workshops on resume writing, salary negotiation, interviewing skills and job-search techniques; a career information resource library; mock interviews; campus interviews; credentials service; resume referrals; and jobs fairs.

Addressing industry's employment needs, CCS's Employer Services Center promotes a responsive environment in which employers are assisted in hiring well-educated and qualified employees. Using this on-line service, companies advance their recruiting efforts by posting job listings; accessing student and alumni resumes; arranging pre-screened or open on-campus recruiting and interviews; and participating in co-operative education programs. Over half of NAS' graduates pursue graduate degrees, and of these, many receive financial support from their employers. Specifically for CSEMS graduates, the PIs will conduct two surveys within three years after the Scholars' graduation to track their successes in career advancement.

Comprehensive CCS programs serving students and employers support academic success, retention and career placement.

7. Quality Educational Programs

Several points speak directly to UHCL's academic and institutional integrity plus its ability to achieve the recruiting, mentoring and placement objectives of the proposed project:

- UHCL is an upper division and masters level institution
- This is a "student-friendly" campus – 100% of CSEMS curriculum-related professors are full time Ph.D. level professors. There are no graduate student teachers.
- Access to faculty by students is direct, encouraged, and timely
- 85% of UHCL graduates find employment in the region
- The Clear Lake area has a predominantly high technology- and aerospace-oriented industry base that seeks well-trained specialist graduates.

The University is an important resource that significantly shores up the high-tech workforce. UHCL trains students well in areas of immediate interest to the region, then sends them to work.

We are a modern campus endowed with every facility and amenity required to implement this project. Adjacent to NASA's Johnson Space Center, UHCL is situated in the heart of Houston's high-technology community and within minutes of Bayport Industrial Complex, the

largest petrochemical cluster in the Western Hemisphere. As one of the leading multi-disciplinary bachelor's and master's degree-granting institutions serving the Texas Gulf Coast, UHCL has earned a solid reputation among the area's industries as a partner in commercial, engineering, human services and trade sectors, especially in the computing, medical, petrochemical and space industries.

a) Accreditation

UHCL is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools to award bachelor's and master's degrees in 57 degree programs. Relevant to this project, Computer Systems Engineering is accredited by ABET, and Computer Science is seeking ABET accreditation by the summer of 2002. Seven accrediting associations outside the CSEMS disciplines attest to UHCL's educational quality.

UHCL holds appropriate accreditation.

b) Academic Integrity

The instructional and research agendas of the four NAS disciplines involved in this proposed project advance UHCL's goals. Small undergraduate classes with an average student to faculty ratio of 28 combined for CS and CIS, 11for CSEN and 7 for Mathematics support effective instruction. A distinguished, dedicated and active faculty stimulates academic achievement and fosters research opportunities. Instructors proffer a good balance between theory and practice by offering not only traditional theoretical courses covering core knowledge in the program areas but also by presenting practical courses that enhance student marketability, such as Internet Application Development, Computer Systems Administration and Advanced Java Development. NAS offers excellent computing resources; some funded through external and internal grants, including two NSF ILI grants.

In exit surveys, NAS graduates confirm academic and institutional quality. For 84.2% of NAS graduates, their current or newly-acquired employment was directly related to their study; 91.7% reported mastery of the knowledge base in their discipline; 79.3% complemented their instructor's competency; 81.2% found their instructors available outside of the classroom; 70.3% believe they acquired the knowledge and skill base to advance employment goals; and 76.5% felt genuinely challenged academically. Over 80% of NAS graduates credited their degree programs with helping them master higher order thinking, develop effective written and verbal expression; apply information technology to access and process information; and identify, assess and monitor learning to achieve personal and professional goals. Graduates valued opportunities to engage in faculty-led research and industry internships.

Outstanding faculty, on-going curriculum refinement and excellent computing resources facilitate instruction that supports recruitment, retention and placement.

c) Retention

UHCL's graduation rates are among the highest of any Texas university, with over 85% of students completing their degrees. From the fall of 1998 to the fall of 1999, retention rates increased 4.67%; data comparing spring of 1999 and 2000 show a 6.2% increase in retention. UHCL's Office of Institutional Effectiveness reports a retention rate of 85% for full-time students after one academic year. Seventy-four percent of students graduate within four years.

UHCL's institutional quality is evident in a retention rate of 85%.

d) Post-graduate Studies

UHCL has no complete data tracking the percentage of students who continue their education at higher degree levels. However, an OIE survey of NAS students completing bachelor's degrees in 2000 reveals that 32.8% intend to continue their education, 23.4% plan to re-enroll at UHCL, 7.8% are considering other institutions and 1.6% have been accepted at other universities. Of the graduates who intended to continue their education, 52.6% plan to earn master's degrees, and 36.8% aspire to doctoral degrees.

UHCL's institutional quality stimulates the pursuit of higher education.

e) Student Placement

UHCL's faculty, staff and administrators provide greater access and broader opportunities for higher education by maintaining critical links to industry. Technology industries aggressively recruit at this campus. Career and Counseling Services and the four undergraduate disciplines that this project targets maintain close ties to industry representatives. Strategies to enhance industry connections include creating industry advisory boards for each program. The CIS advisory board, chaired by Dr. Yue, has been formed for more than five years. Dr. Gary Boetticher is now leading a team of faculty members to expand its scope and form a joint Corporate Partnership Board to cover the CS, CIS, and software engineering programs. The four programs partner with companies such as United Space Alliance, Barrios Technology and IBM on capstone projects and grants. The OIE FY00 graduate survey reveals that 10.9% of graduates in the four degree programs secured employment shortly before graduation. Currently, over 60 high technology organizations such as, NASA, Boeing, Lockheed Martin, United Space Alliance, IBM, BMC Software, Raytheon, and Compaq conduct on-campus interviews with students in the four programs.

Linkages to high technology industries, strengthened through advisory boards, support career placement.

REFERENCES CITED

N/A

BIOGRAPHICAL SKETCH

Kwok-Bun Yue

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Voice: (281) 283-3864; Fax: (281) 283-3869; Email: yue@cl.uh.edu

a. Professional Preparation:

University of Hong Kong	Physics	B.Sc. 1978
Chinese University of Hong Kong	Physics	M.Phil. 1980
University of North Texas	Computer Science	M.S. 1985
University of North Texas	Computer Science	Ph.D. 1988

b. Appointments:

8/94 - present	University of Houston-Clear Lake, Associate Professor, Computer Science
8/93 - present	University of Houston-Clear Lake, Computer Information Systems Chairperson
8/88 - 7/94	University of Houston-Clear Lake, Assistant Professor
9/85 - 5/88	University of North Texas, Teaching Fellow
1/86 - 5/87	University of North Texas, Research Assistant

c. Publications:

(i) Publications Closely Related to the Proposed Project:

1. Yue, K. Server-Side Web Programming Assignment. *J. Computing in Small Colleges*, vol. 15, no. 3, March 2000, pp 193 to 200.
2. Yue, K. An undergraduate web-based database project. *J. Computing in Small Colleges*. 12, 4, 137-144, April 1998.
3. Yue, K. An Undergraduate Course In Concurrent Programming Using Ada. *SIGCSE Bulletin*, vol. 26, no. 4 (December 1994), pp 59-62. 1998.
4. Yue, K. Using CLIPS as the cornerstone of a graduate expert systems course. Proceedings of the 2nd Annual CLIPS Users Conference, September 1991.
5. Yue, K. Using the game Cube-4 as an example in an introductory artificial intelligence course. *SIGCSE Bulletin*, vol. 21, no. 3 (September 1989), pp 8-10.

(ii) Other Significant Publications:

1. Yue, K. An Optimal Algorithm For Reducing Edge-Solvable Mutual Exclusion Graphs. *The Computer Journal*. vol. 37, no. 2 (1994), pp 129-138.
2. Yue, K. & R. Jacob. An Efficient Starvation-Free Semaphore Solution for the Graphical Mutual Exclusion Problem. *The Computer Journal*. vol. 34, no. 4 (August 1991), pp 345-349.

d. Synergistic Activities:

- Recipient of numerous external and internal equipment and software grants, including two NSF ILI grants.
- Chair of Computer Information Systems from 1993 to present; increased enrollment of the program by more than 150% at this period.
- UHCL's nominee for the Texas State Piper Professor Teaching Award, 1994.
  Finalist, UHCL's nominee for the Texas State Piper Professor Teaching Award, 1992, 1993, 1997, 1999, and 2000.
  Description from UHCL Faculty Handbook: Each year UHCL students have an opportunity to nominate outstanding teachers within faculty. The name and credentials of one of these outstanding teachers will be recommended for a Minnie Stevens Piper Award, a state award that recognizes outstanding college/university teaching throughout the state of Texas.
- Recipient, the 1993 UHCL President's Distinguished Teaching Award/Enron Teaching Excellence Award.
  Official description: UHCL Distinguished Teaching Award recognizes exemplary accomplishment in the craft of teaching, wherein the recipient is recognized as a master teacher by his or her peers. A master teacher is a model of substantive learning and rapport with students.
- The Honored Alumnus for the Department of Computer Sciences, School of Arts and Sciences, University of North Texas, April 1997.

e. Collaborators & Other Affiliations

(i) Collaborators:
Richard Bailey, Ph.D., San Jacinto College North
Sandra G. Johnson, Barrios Technology
Joseph A. Lopez, Reliant Energy, HL&P/Entex
Andy Montez, Houston Community College System
K. M. Tamer, United Space Alliance

(ii) Graduate and Postdoctoral Advisors:

Dr. R. T. Jabob, University of North Texas, Computer Science Department, dissertation advisor.

(iii) Thesis Advisor and Postgraduate-Scholar Sponsor:

Served as the chair of the thesis committees of Mr. Joseph Mill and Mr. Christopher Strokes. Advised about 250 CIS graduate students in the past.

BIOGRAPHICAL SKETCH

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a. Professional Preparation:

Graceland College, Iowa	Mathematics	B.A. 1974
North Texas State University	Computer Science	M.S. 1977
Texas A&M University	Computer Science	Ph.D. 1980

b. Appointments:

8/91 - present	University of Houston-Clear Lake, Associate Professor
8/85 - 8/91	University of Houston-Clear Lake, Assistant Professor
8/83 - 8/85	North Texas State University, Assistant Professor
8/82 - 8/83	University of Texas, Austin, Lecturer
8/77 - 5/80	Texas A&M University, Instructor
8/76 - 5/77	North Texas State University, Instructor
8/74 - 5/76	Ysleta High School, El Paso, Texas, High School Math

c. Publications:

(i) Publications Closely Related to the Proposed Project: None

(ii) Other Significant Publications:

1. Perkins, S. and L. J. Lester. "A Computer Vision System for Aquaculture Genetics," World Aguaculture, March, 1990, pp. 63-65.
2. Perkins, S. and V. T. Rhyne. "An Algorithm for Identifying and Selecting the Prime Implicants of a Multiple-Output Boolean Function," IEEE Transactions on Computer Aided Design, November, 1988, pp. 1215-1218.
3. Perkins, S., "Applications of Computer Graphics and Image Processing for Recognition of Individuals," International Society for Mini and Microcomputers (ISMM) Conference on Computer Applications in Design, Simulation and Analysis, New Orleans, LA, March, 1990, pp. 98-100.
4. Perkins, S., "Image Processing Techniques Applied to the Broodstock Selection of Shrimp," International Association of Science and Technology for Development (lASTED) Conference on Applied Simulation and Modelling, Santa Barbara, CA, November, 1989, pp. 86-89.
5. Arend, M. and S. Perkins. "A Method for Tailoring the Information Content of a Software Process Model," Fifteenth Annual Software Engineering Workshop, NASA, Goddard Space Flight Center, November, 1990.

d. Synergistic Activities:

1. Selected to participate as a student in the Earth Sciences Summer School, sponsored by the Jet Propulsion Laboratory, held at Caltech in Pasadena, California, August, 1993.
2. Associate Dean, NAS, 1991 to 1992.
3. Faculty sponsor for the UHCL student chapter of IEEE, 1994 to 1996.
4. Faculty sponsor for the UHCL chapter of Alpha Chi, 1990 to 1998.
5. Chair and Vice Chair of the UHCL Faculty Senate, 1993 to 1995.
6. Advisory Board for Computing Programs at College of the Mainland, 1996 to present.

e. Collaborators & Other Affiliations

(i) Collaborators:

Richard Bailey, Ph.D., San Jacinto College North
Sandra G. Johnson, Barrios Technology
Joseph A. Lopez, Reliant Energy, HL&P/Entex
Andy Montez, Houston Community College System
K. M. Tamer, United Space Alliance

(ii) Graduate and Postdoctoral Advisors:

V. Thomas Rhyne, Ph.D., Texas A&M University (retired)
Dan Drew, Ph.D., Texas A&M University (retired)
Denis Conrady, North Texas State University (retired)

(iii) Thesis Advisor and Postgraduate-Scholar Sponsor:

Mario Martinez, Information Warfare, completing thesis August 2001
Previous thesis committees:

- Usha Machiraju: Analysis of Advanced Interactive Multimedia Training Systems Using the General Systems Performance Theory (graduated December 1999)
- Farhan Shaikh: Measuring Performance of High Speed Networks for Multimedia Training Systems Under General Systems Performance Theory (graduated August 1999)
- Jana Willis: Using Computer Programming to Teach Problem Solving and Logic Skills: The Impact of Object-Oriented Languages (graduated June 1999 with degree in Instructional Technology)
- Rama Shastri: General Systems Performance Theory Characterization of Broadband Networks (graduated 1998)

Graduate Students advised over the past 5 years: ~60

SUMMARY PROPOSAL BUDGET

YEAR 1

FOR NSF USE ONLY		
PROPOSAL NO.	DURATION (months) Proposed	Granted
AWARD NO.		

ORGANIZATION: **University of Houston - Clear Lake**

PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR: **Kwok-Bun Yue**

A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)	NSF Funded Person-mos. CAL	ACAD	SUMR	Funds Requested By proposer	Funds granted by NSF (if different)
1. **Kwok-Bun Yue**	**0.00**	**0.00**	**0.00**	$ **0**	$
2. **Sharon Perkins-Hall**	**0.00**	**0.00**	**0.00**	**0**	
3.					
4.					
5.					
6. (**0**) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)	**0.00**	**0.00**	**0.00**	**0**	
7. (**2**) TOTAL SENIOR PERSONNEL (1 - 6)	**0.00**	**0.00**	**0.00**	**0**	
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. (**0**) POST DOCTORAL ASSOCIATES	**0.00**	**0.00**	**0.00**	**0**	
2. (**0**) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)	**0.00**	**0.00**	**0.00**	**0**	
3. (**0**) GRADUATE STUDENTS				**0**	
4. (**0**) UNDERGRADUATE STUDENTS				**0**	
5. (**0**) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)				**0**	
6. (**0**) OTHER				**0**	
TOTAL SALARIES AND WAGES (A + B)				**0**	
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)				**0**	
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)				**0**	
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING $5,000.)					
TOTAL EQUIPMENT				**0**	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSESSIONS)				**1,500**	
2. FOREIGN				**0**	
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS $ **90,625**					
2. TRAVEL **1,500**					
3. SUBSISTENCE **0**					
4. OTHER **3,500**					
TOTAL NUMBER OF PARTICIPANTS (**29**) TOTAL PARTICIPANT COSTS				**95,625**	
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES				**0**	
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION				**2,875**	
3. CONSULTANT SERVICES				**0**	
4. COMPUTER SERVICES				**0**	
5. SUBAWARDS				**0**	
6. OTHER				**0**	
TOTAL OTHER DIRECT COSTS				**2,875**	
H. TOTAL DIRECT COSTS (A THROUGH G)				**100,000**	
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) **(Rate: , Base:)**					
TOTAL INDIRECT COSTS (F&A)				**0**	
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)				**100,000**	
K. RESIDUAL FUNDS (IF FOR FURTHER SUPPORT OF CURRENT PROJECTS SEE GPG II.D.7.j.)				**0**	
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)				$ **100,000**	$

M. COST SHARING PROPOSED LEVEL $ **19,249** AGREED LEVEL IF DIFFERENT $

PI / PD TYPED NAME & SIGNATURE*: **Kwok-Bun Yue** DATE

ORG. REP. TYPED NAME & SIGNATURE* DATE

FOR NSF USE ONLY

INDIRECT COST RATE VERIFICATION

Date Checked	Date Of Rate Sheet	Initials - ORG

SUMMARY PROPOSAL BUDGET

YEAR 2

FOR NSF USE ONLY		
PROPOSAL NO.	DURATION (months) Proposed	Granted
AWARD NO.		

ORGANIZATION: **University of Houston - Clear Lake**

PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR: **Kwok-Bun Yue**

A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)	NSF Funded Person-mos. CAL	ACAD	SUMR	Funds Requested By proposer	Funds granted by NSF (if different)
1. **Kwok-Bun Yue - none**	**0.00**	**0.00**	**0.00**	$ **0**	$
2. **Sharon Perkins-Hall - none**	**0.00**	**0.00**	**0.00**	**0**	
3.					
4.					
5.					
6. (**0**) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)	**0.00**	**0.00**	**0.00**	**0**	
7. (**2**) TOTAL SENIOR PERSONNEL (1 - 6)	**0.00**	**0.00**	**0.00**	**0**	
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. (**0**) POST DOCTORAL ASSOCIATES	**0.00**	**0.00**	**0.00**	**0**	
2. (**0**) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)	**0.00**	**0.00**	**0.00**	**0**	
3. (**0**) GRADUATE STUDENTS				**0**	
4. (**0**) UNDERGRADUATE STUDENTS				**0**	
5. (**0**) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)				**0**	
6. (**0**) OTHER				**0**	
TOTAL SALARIES AND WAGES (A + B)				**0**	
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)				**0**	
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)				**0**	
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING $5,000.)					
TOTAL EQUIPMENT				**0**	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSESSIONS)				**1,500**	
2. FOREIGN				**0**	
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS $ **90,625**					
2. TRAVEL **1,500**					
3. SUBSISTENCE **0**					
4. OTHER **3,500**					
TOTAL NUMBER OF PARTICIPANTS (**29**) TOTAL PARTICIPANT COSTS				**95,625**	
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES				**0**	
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION				**2,875**	
3. CONSULTANT SERVICES				**0**	
4. COMPUTER SERVICES				**0**	
5. SUBAWARDS				**0**	
6. OTHER				**0**	
TOTAL OTHER DIRECT COSTS				**2,875**	
H. TOTAL DIRECT COSTS (A THROUGH G)				**100,000**	
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) **(Rate: , Base:)**					
TOTAL INDIRECT COSTS (F&A)				**0**	
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)				**100,000**	
K. RESIDUAL FUNDS (IF FOR FURTHER SUPPORT OF CURRENT PROJECTS SEE GPG II.D.7.j.)				**0**	
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)				$ **100,000**	$

M. COST SHARING PROPOSED LEVEL $ **20,782** AGREED LEVEL IF DIFFERENT $

PI / PD TYPED NAME & SIGNATURE*: **Kwok-Bun Yue** DATE

ORG. REP. TYPED NAME & SIGNATURE* DATE

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INDIRECT COST RATE VERIFICATION

Date Checked	Date Of Rate Sheet	Initials - ORG

SUMMARY PROPOSAL BUDGET

YEAR 3

FOR NSF USE ONLY		
PROPOSAL NO.	DURATION (months) Proposed	Granted
AWARD NO.		

ORGANIZATION: **University of Houston - Clear Lake**

PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR: **Kwok-Bun Yue**

A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)	NSF Funded Person-mos. CAL	ACAD	SUMR	Funds Requested By proposer	Funds granted by NSF (if different)
1. **Kwok-Bun Yue - none**	**0.00**	**0.00**	**0.00**	$ **0**	$
2. **Sharon Perkins-Hall - none**	**0.00**	**0.00**	**0.00**	**0**	
3.					
4.					
5.					
6. (**0**) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)	**0.00**	**0.00**	**0.00**	**0**	
7. (**2**) TOTAL SENIOR PERSONNEL (1 - 6)	**0.00**	**0.00**	**0.00**	**0**	
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. (**0**) POST DOCTORAL ASSOCIATES	**0.00**	**0.00**	**0.00**	**0**	
2. (**0**) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)	**0.00**	**0.00**	**0.00**	**0**	
3. (**0**) GRADUATE STUDENTS				**0**	
4. (**0**) UNDERGRADUATE STUDENTS				**0**	
5. (**0**) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)				**0**	
6. (**0**) OTHER				**0**	
TOTAL SALARIES AND WAGES (A + B)				**0**	
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)				**0**	
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)				**0**	
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING $5,000.)					
TOTAL EQUIPMENT				**0**	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSESSIONS)				**1,500**	
2. FOREIGN				**0**	
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS $ **90,625**					
2. TRAVEL **1,500**					
3. SUBSISTENCE **0**					
4. OTHER **3,500**					
TOTAL NUMBER OF PARTICIPANTS (**29**) TOTAL PARTICIPANT COSTS				**95,625**	
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES				**0**	
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION				**2,875**	
3. CONSULTANT SERVICES				**0**	
4. COMPUTER SERVICES				**0**	
5. SUBAWARDS				**0**	
6. OTHER				**0**	
TOTAL OTHER DIRECT COSTS				**2,875**	
H. TOTAL DIRECT COSTS (A THROUGH G)				**100,000**	
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) **(Rate: , Base:)**					
TOTAL INDIRECT COSTS (F&A)				**0**	
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)				**100,000**	
K. RESIDUAL FUNDS (IF FOR FURTHER SUPPORT OF CURRENT PROJECTS SEE GPG II.D.7.j.)				**0**	
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)				$ **100,000**	$

M. COST SHARING PROPOSED LEVEL $ **21,330** AGREED LEVEL IF DIFFERENT $

PI / PD TYPED NAME & SIGNATURE*: **Kwok-Bun Yue** DATE

ORG. REP. TYPED NAME & SIGNATURE* DATE

FOR NSF USE ONLY		
INDIRECT COST RATE VERIFICATION		
Date Checked	Date Of Rate Sheet	Initials - ORG

SUMMARY PROPOSAL BUDGET

YEAR 4

FOR NSF USE ONLY		
PROPOSAL NO.	DURATION (months) Proposed	Granted
AWARD NO.		

ORGANIZATION
University of Houston - Clear Lake

PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR
Kwok-Bun Yue

A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)	NSF Funded Person-mos. CAL	ACAD	SUMR	Funds Requested By proposer	Funds granted by NSF (if different)
1. **Kwok-Bun Yue - none**	**0.00**	**0.00**	**0.00**	$ **0**	$
2. **Sharon Perkins-Hall - none**	**0.00**	**0.00**	**0.00**	**0**	
3.					
4.					
5.					
6. (**0**) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)	**0.00**	**0.00**	**0.00**	**0**	
7. (**2**) TOTAL SENIOR PERSONNEL (1 - 6)	**0.00**	**0.00**	**0.00**	**0**	
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. (**0**) POST DOCTORAL ASSOCIATES	**0.00**	**0.00**	**0.00**	**0**	
2. (**0**) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)	**0.00**	**0.00**	**0.00**	**0**	
3. (**0**) GRADUATE STUDENTS				**0**	
4. (**0**) UNDERGRADUATE STUDENTS				**0**	
5. (**0**) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)				**0**	
6. (**0**) OTHER				**0**	
TOTAL SALARIES AND WAGES (A + B)				**0**	
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)				**0**	
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)				**0**	
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING $5,000.)					
TOTAL EQUIPMENT				**0**	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSESSIONS)				**1,500**	
2. FOREIGN				**0**	
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS $ **90,625**					
2. TRAVEL **1,500**					
3. SUBSISTENCE **0**					
4. OTHER **3,500**					
TOTAL NUMBER OF PARTICIPANTS (**29**) TOTAL PARTICIPANT COSTS				**95,625**	
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES				**0**	
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION				**2,875**	
3. CONSULTANT SERVICES				**0**	
4. COMPUTER SERVICES				**0**	
5. SUBAWARDS				**0**	
6. OTHER				**0**	
TOTAL OTHER DIRECT COSTS				**2,875**	
H. TOTAL DIRECT COSTS (A THROUGH G)				**100,000**	
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) **(Rate: , Base:)**					
TOTAL INDIRECT COSTS (F&A)				**0**	
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)				**100,000**	
K. RESIDUAL FUNDS (IF FOR FURTHER SUPPORT OF CURRENT PROJECTS SEE GPG II.D.7.j.)				**0**	
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)				$ **100,000**	$

M. COST SHARING PROPOSED LEVEL $ **21,895** AGREED LEVEL IF DIFFERENT $

PI / PD TYPED NAME & SIGNATURE*
Kwok-Bun Yue

DATE

ORG. REP. TYPED NAME & SIGNATURE*

DATE

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INDIRECT COST RATE VERIFICATION

Date Checked	Date Of Rate Sheet	Initials - ORG

SUMMARY PROPOSAL BUDGET

Cumulative

FOR NSF USE ONLY		
PROPOSAL NO.	DURATION (months) Proposed	Granted
AWARD NO.		

ORGANIZATION: **University of Houston - Clear Lake**

PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR: **Kwok-Bun Yue**

A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)	NSF Funded Person-mos. CAL	ACAD	SUMR	Funds Requested By proposer	Funds granted by NSF (if different)
1. **Kwok-Bun Yue**	**0.00**	**0.00**	**0.00**	$ **0**	$
2. **Sharon Perkins-Hall**	**0.00**	**0.00**	**0.00**	**0**	
3.					
4.					
5.					
6. ( ) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)	**0.00**	**0.00**	**0.00**	**0**	
7. (**2**) TOTAL SENIOR PERSONNEL (1 - 6)	**0.00**	**0.00**	**0.00**	**0**	
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. (**0**) POST DOCTORAL ASSOCIATES	**0.00**	**0.00**	**0.00**	**0**	
2. (**0**) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)	**0.00**	**0.00**	**0.00**	**0**	
3. (**0**) GRADUATE STUDENTS				**0**	
4. (**0**) UNDERGRADUATE STUDENTS				**0**	
5. (**0**) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)				**0**	
6. (**0**) OTHER				**0**	
TOTAL SALARIES AND WAGES (A + B)				**0**	
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)				**0**	
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)				**0**	
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING $5,000.)					
TOTAL EQUIPMENT				**0**	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSESSIONS)				**6,000**	
2. FOREIGN				**0**	
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS $ **362,500**					
2. TRAVEL **6,000**					
3. SUBSISTENCE **0**					
4. OTHER **14,000**					
TOTAL NUMBER OF PARTICIPANTS (**116**) TOTAL PARTICIPANT COSTS				**382,500**	
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES				**0**	
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION				**11,500**	
3. CONSULTANT SERVICES				**0**	
4. COMPUTER SERVICES				**0**	
5. SUBAWARDS				**0**	
6. OTHER				**0**	
TOTAL OTHER DIRECT COSTS				**11,500**	
H. TOTAL DIRECT COSTS (A THROUGH G)				**400,000**	
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE)					
TOTAL INDIRECT COSTS (F&A)				**0**	
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)				**400,000**	
K. RESIDUAL FUNDS (IF FOR FURTHER SUPPORT OF CURRENT PROJECTS SEE GPG II.D.7.j.)				**0**	
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)				$ **400,000**	$

M. COST SHARING PROPOSED LEVEL $ **83,256** AGREED LEVEL IF DIFFERENT $

PI / PD TYPED NAME & SIGNATURE*: **Kwok-Bun Yue** DATE

ORG. REP. TYPED NAME & SIGNATURE* DATE

FOR NSF USE ONLY

INDIRECT COST RATE VERIFICATION

Date Checked	Date Of Rate Sheet	Initials - ORG

NSF Form 1030 (10/99) Supersedes all previous editions

C***SIGNATURES REQUIRED ONLY FOR REVISED BUDGET (GPG III.B)**

BUDGET JUSTIFICATION

Note: Sections E – H (federal costs) are consistent for all four years. Section M (cost sharing) varies only in salary due to cost-of-living estimates.

		4-yr. Cumulative
E. Travel		
1. Domestic $1,500 federal share, $1,500 cost shared		
a. Round-trip UHCL to community colleges for PIs, faculty mentors, to pursue promotional and partnership activities, approximately 446 miles per month, (5,357 mi. x .28/mi.) =	$ 1,500	
b. IEEE, ACM, or MAA conference regional conferences for faculty mentor and coach students in presenting papers at a regional conference, paid with School of NAS funds. (Dallas, TX used as a sample location.)		
1 faculty mentor, 2 Scholars @ $500 ea. (see detail in Student Travel section)	$ 1,500	
Total Travel, Federal and Cost Shared	$ 3,000	$ 6,000
F. Student Support		
1.Scholarships		
a. Tuition and fees, 12 hrs. resident undergraduate (2001 rates = $1,142)		
b. Lab Fees ($40 x 3 courses) = $120		
c. Textbooks, $300.50		
Subtotal = $1,562.50 per semester ($1,562.50 X 2 semesters X 29 Scholars) =	$90,625	$362,500
2. Travel, IEEE, ACM, or MAA conference		
R/T Airfare, Houston Hobby to Dallas Love	$ 150	
Lodging, 2 nights @ $70 each =	$ 140	
Meals, 2.5 days =	$ 65	
Taxi, Airport Parking	$ 45	
Conference Registration	$ 100	
Subtotal	$ 500	
Total $500 X 3 Scholars per year	$ 1,500	$ 6,000

		4-yr. Cumulative
3. Other		
a. NSF Scholars Organization banners, Flyers, exhibits, database and Website setup, activities (i.e. guest speakers)	$ 2,000	
b. Postage for surveys and outreach	$ 75	
c. Company visits, seminars, etc.	$ 1,425	
Total Other	$ 3,500	$14,000
G. Other Direct Costs		
1. Printing/Distribution design, layout and production of promotional flyers, posters, banners, videos	$ 2,875	$ 11,500
H. Total Federal Costs	$100,000	$400,000
M. Cost Sharing		
1. Dr. Yue, 1 acad. yr. course release		
Yr. 1 ($73,695 X 12.5%) =	$ 9,212	
Yr. 2 ($75,906 X 12.5%) =	$ 9,488	
Yr. 3 ($78,183 X 12.5%) =	$ 9,773	
Yr. 4 ($80,528 X 12.5%) =	$ 10,066	
2. Dr. Hall, 1 acad. yr. course release		
Yr. 1 ($68,299 X 12.5%) =	$ 8,537	
Yr. 2 ($70,349 X 12.5%) =	$ 8,794	
Yr. 3 ($72,459 X 12.5%) =	$ 9,057	
Yr. 4 ($74,633 X 12.5%) =	$ 9,329	
3. Travel, Faculty Mentors	$ 1,500	
Total Cost Sharing		$83,256

Current and Pending Support

(See GPG Section II.D.8 for guidance on information to include on this form.)

The following information should be provided for each investigator and other senior personnel. Failure to provide this information may delay consideration of this proposal.

Investigator: **Kwok-Bun Yue**	Other agencies (including NSF) to which this proposal has been/will be submitted.

Support: ☐ Current ☒ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support

Project/Proposal Title: **NSF Scholars Program**

Source of Support: **National Science Foundation**

Total Award Amount: $ **400,000** Total Award Period Covered: **09/01/02 - 08/31/06**

Location of Project: **University of Houston-Clear Lake**

Person-Months Per Year Committed to the Project. Cal: **1.00** Acad: **0.00** Sumr: **0.00**

Support: ☐ Current ☒ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support

Project/Proposal Title: **XML Application Development**

Source of Support: **Faculty Development Fund, Natural & Applied Sciences School**

Total Award Amount: $ **2,000** Total Award Period Covered: **09/01/01 - 12/31/01**

Location of Project: **University of Houston-Clear Lake**

Person-Months Per Year Committed to the Project. Cal: **1.13** Acad: **0.00** Sumr: **0.00**

Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support

Project/Proposal Title:

Source of Support:

Total Award Amount: $ Total Award Period Covered:

Location of Project:

Person-Months Per Year Committed to the Project. Cal: Acad: Sumr:

Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support

Project/Proposal Title:

Source of Support:

Total Award Amount: $ Total Award Period Covered:

Location of Project:

Person-Months Per Year Committed to the Project. Cal: Acad: Sumr:

Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support

Project/Proposal Title:

Source of Support:

Total Award Amount: $ Total Award Period Covered:

Location of Project:

Person-Months Per Year Committed to the Project. Cal: Acad: Summ:

*If this project has previously been funded by another agency, please list and furnish information for immediately preceding funding period.

Current and Pending Support

(See GPG Section II.D.8 for guidance on information to include on this form.)

The following information should be provided for each investigator and other senior personnel. Failure to provide this information may delay consideration of this proposal.

Investigator: **Sharon Perkins-Hall**

Other agencies (including NSF) to which this proposal has been/will be submitted.

Support: ☐ Current ☒ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support
Project/Proposal Title: **NSF Scholars Program**

Source of Support: **National Science Foundation**
Total Award Amount: $ **400,000** Total Award Period Covered: **09/01/02 - 08/31/06**
Location of Project: **University of Houston-Clear Lake**
Person-Months Per Year Committed to the Project. Cal: **1.00** Acad: **0.00** Sumr: **0.00**

Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support
Project/Proposal Title:

Source of Support:
Total Award Amount: $ Total Award Period Covered:
Location of Project:
Person-Months Per Year Committed to the Project. Cal: Acad: Sumr:

Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support
Project/Proposal Title:

Source of Support:
Total Award Amount: $ Total Award Period Covered:
Location of Project:
Person-Months Per Year Committed to the Project. Cal: Acad: Sumr:

Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support
Project/Proposal Title:

Source of Support:
Total Award Amount: $ Total Award Period Covered:
Location of Project:
Person-Months Per Year Committed to the Project. Cal: Acad: Sumr:

Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support
Project/Proposal Title:

Source of Support:
Total Award Amount: $ Total Award Period Covered:
Location of Project:
Person-Months Per Year Committed to the Project. Cal: Acad: Summ:

*If this project has previously been funded by another agency, please list and furnish information for immediately preceding funding period.

FACILITIES, EQUIPMENT & OTHER RESOURCES

FACILITIES: Identify the facilities to be used at each performance site listed and, as appropriate, indicate their capacities, pertinent capabilities, relative proximity, and extent of availability to the project. Use "Other" to describe the facilities at any other performance sites listed and at sites for field studies. USE additional pages as necessary.

Laboratory: **University and NAS-supported computer laboratories resident on Windows NT platform (142 desktop units available to all CIS and Math students). Operating systems: LINUX, SOLARIS & Windows NT.**

Clinical: **This project does not use any clinical resources or subjects.**

Animal: **This project does not use any animals.**

Computer: **All UHCL students have access to the internet, student email, supported software and university-supported Windows NT system. Minimum desktop configuration: Acer AX6B, 2000 compliant BIOS,Intel Pentium II 200 BOX CPU, 128 Meg**

Office: **This project will use existing offices within the university.**

Other: **N/A**

MAJOR EQUIPMENT: List the most important items available for this project and, as appropriate identifying the location and pertinent capabilities of each.

No major equipment needed is for this project.

OTHER RESOURCES: Provide any information describing the other resources available for the project. Identify support services such as consultant, secretarial, machine shop, and electronics shop, and the extent to which they will be available for the project. Include an explanation of any consortium/contractual arrangements with other organizations.

UHCL provides secretarial and other supports for this project through the existing offices of various involving units.

Continuation Page:

LABORATORY FACILITIES (continued):

Software for the NAS Windows lab: Rational Enterprise Suite, Oracle 8i client, Oracle 8i Developer and Designer, MS SQL Server 2000 client, Microsoft's Visual Studio 6.0, Visual Cafe Database Edition 3.0, Metrowerk's Code Warrior 2.0, Java JDK, J2EE, J2SE, Bluestone's XML suite, Xerces, Xalan, IBM XSLTrace, JRun Studio, Cold Fusion Studio, Perl and many other productivity software and utilities.

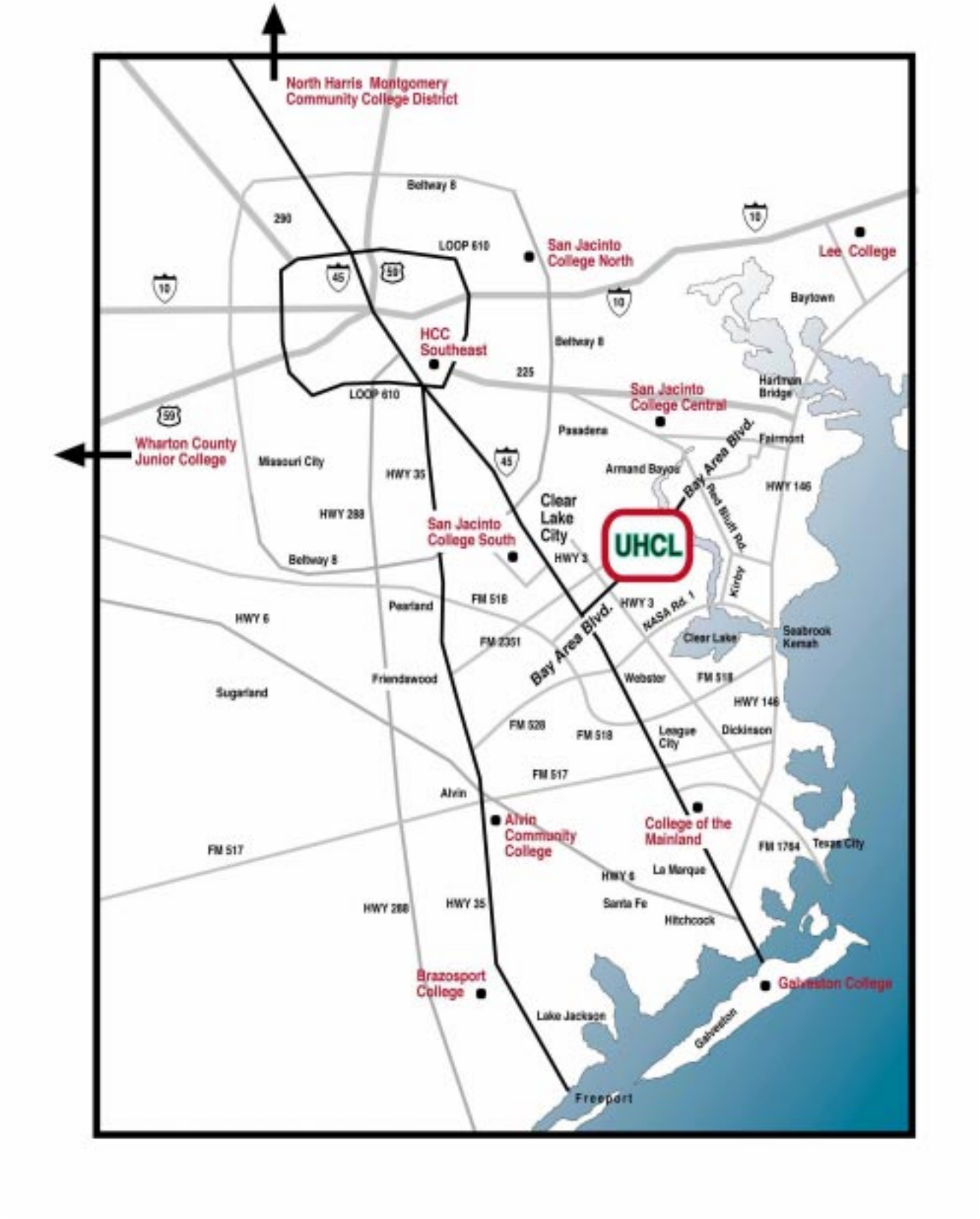
Software for the Sun/Solaris lab: Perl, Python, Bison, tcl/tk, emacs, Java JDK, J2EE, J2SE, Forte for Java, Open GL Version 1.2, StarOffice 5.0, gcc, gdb, ghostscript, ghostview and many other utilities.

Software for the Math lab: Mathematica, Mathlab, and many other utilities.

COMPUTER FACILITIES (continued):

memory, SDRAMM DIMM PC100, 17" .25 1280X1024 SVGA monitor, 1.44 FDD 3.5" drive, PS2/Wheel mouse, 3Com PCI 10/100mps 3C905B-XT NIC card, Maxtor 8.4 gig UTA hard drive, Aopen 16X IDE ROM drive.

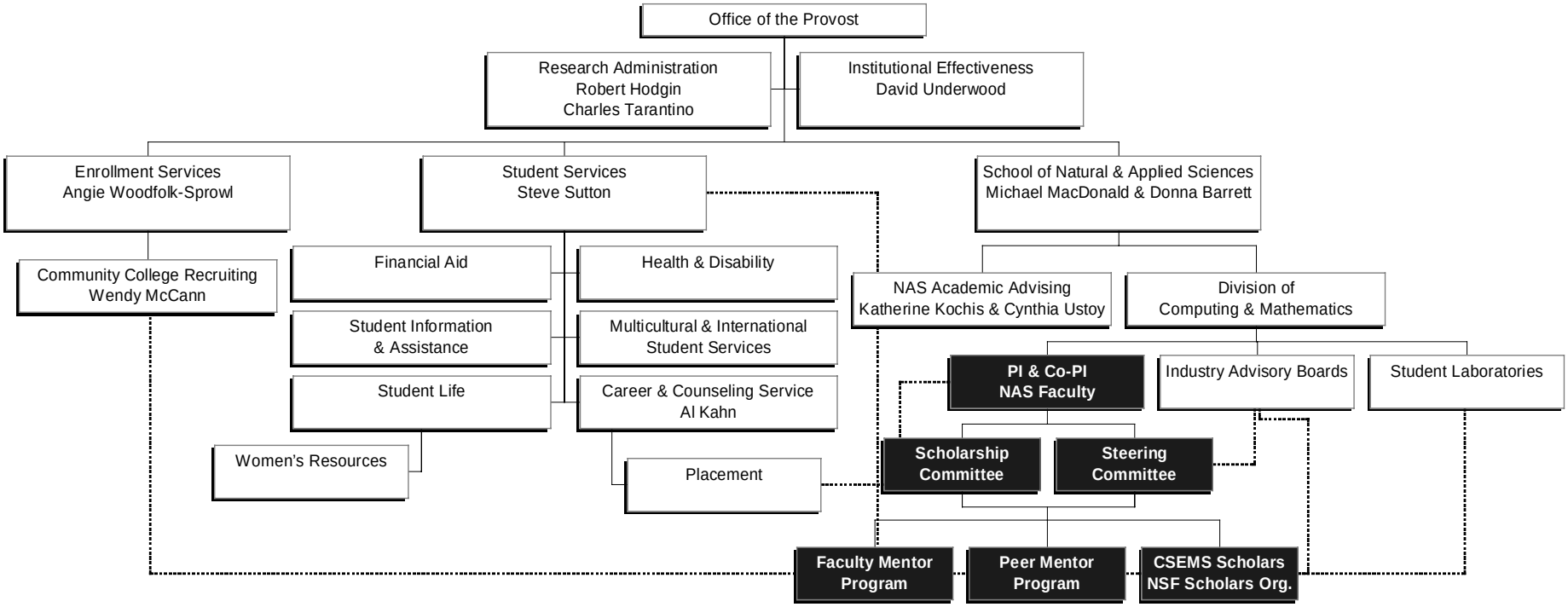
APPENDIX I


North Harris Montgomery Community College District
Beltway 8
290
LOOP 610
San Jacinto College North
Lee College
10
45
59
Baytown
HCC Southeast
225
Hartman Bridge
San Jacinto College Central
Wharton County Junior College
Missouri City
Pasadena
Fairmont
HWY 35
Armand Bayou
Bay Area Blvd.
HWY 146
HWY 288
Clear Lake City
UHCL
San Jacinto College South
Reed Bluff Rd.
Kirby
HWY 3
Pearland
FM 518
NASA Rd. 1
HWY 6
FM 2351
Clear Lake
Seabrook
Kemah
Friendswood
Webster
Sugarland
HWY 146
FM 528
League City
Dickinson
FM 517
Alvin
Alvin Community College
College of the Mainland
FM 1764
Texas City
La Marque
Santa Fe
Hitchcock
Brazosport College
Galveston College
Lake Jackson
Galveston
Freeport

Alvin Community College
Brazosport College
College of the Mainland
Galveston College
Houston Community College District
Lee College
North Harris Montgomery Community College District
San Jacinto College - Central
San Jacinto College - North
San Jacinto College - South
Wharton County Junior College

Appendix II

UHCL NSF Scholars Management Organization



APPENDIX III

To maintain their NSF Scholar Status, all students must:

- Meet NSF-CSEMS basic eligibility requirements and demonstrate financial need
- Take a minimum of 12 credit hours in all but the final semester of their studies
- Maintain a minimum overall 2.8 GPA
- Attend orientation workshop on entry
- Attend monthly meeting with faculty mentor to monitor progress
- Submit a brief report to faculty mentor
- Join and actively participate in the NSF Scholars Organization
- Meet with peer mentors at least twice each semester
- Serve as mentors in senior years
- Attend at least one industry program per regular semester
- Attend a co-operative education orientation workshop in the final semester
- Attend at least one academic counseling session, one career seminar, and one personal seminar in each regular semester

HOUSTON COMMUNITY COLLEGE SYSTEM

April 17, 2001

Dr. Harriet Taylor
Dr. Diane Jones
CSEMS Co-Leaders, DUE
National Science Foundation
4201 Wilson Blvd., Suite 835
Arlington, VA 22230

Dear Dr. Taylor and Dr. Jones,

The Houston Community College System (HCCS) is a public and comprehensive community college serving a population of 3.2 million in the nation's 4th largest city. HCCS is designated as a minority institution and as an Hispanic-serving institution by the U.S. Department of Education and is currently implementing a NSF-CSEMS Program. HCCS has learned about the effort of the University of Houston – Clear Lake (UHCL) for submitting a proposal to the NSF-CSEMS program and would like to support their effort.

UHCL has 2+2 articulation agreements with HCCS as well as other community colleges in Houston which outline the first two years of work to be completed at the community college and the last two years of work to be completed at UHCL. The transfer plans are guides to recommended course work to aid students in transferring to UHCL. HCCS students are encouraged to work closely with UHCL counseling offices to prepare for a smooth transfer. This arrangement has been successful and beneficial to students at both institutions.

We have met with Drs. Kwok-Bun Yue and Sharon Hall, the PI and Co-PI of UHCL NSF-CSEMS proposal and have agreed to form tighter cooperation to provide more value to HCCS and UHCL NSF CSEMS scholars. We have agreed on the following activities.

- UHCL NSF scholars program faculty mentors will meet with HCCS NSF scholars to promote their programs.
- HCCS will assist UHCL in promoting its NSF scholar program.
- HCCS NSF scholars may participate in UHCL industrial programs.
- HCCS NSF scholars will have access to UHCL NSF scholars program faculty mentors.
- HCCS and UHCL scholars program will share appropriate information about scholars transferring from HCCS to UHCL.
- Being a HCCS NSF scholar will improve the chance of the student being awarded as an UHCL NSF scholar.

P.O. Box 667517, Houston, TX 77266-7517

We believe this cooperation will significantly enhance the values of both HCCS and UHCL NSF CSEMS programs. It will improve UHCL's ability to attract quality applicants, especially those underrepresented in computer science, mathematics and engineering. HCCS fully supports UHCL's effort in pursuing their NSF scholar program. If I can provide additional information, please call me.

Sincerely,

Andy Montez, Director
Department of Resource Development
Houston Community College System

Cc: Jagdish John
Jose Villarreal

APPENDIX V

Transfer Programs

UHCL makes transfer a seamless pathway and worry-free, with two programs from which to choose. Whether it is the UniLink Program that offers joint admission, or the 2+2 Transfer Guide, one can select the program that best suits one's needs.

	UniLINK Program	2+2 Transfer Guide
Articulation agreements with community colleges designating courses needed for transfer	▪	▪
Community college counselor assists with planning	▪	▪
Joint admission to UHCL	▪	
Notify UHCL of participation in program when applying for admission	▪	
Keep same major course of study	▪	
Enter UHCL within three years after signing UniLINK contract	▪	
Remain continuously enrolled (complete at least one course each year) at community college	▪	
Library check-out privileges	▪	
Career and counseling workshops	▪	
Mentoring support available	▪	
UHCL academic adviser assigned	▪	

United Space Alliance

K. M. "Kathy" Tamer
Vice President & Chief Information Officer
1150 Gemini
Houston, Texas 77058-2708
Telephone: 281.212.6165
fax: 281.212.6177
kathy.tamer@usahq.unitedspacealliance.com

April 26, 2001

To Whom It May Concern:

Headquartered in Houston, Texas, United Space Alliance (USA) is one of the world's leading space operations companies. Established in 1996 as a joint venture between The Boeing Company and Lockheed Martin Corporation, the company employs 10,000 people in Texas, Florida, Alabama, California and Washington, D.C. USA is chartered to manage and conduct space operations work involving the operation and maintenance of space systems, associated with NASA's human space flight program and Space Shuttle applications beyond those of NASA

USA has been associated with the School of Natural and Applied Sciences of the University of Houston – Clear Lake since its inception. USA has funded many research projects and sponsored several capstone projects for the graduate Computer Science and Computer Information Systems programs. We have hired Cooperative Education students. We have engaged in a faculty exchange, sponsoring Dr. Sharon Hall, the co-PI of the UHCL NSF-CSEMS proposal, as a faculty intern when she was on Faculty Development Leave in the spring semester of 1999. Two members of my management team, Mr. Bob Smock (Computer Security) and Ms. Margaret Guardia (MIS) are currently serving as adjunct faculty at UHCL.

Our ongoing relationship with UHCL continues to be a productive venture. The students we have hired have the appropriate background, with a good understanding of theory and practice. The faculty exchange project with Dr. Hall was a very positive experience and mutually beneficial to all parties involved. At least two of my managers have returned to school as a result of Dr. Hall's influence during her Faculty Development leave. We know that UHCL has a group of dedicated faculty members who maintain their curricula to provide both the theory and the latest technology advances to their students, as well as a dedicated leadership team supporting and guiding their efforts.

USA is committed to continuing our relationship with UHCL and anxious to become part of the support team for their CSEMS NSF Scholars program. Whether it's providing a member of the Steering Committee, supporting the industrial program, hiring their graduates or all of the above, we will do what's necessary to support them. Our ongoing Co-op programs and new initiatives under development will provide opportunities for the scholars to experience the application of their classroom learning to the exciting world of human space flight and get paid for the experience. My organization has a 100% success rate maintaining open "slots" for co-op graduates, providing challenging post-

graduation employment. USA subject matter experts will be available to support discussions, seminars, and field trips for the UHCL NSF Scholars. With 4500+ employees in Houston, we have a strong resource base from which UHCL can draw as they develop and implement their NSF Scholars Program.

I am pleased to have the university involved in a project that enhances opportunities for education in our community. The demand for Information Technology professionals is great, and well-balanced programs such as the ones at UHCL are critical in satisfying the nation's demand. USA is always looking for well-prepared students, and we are happy to be involved in this endeavor with UHCL. We have a strong relationship with Dr. Hall. She is a very student-oriented faculty member with appropriate organizational skills to help oversee the NSF Scholars program. We look forward to becoming an active participant of the UHCL NSF Scholars program.

Sincerely,

K. M. Tamer, Vice President &
Chief Information Officer

Barrios Technology

April 18, 2001

Mr. Robert F. Hodgin, Executive Director
Office of Research Administration
University of Houston Clear Lake
2700 Bay Area Boulevard, UHCL Box 44
Houston, TX 77058-1098

Dear Mr. Hodgin:

As President of Barrios Technology, Inc., I am submitting this letter in support of the National Science Foundation (NSF) scholarship grant proposal. Barrios heartily endorses the NSF's Computer Science, Engineering, and Mathematics Scholarship program seeking to close the widening national gap in America's technically trained workforce. The University of Houston Clear Lake (UHCL) is a regional upper division and graduate-level institution and would like to participate in this national program. Houston's demographic profile, the nation's fourth largest city and the core draw area for the Clear Lake campus, suggest a strong, needy audience.

UHCL's well-developed innovative and technological programs offer a productive resource for the NSF program. Located adjacent to NASA's lead center, the Johnson Space Center, and in the heart of Houston's high tech aerospace software development complex, UHCL can offer growth opportunities perhaps unmatched by most other institutions. As examples, the university's School of Natural and Applied Sciences boasts new degree offerings in software engineering and computer information systems.

The proposal to the NSF is aimed at scholarships for disadvantaged but academically promising students majoring in computing and information technology and related technical fields.

Barrios Technology, supports this proposal effort in the following ways: a) affiliated organization for information sharing, b) active advisory capacity, c) prospective employer, d) project collaborator and e) seminar participant.

Barrios has a rich heritage and an established track record of success in providing information technology services and products to our aerospace and educational customers. To continue with such a track record will require a continued influx of qualified, well-trained candidates for employment.

Barrios welcomes the opportunity to participate in programs designed to assist our educational institutions with reaching goals that benefit students and teachers. The proposed environment will grant opportunities to the nations underprivileged students and support up to 25 scholarship recipients each for two years

Please contact me if you have any questions or if I can be of further assistance.

Sincerely,

Sandra G Johnson

Sandra G. Johnson
President

Barrios Technology, Inc. • 2625 Bay Area Blvd., Suite 300 • Houston, Texas 77058-1556
(281) 280-1900 • Fax (281) 280-1901

Reliant Energy
HL&P/Entex

April 25, 2001

Robert F. Hodgin, Executive Director
Office of Research Administration
University of Houston-Clear Lake
2700 Bay Area Boulevard
Houston, TX 77058-1098

Dear Mr. Robert F. Hodgin,

Reliant Energy HL&P heartily endorses the National Science Foundation's Computer Science, Engineering and Mathematics Scholarship program which seeks to close the widening national gap in America's technically trained workforce. We understand that the University of Houston-Clear Lake, a regional upper division and graduate-level institution, desires to play a part in this national program.

As the nation's fourth largest city, Houston creates an ever expanding demand for new high tech graduates every year. Therefore, we believe that the University of Houston-Clear Lake's innovative and technologically strong academic programs offer a productive resource for the National Science Foundation program.

Located next to NASA's lead center for human space flight, the Johnson Space Center, and in the heart of Houston's high tech Ellington Field Aerospace Corridor, University of Houston-Clear Lake can offer growth opportunities unmatched by most other institutions.

As an example, the University's School of Natural and Applied Sciences boasts new degree offerings in software engineering and computer information systems, degree programs critical to the business needs of the Houston region.

Reliant Energy HL&P supports this grant effort as a firm with a long history of recruiting well qualified technically trained graduates from the University of Houston system. We urge you to give favorable consideration to the referenced

NSF grant request of the University of Houston-Clear Lake and eagerly anticipate the reality of disadvantaged but highly qualified students in the Houston region obtaining quality high tech educations through the scholarships provided with this grant.

Sincerely yours,

Joseph A. Lopez
Vice President
Business Services

San Jacinto College North

5800 Uvalde, Houston, Texas 77049-4599 281-458-7101

OFFICE OF VICE PRESIDENT OF INSTRUCTION

April 18, 2001

Robert F. Hodgin, Executive Director
Office of Research Administration
University of Houston-Clear Lake
2700 Bay Area Boulevard
UHCL Box 44
Houston, TX 77058-1098

Dear Dr. Hodgin:

San Jacinto College North endorses the National Science Foundation's Computer Science, Engineering, and Mathematics Scholarship program seeking to close the widening national gap in America's technically trained workforce. The University of Houston-Clear Lake, a regional upper division and graduate-level institution, wants to play a part in this national program. Houston's demographic profile, the nation's fourth largest city and the core draw area for the Clear Lake campus, provide an ideal audience for this program.

UH-Clear Lake's innovative and technologically well-developed programs offer a productive resource for this NSF program. Located adjacent to NASA's lead center, the Johnson Space Center, and in the heart of Houston's high tech aerospace software development complex, UH-Clear Lake can offer growth opportunities perhaps unmatched by most other institutions. As examples, the university's School of Natural and Applied Sciences boasts new degree offerings in software engineering and computer information systems.

San Jacinto College North supports this proposal effort as an affiliated organization for information sharing, in an active advisory capacity, and as a prospective employer.

We believe that as a Hispanic Serving Institution and as a Minority Serving Institution we will benefit by the opportunities offered in this grant.

Sincerely,

Richard Bailey

Richard Bailey, Ph.D.
Vice President of Instruction
San Jacinto College North

An Equal Opportunity Employer