MEMORANDUM

To: Board of Regents

From: Board Office

Subject: Proposal for an Interdepartmental Graduate Program in Human Computer Interaction at Iowa State University

Date: June 9, 2003

Recommended Action: Refer Iowa State University's proposal to establish an Interdepartmental Graduate Program in Human Computer Interaction with M.S. and Ph.D. degrees to the Interinstitutional Committee on Educational Coordination (ICEC) and the Board Office for review and recommendation.

Executive Summary: Iowa State University is requesting approval for an Interdepartmental Graduate Program in Human Computer Interaction with M.S. and Ph.D. degrees to be administered by the Virtual Reality Applications Center.

Relationship Between Humans and Computers	The study of the relationship between humans and computers is becoming one of the most dynamic and significant fields of technical investigation.
Program Goal	The primary goal of this proposed program is to provide advanced training and foster research in human computer interaction at the University.
Unique Program	Many Iowa universities have information technology related programs, such as electrical engineering, computer engineering, and computer science. However, none of the universities have an interdepartmental human computer interaction program such as the one being proposed.

Link to Strategic Plan: This effort is part of the institutional activities which help the Board of Regents achieve its objective of quality in the Regent institutions as stated in its current Strategic Plan:

KRA 1.0.0.0	Become the best public education enterprise in the United States.
Action Step 1.1.3.3.	Focus graduate programs to conform to unique missions of each university.

Background:	This is a new multi-disciplinary field precipitated by changes in computer-related technology.
Analysis:	The entrance requirements to the proposed program will be an undergraduate degree; for those students who do not have the required computing background, the University will provide an introductory survey course, with appropriate follow-up material. The enrollment is expected to grow from 5 students in the first year to 50 students by the fifth year.
Cost	The Virtual Reality Applications Center will provide office space for program staff support and administration. The proposed program will be funded as a presidential initiative with a reallocation from the president's office for three years. During the first year, the cost of the program will be $50,000.
Regent Program Review Questions	Attached is a copy of the University's responses to the Regent New Program Review Questions (pages 3–7).

Diana Gonzalez

Approved: Gregory S. Nichols

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Regents Program Review Questions (Majors)

M.S. and Ph.D. degrees **Degree, Major in** **Human Computer Interaction**

1. Need
   a. How will this proposed program further the educational and curriculum needs of the students in this discipline? **This is a new intensely-multidisciplinary field, made possible by the unprecedented change in computer-related technology.**

   b. How does it further the educational and curriculum needs of other units in the college or university? **This program will provide a conduit for students in all colleges to study in this exciting multidisciplinary field. We will build on the faculty expertise currently being enabled by the facilities and administrative structure of the Virtual Reality Applications Center. These faculty members come from a wide variety of disciplines across Iowa State University.**

- Duplication and Collaboration
   a. What programs in this field of study are available in other colleges and universities in Iowa? (Identification of other programs available in this field at other institutions should be made within a broad definitional framework. For example, such identification should not be limited to programs bearing the same title, the same degree designation, having the same curriculum emphasis, or purporting to meet exactly the same needs as the proposed program.) **All the universities in Iowa have IT related programs, electrical engineering, computer engineering and the like. But none have an HCI program which is intended for students from all colleges.**

   b. With what representatives of these programs has there been consultation in developing this proposal? Provide a summary of the responses of each institution consulted. (The complete text of responses should be included.) **none**

   c. In what ways is this proposed program similar to those mentioned in 2a? In what ways is it different or does it have a different emphasis? (In describing program similarities and differences, consider such factors as curriculum, prospective student groups to be served, and career or other types of goals to be emphasized.) **The feature that distinguishes this program from others around the country is our vision that the technology has advanced to the point where HCI is germane, indeed crucial, to a very wide educational constituency.**

   d. How does the proposed program supplement the current programs available? (In some instances, this question should go beyond how the program will supplement others within the state. If the justification for the program involves special regional or national needs, a description of existing programs within the region or the nation and the relation of the proposed program to these should be provided.) **This program derives from a vision that technology is changing the world in new ways that affect the entire educational enterprise. In that sense, this program offers new opportunities to students who want advanced studies in this area.**

e. Has the possibility of some kind of interinstitutional program or other cooperative effort been explored? What are the results of this study? (Consider not only the possibility of a formally established interinstitutional program, but also how special resources at other institutions might be used on a cooperative basis in implementing the proposed program solely at this institution.) **Collaboration across geography will be a central feature of the program. Such collaboration will be in part enabled by the new national computing grid, and will in due time facilitate cooperation with partner institutions across the world. We look forward to establishing these cooperative links as our program becomes better known. At least one major cooperative project is already underway – VRAC and the National Advanced Driving Simulator staff are working together on an NSF-funded project which centers on collaborative real time simulation. We are also working with Old Dominion University, Virginia Tech, and the Naval Postgraduate School on real time cooperative teaching of an HCI graduate course using videoconferencing.**

f. Please list the Iowa institutions in which articulation agreements are being developed for the proposed program. (NOTE: This applies only to community college degree programs that may transfer students to this program.) **The entrance requirements to the HCI graduate program will be an undergraduate degree with the usual indicators that the student can be successful at the graduate level. Furthermore, we will require the demonstrated ability to code competently. For those who do not have the required computing background, we will provide an introductory survey course, with appropriate follow up material.**

g. Please provide the Classification of Instructional Program (CIP) code for the proposed program.

30.9999 is a sub-classification of Multidisciplinary Course of Study, Other. After studying the choices of classification, we arrived at 30.9999 because of the broadly interdisciplinary nature of the proposed program.

3. Please estimate the enrollment in this program for the next five years as follows:

a. Undergraduate

Majors					
Non-Majors					

b. Graduate

Majors	5	10	25	35	50
Non-Majors					

c On what basis were these estimates made? **We believe, based on the fact that there are already 30 faculty and 75 graduate students from a wide variety of disciplines doing their research at the Virtual Reality Applications Center, that these estimates understate the demand for this graduate program.**

d What are the anticipated sources of these students?
(For example, persons currently enrolled in other programs within the institution; persons currently attending other institutions, in state or out of state; persons not currently enrolled in institutions of higher education.) **We are planning to widely publish information about this new program electronically, drawing many students from outside Iowa as well as many students already here. Furthermore, under a presidential initiative, ISU is in the process of recruiting new faculty whose research will be in HCI. The publicity from this recruiting process is already raising the profile of HCI across the country.**

4. Please provide any available data or information on employment opportunities available to graduates of this program in Iowa and nationally. (Such information is available from U.S. government labor sources as well as many professional associations.) **This is a new program in a new field, so we can only extrapolate from things we know about students in traditional disciplines who now work in virtual reality. These students are in great demand. As examples, students trained at VRAC are in leadership positions at Boeing, Ford, Microsoft, Mechdyne, Sony Pictures. We are also seeing increased interest from the academic community – one of our VR-grads just took a position as Virtual Reality Coordinator at a VR laboratory at Purdue. And we are seeing a growing number of academic tenure track positions in HCI; consider for example http://www-2.cs.cmu.edu/~marian/Design_job_posting.htm, and http://wwww.slis.indiana.edu. Note this latter posting is in the Indiana University School of Library and Information Science, far outside the current purview of VRAC and ISU.**

5. Are there accreditation standards for this program?
No.

- What is the accreditation organization?

- What accreditation timetable is anticipated?

(Please provide a copy of the accreditation standards.)

6. Does the proposed program meet minimal national standards for the program, e.g., Council of Graduate Schools or other such bodies? **The proposed program meets standards established by the Council of Graduate Schools for M.S. and Ph.D. degrees.**

7. Please report any reactions of the Iowa Coordinating Council for Post-High School Education. List date that the program information was submitted to the Council. **The proposal was forwarded to the ICCPHSE on 5/9/03. No objections have been received.**

8. How does this program relate to the college's/university's strategic plan? **Iowa State University has designated the HCI graduate program as a key strategic initiative.**

Additional Resource Needs

Either question one or question two requires a "yes" answer. In addition to a "yes" response to one of the first two questions, question three and question four should be answered. If applicable, question five should be answered.

1. Will the program require <u>new</u> resources? Yes _**x**__ No ___
   If "yes," what is the plan to obtain new resources?

   See #5 below.

2. Will the program require <u>reallocated</u> resources? Yes __**x**_ No ___
   If "yes," what is the university's reallocation plan to fund this program?

   VRAC will supply office space for program staff support and administration. The project is funded as a new Presidential Initiative with a reallocation by the President for three years.

3. At what <u>level of enrollment</u> will additional resources be required for the program? **From the beginning.**

4. Estimate the total costs (or *incremental increases in expenditures*) that may be necessary as a result of the new program for the next three years. **Incremental expenses for staffing are shown here. Incremental expenses for students, which will be borne by contract funds, are discussed under #5.**

	First Year	Second Year	Third Year
a. Faculty			
b. Graduate Assistants			
c. General Expense	**50k**	**55k**	**60k**
d. Equipment			
e. Library Resources			
f. New Space Needs (estimated amt. & cost of new and/or remodeled space)			
g. Computer use			
h. Other resources			
TOTAL(S)	**50k**	**55k**	**60k**

5. For programs planning to use external grants, what would be the effect of the grant termination? **We expect to support all the graduate assistants called for in #3 above using contract funds. This support will come from a wide variety of contracts, so we will not be vulnerable due to dependency on any one contract. Note VRAC currently administers contracts which support about 75 graduate students.**

   The general expense line c in #4 above is for startup and staff support of the graduate program. The first three years of this support will be provided by the ISU's presidential initiative in HCI.