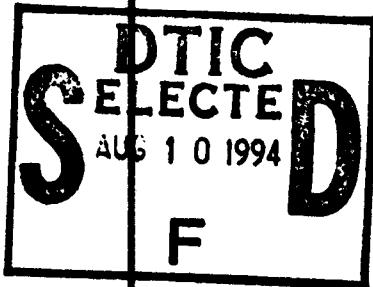


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1994 ANNUAL REPORT OF THE
ECSU HOME - INSTITUTION SUPPORT PROGRAM



SUBMITTED TO
THE OFFICE OF NAVAL RESEARCH
BY
ELIZABETH CITY STATE UNIVERSITY

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PART IA.

The ECSU-ISSP Home Institution Support Program provides a strong home institution support environment, for Elizabeth City State University students participating in the HU-ONR Intensive Summer Studies Program (ISSP). This basis of support nurtures the research interest of our ECSU-ISSP students and better equips our students to gain as much as possible from the HU-ISSP experience. This program has three components :

- 1) Establishment of a Macintosh computer network.
- 2) A Visiting Lecturer Program
- 3) A student/sponsor travel program

Macintosh computer network

The following is a list of hardware purchases which have enhanced the Macintosh network of computers. We have also added ethernet cards to the LC computers and the IICI computer.

Battery Recharger
4MB SIMMS
POWERBOOK 165
APPLE NEWTON
LASERWRITER PRO 630 printer
Renderman Software
BJC600 bubble jet printer + supplies

Accession For	
NTIS CRA&I	☒
DTIC TAB	☐
Unannounced	☐
Justification	
By	
Distribution /	
Availability Codes	
Dist	Avail and/or Special
A-1	

VISITING LECTURER PROGRAM

The Visiting Lecturer Program has provided funds to bring 5-6 speakers to our campus. These outside speakers were chosen to stimulate faculty research and give additional insight to students. Students gained exposure to role models other than those within their departments. During the 1993-94 academic year the following individuals participated in the Visiting Lecturer Program.

Melvin Blackwell Owner of SoSoft Software Consultant Company
(Jan. 20, 1994) spoke on The Client Server Model

Mr. Robert Norris spoke (Oct. 26, 1993) Virtual Reality

Mr. Eric Harris (Nov. 11, 1993) spoke on Software Testing and Internships

Dr. William Hawkins (Feb. 17, 1994), Director of SUMMA for the
Mathematical Association of America spoke on Contributions made by Black
Mathematicians and Computer Scientists

Dirlene Cannon (Mar. 25, 1994), System Analyst with Comtek Federal Systems
spoke on X-Window Environment

Dr. Scott Owen (Mar. 30, 1994), Education Chairman for ACM/SIGGRAPH
spoke on Computer Graphics and Visualization.

Dr. Beauregard Stubblefield (Feb. 17, 1994) spoke on Mathematics and
Medicine

Student/Sponsor Travel

NCUR

The National Conference on Undergraduate Research was held at Western Michigan University in Kalamazoo, MI on April 14-15, 1994. the mission of the NCUR is to promote undergraduate research, scholarship, and creative activity done in partnership with faculty or other mentors as a vital component of American higher education.

Among the many speakers at this conference was Dr. James Earl Lyons, Sr., President of Jackson State University in Jackson, Mississippi. Dr. Lyons related his experiences of growing up in a ghetto housing project and having the determination to attend college even when his friends stole his clothes to prevent him from going. He challenged the students to not be ashamed of being smart. To ignore criticisms from those who do not want them to succeed... To mock the media who would rather report on them shooting each other than on their attendance at a research conference. He told them they must go on to graduate school. Dr. Lyons was a dynamic speaker. He spoke to the students during the Black Student Researchers Luncheon on Friday.

There were over 1350 student research presentations made during this conference in all disciplines including literature, physical science, mathematics education, communication, psychology, engineering, philosophy, sociology, history, health science, geology, literature, and computer science. We were also pleased to hear several student presentations including Mary J. Shanahan from Widener University who discussed "Robot Terrain Tracing Using Fuzzy Logic". Veronica Patillo from Tennessee State University discussed "Annihilation of the Black Self in Toni Morrison's The Bluest Eye". Robert Eckstein from Trinity University discussed "An Efficient digital video Interface".

In addition to enjoying several student presentations, we were able to enter a virtual reality chamber to experience the current state of the art for virtual reality research. The chamber moved and rolled like a roller coaster to heighten the effect of the viewing.

Sharon Saunders was invited to give an oral presentation of her research on UNIX System Administration. Cory Cooper was also invited to give an oral presentation on his research in Parallel Procession.

Student/Sponsor Travel

Georgia Tech FOCUS/King Week Celebration

Four students (Tammy Askew, Belinda Banks, Cory Cooper and Alisha Hart) were invited to join in the third annual graduate recruiting/awareness program for African American students. The program was attended by 150 students from 60 institutions across the nation.

Focus'94 is a program specifically designed for prospective African-American Graduate Students. Focus'94 was the third annual program and is part of the King Week Celebration held in Atlanta, Georgia on January 14-17, 1994. This program has four objectives:

- Provide students an opportunity to interact with the Georgia Tech Faculty and over 400 currently enrolled African-American Graduate Students.
- Familiarize students with the Georgia Tech graduate programs and financial assistance available.
- Assist students in applying for graduate school and financial resources.
- Give students an opportunity to participate in the Annual National Celebration honoring Dr.. Martin Luther King

Student/Sponsor Travel

NAFEO High Tech Expo

The National Association for Equal Opportunity Higher Education (NAFEO) met in Washington, DC at the Sheraton Hotel March 24-27, 1994. Seven ECSU students travelled with Mr. Coleman and Dr. Hayden to the conference: Ervin Howard, Cory Cooper, Sharon Saunders, Alisha Hart, Belinda Banks, Clarence Jones, and Richard Flood. The main purpose of the trip was to allow the students to present their research at the NAFEO High Tech Expo. As an aside, students spent time at the Library of Congress and visited two museums. They also took photos with Rev. Jessie Jackson prior to his speech to the conference. The following is a summary of the student impressions.

My name is Ervin M. Howard of Elizabeth City State University majoring in Mathematics. I was very honored to participate in the NAFEO (National Association for Equal Opportunity in Higher Education) conference at the Hilton Hotel on March 24, 1994 where my fellow colleague Mr. Cory Cooper and I presented research involving parallel processing: Timing Study of Sort & Merge Algorithms. Along with other students from Elizabeth City State University who presented their research through oral presentations are Mr. Clarence Jones and Mr. Richard Flood (Electron Scattering), Ms. Sharon Saunders (Unix Administration), Ms. Belinda Banks (Depth-First Search Algorithms) and Ms. Alisha Hart (Unstructured Gridgens). With great success each of us did an excellent job in presenting and we each received a citation for our efforts. We were honored to have Dr. Jimmy Jenkins & Dr. Helen Caldwell at the conference. There was also an exhibition of different vendors which includes various universities, colleges, and companies which was part of the NAFEO conference called the High Tech Expo. On Saturday we attended a plenary session in which Dr. Jimmy R. Jenkins was presiding. The following speakers were as followed. Dr. Andrew Billingsley, Chairman of the Department of Family Studies of the University of Maryland ("Violence and Drugs"), Reverend Jesse Jackson, President and Founder of the Rainbow Coalition ("Health, Non-Violence and Morality"), Mr. Jeffrey C. Weiss, Acting Director, Community Relations, U.S. Department of Justice and Mr. Raymond Pierce, Deputy Assistant Secretary for Civil Rights U.S. Department of Education (Empowering Educators to Reduce Crime). After we checked out of the Howard Inn Hotel, we stopped at one of the libraries of the Library of Congress which is called the Jefferson Building where we watched an orientation video on the functions and local facilities the library has to offer. Our

assignment was to find a topic of our choosing and write a paper on it by using the library resources. Then we travelled to the **National Museum of American History** to observe several exhibitions of America's history consisting great contributions that led to the discovery of the television, the telegraph and the telephone which greatly increased the means of communication as we know. We also observed the Afro-American exhibit accounting the Great Migration of Afro-Americans during the years 1914 - 1943 which marked a tremendous step for Afro-Americans to advance as a people to obtain more opportunities in others states than the one they were living in.

Overall, I had an excellent time at the conference and I find it was very beneficial learning experience. My career goals is to obtain a Ph.D in mathematics.

Student/Sponsor Travel

NAAAS

Eight students made research presentations during the NAAAS (National Association of African American Studies) Conference held in Petersburg, VA in February 1994. The Second Annual Conference of the National Association of African-American Studies was held at Virginia State University in Petersburg, VA from Feb. 15-19, 1994. Students from Elizabeth City State University spoke at a special session arranged by the VSU Kappa Mu Epsilon Mathematics Honor Society and the VSU Walter Johnson Mathematics Club. The session was entitled African-American Mathematicians Honoring our Own - The VSU Lineage. The special session was held in the Hunter-McDaniels Science Building on Feb. 17, 1994 from 11:00 to 12:20. The session was held in a large auditorium but the room was full of students and faculty. After the presentations, the students and I were presented special VSU Mugs as a gift from the Department of Mathematics.

As a result of the conference, one student, Clarence Jones Physics major, was asked to come to a summer research program at VSU and another, Ervin Howard mathematics major, was given information on the Masters of Mathematics Education program with the promise of financial assistance.

The following ECSU students made presentations:

Belinda Banks : First Search Algorithms.

Michelle Brown-Emmanuel: Depth First Search Algorithms

Nakeisha Riddick: Dijkstra's Search Algorithm

Cory Cooper: Parallel Processing Timing Study

Ervin Howard: Parallel Processing Timing Study

Sharon Saunders: Unix System Administration

Richard Flood: Electron Scattering

Clarence Jones: Electron Scattering

Student/Sponsor Travel

Second Annual HBCU/Private Sector Energy Research and Development Technology Transfer Symposium

Two students made research presentations at the Second Annual HBCU/Private Sector Energy Research and Development Technology Transfer Symposium. Cory Cooper and Ervin Howard joined 35 student researchers, from other schools, in making poster presentations. The title of their research is "Parallel Processing Timing Study". During the conference students heard keynote speeches from Corlis S. Moody, Director of The Office of Economic Impact and Diversity U.S. Department of Energy. They also listened to Balaram Muddapu of Grambling State University on "Impact of Scientific Computing on the solutions of Convective Heat Transfer" and Dr. R. P. Sinha of ECSU on "Alternative Energy Resources and Environment: A New Paradigm".

Part 1B.

In the past we have held rather informal sessions with our department student researchers on the second Wednesday night of each month from 5:30 PM until. Since many student researchers have a key to the laboratory, they often remain well into the night to assist one another with their classwork and research projects. We have used these opportunities to discuss topics of interest to the whole group (i.e. upcoming travel opportunities, preparation of abstracts in specific formats required for submission, photo opportunities, progress checks, dissemination of graduate school information and internship opportunity information, preparation of overhead transparencies and posters for student use during their travel. We usually chip in and order pizza for the group. This has proven to be a successful technique for mentoring, and the tradition has been made part of the new NERT in PPCV program funded by ONR.

It was a policy to have the ISSP students serve as tutors for other students. The tutoring assignments allowed the ISSP students to keep current on material learned in previous classes. Research shows that students who serve as tutors gain a deeper insight into the material.

Many of the ISSP students were assigned to work in the Macintosh laboratory giving technical assistance to their classmates. This policy gave the ISSP students access to and time to review the individual training modules available in the laboratory. Further, Sharon Saunders and Cory Cooper worked under the supervision of Dr. Hayden to design and carry out a Macintosh network training program from which all ISSP students could benefit.

To compliment the efforts made with in the CCMP departments, or ISSP students were strongly advised to take full advantage of the ECSU campus services. ECSU has already in place a host of student services including individual and group counseling and developmental group activities. Also contributing to the nurturing atmosphere at ECSU is the fact that we have only a 5% rate of adjunct faculty. Further, the university regularly holds family meetings both campus wide and within the individual department. Social activities are scheduled each semester to allow faculty and students to relate outside of the classroom. This includes both a Christmas dinner in the fall and a cookout in the spring. Faculty and students work together to make these events a success.

We at ECSU have a long and proud history of mentoring minority students. Many of whom are first generation college students. Recognizing that, we maintain contact with the homes and families of our students and invite their families to contact us.

***New Faculty hires: provide number, name, departments, background, and teaching responsibilities.**

No new faculty were hired under this ONR program

***Faculty research highlights: provide topics, performance sites, publications, presentations.**

In the past, research has not been a part of our mission statement. However, our current mission statement, as revised by the State of North Carolina, states that research is now and should continue to be a focal point of the educational experience provided to our students. ECSU has a proud and successful history of graduating students in the fields of mathematics, computer science, biology, chemistry, and physics. In increasing numbers, our students are choosing to pursue graduate studies after graduation from ECSU.

The following is a complete list of all faculty in the Department of Mathematics and Computer Science and their current research interest.

<u>Name</u>	<u>Degree</u>	<u>Interest</u>
Barker, William W	MS	Aeronautics
Bocraye, Tesfa G.	MS	Database and Networking
Coleman, George W.	MS	Partial Differential Equations
Doraiswamy, Ida	Ph.D	Group Theory
Hayden, Linda B.	Ph.D	On-Line Documentation & Parallel Processing
Houston Johnny L.	Ph.D	Numerical Grid Generation
Lawrence, Georgia S.	Ph.D	Statistics & Math Ed.
Mannan, Muhammad A.	Ph.D	Categorical Analysis & Statistics
Nemecek, Stephen M.	Ph.D	Data Flow synchronization Unit of Measure in Prog.
Sachdev, Sohindar S.	Ed.D	Mathematical Modeling
Sengupta, Dipendra C.	Ph.D	Complex Analysis, Riemann Surfaces
Sengupta, Jharna D.	Ph.D	Reimann Surfaces & Kleinian Groups, Chaos
Zhang, Jingyuan	Ph.D	Image Processing & Computer Vision

*Faculty self-improvement activities: where were these performed and what were the activities?

No faculty self-improvement activities were funded through this ONR program

*Visiting faculty: provide names, departmental affiliations, and major activities.

No visiting faculty were acquired through this program.

*Other faculty activities under this grant which you wish to report.

There were no other faculty activities under this grant.

Part 1C.

No curriculum changes/enhancements were supported under this grant.

Part 1D.

For the summer of 1994, Hampton University(HU) program officials requested ECSU to select 9 students to participate in the HU-ISSP program. The Hampton University ISSP program offer students the opportunity to take major courses which are not offered at ECSU. During the ISSP program, students have the opportunity to perform research (at the appropriate level) within their discipline.

Mr. Willis, Director of the Hampton SEMS program has informed us that this will be the last summer that students from other universities will be invited to participate in their ISSP. The restriction of ISSP to include only HU students was necessitated by current funding of that program. We have however initiated a summer research program in parallel processing and computer visualization in which many of these students will be included. Dr. Mary Ellis, Chairperson of the computer science department at Hampton University has informed me that she is applying for NSF funding to support the inclusion of our students in ISSP.

The following is a complete listing of all the 1994 summer ISSP program participants from ECSU.

1994 ISSP Students

<u>name</u>	<u>major</u>	<u>class</u>
Clutilda Monk	math ed	sophomore
Richard Flood	physics	sophomore
Robert Holley	chemistry	sophomore
Guana Dixon	chemistry	junior
Christopher Roberts	physics	sophomore
Matresha Walker	cs	sophomore
Reginal Turner	cs	junior
Tonya Best	cs	junior
Dovella Moore	cs	sophomore

** classifications are as of Summer '94*

The Mean GPA of all 1994 participants is 2.961

Part 1E. Macintosh Network

The following is a list of hardware purchases which have enhanced the Macintosh network of computers. We have also added ethernet cards to the LC computers and the Ilici computer.

Battery Recharger
4MB SIMMS
POWERBOOK 165
APPLE NEWTON
LASERWRITER PRO 630 printer
BJC600 bubble jet printer + supplies

The following is a list of software and reference material purchased this past year to support the student researchers and the Macintosh network.

Renderman Software

Part II Questionnaire

1. This year we had five students to graduate in May 1994: Karen Felton, Tammy Askew, Cory Cooper, Alisha Hart and Michelle Brown-Emmanual . These ISSP students are just a sampling of the very talented and highly motivated minority ECSU students.

Michelle Brown-Emmanual completed her ECSU coursework in December of 1993. She is now enrolled in a Computer Science Masters Degree program at Hampton University.

Karen Felton completed her ECSU coursework in Chemistry in May of 1994. She is currently completing an internship with The Chesapeake Bay Program. She will conclude that internship on August 30, 1994. After which she intends to enter A Ph.D. program of study in BioChemistry at Hunter College in New York. Karen had also applied to Penn State Univeristy and Virginia Commonwealth University.

Stephanie Vaughan completed her ECSU coursework in December of 1993. She is now enrolled in a Computer Science Masters Degree program at Hampton University.

Cathy Thomas will complete her Masters Degree this summer in computer science from Ohio State University. She has indicated that she wishes to continue in the Ph.D. program at Ohio State. She has applied for the program.

None of our ISSP students dropped out last year.

4. Data on student enrollment and performance is requested for the overall science and engineering student body, and for students supported under the ONR grant in order to have an internal comparison at your school.

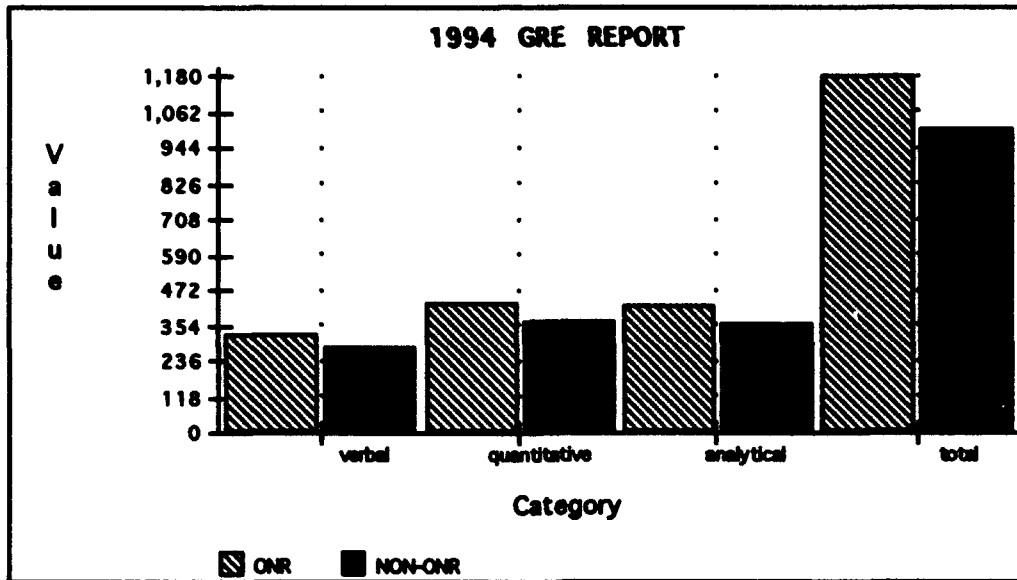
Please see the following table for data. Our Institution does not offer a degree in engineering. Further, we do not select our student for the program until they complete their sophomore year. This is partly because for the first two years of their studies at ECSU they are enrolled in the General Studies program and do not formally select a major until they complete General Studies requirement (For the purpose of advisement however, students tentatively indicate a department of interest to them).

An additional note is made here because the ISSP program involves CCMP majors (chemistry, computer science, mathematics and physics). No biology majors are involved in this program.

<u>Major Discipline</u>	Number of students enrolled at school (by year)				Number of students enrolled in ONR Program (by year)				Number of students graduated		Number Graduate Professional School	
	<u>FR</u>	<u>SO</u>	<u>JR</u>	<u>SR</u>	<u>FR</u>	<u>SO</u>	<u>JR</u>	<u>SR</u>	<u>total</u>	<u>ONR</u>	<u>total</u>	<u>ONR</u>
ENGINEERING	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIOLOGY	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHEMISTRY	NA	0	0	0	NA	1	2	0	7	1	3	1
COMPUTER SCIENCE	NA	0	0	0	NA	0	4	4	12	3	1	1
MATHEMATICS	NA	0	0	0	NA	1	1	0	12	1	1	1
PHYSICS	NA	0	0	0	NA	1	1	0	3	0	0	0
TOTALS	NA	00	00	00	NA	3	8	4	34	5	4	3

<u>Class Year</u>	Mean GPA for all <u>students</u>	Mean GPA for ONR <u>students</u>
Freshman	NA	NA
Sophomore	2.659	2.710
Junior	2.807	2.923
Senior	2.986	3.082

1994 GRE REPORT



	verbal	quantitative	analytical	total
ONR	325.45	430.00	422.87	1178.32
NON-ONR	282.50	366.90	354.75	1004.15