

**NDSU DEPARTMENT OF COMPUTER SCIENCE  
AND OPERATIONS RESEARCH**

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**ANNUAL REPORT  
2007-2008**

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**Primary Contact:  
Dr. Kenneth Magel, Associate Chair  
[Kenneth.Magel@ndsu.edu](mailto:Kenneth.Magel@ndsu.edu)**

## Faculty, Lecturer's and Special Appointments Profiles



**Dr. Anne Denton, Assistant Professor  
PhD, University of Mainz, Germany 1996**

Dr. Denton teaches courses in database management, bioinformatics, problem solving and foundations of computer science. Her research interests include data mining, bioinformatics, course management systems for distance education, and computational physics.



**Dr. Hyunsook Do, Assistant Professor  
PhD, University of Nebraska – Lincoln 2007**

Dr. Do joined the faculty in the Fall of 2007. She teaches courses in networks, network security, and software engineering. Her research program concerns software engineering, particularly software testing, maintenance, and empirical methodologies.



**Dr. Xiaojang (James) Du, Assistant Professor  
PhD, University of Maryland, 2003**

Dr. Du joined the faculty in the summer of 2004. He teaches courses in comparative programming languages, networks, network security, and software engineering. His research program concerns computer networks, network security, and intrusion detection.



**Dr. Yan Gu, Assistant Professor  
PhD, Georgia Institute of Technology - 2007**

Dr. Gu joined the faculty in the Spring of 2008. She teaches courses in artificial intelligence, parallel and distributed simulations. Her research program concerns computer networks, network security, modeling and simulations..



**Dr. Paul Juell, Associate Professor  
PhD, Ohio State University, 1981**

Dr. Paul Juell passed away December 29, 2007. He was an Associate Professor whose research interests were in artificial intelligence and software systems. Dr. Juell was posthumously awarded the NDSU College of Science and Mathematics first annual Faculty Mentorship Award. Subsequently, the award was officially renamed the Paul Juell Faculty Mentorship Award.



**Dr. Jun Kong, Assistant Professor  
PhD, University of Texas at Dallas, 2005**

Dr. Kong is interested in visual modeling languages, model driven development and web-data interoperation. He teaches courses in operating systems and human computer interaction.



**Dean Knudson, Associate Professor  
PhD, Northwestern University,**

Dr. Knudson is coordinator of the capstone program for bachelor of science students in CS and MIS. In this role he develops external sponsors for projects and mentors the student teams in project management. He teaches CSci 445, Capstone: Software Projects. Dr. Knudson has extensive experience working as a development executive for Microsoft and several other companies.



**Dr. Kenneth Magel, Professor and Associate Head  
PhD, Brown University, 1977**

Dr. Magel teaches a wide variety of courses, including software engineering, programming languages, and social implications of computing. His software engineering research activities explore what makes programming difficult and programs complex. Dr. Magel conducts

seminars and courses in XML, C# and .net technologies. He coordinates the graduate programs in software engineering. Beginning July 1, 2007 he became Associate Head for the Department.



**Dr. John Martin, Associate Professor and  
Graduate Program Coordinator  
PhD, Rice University, 1971**

Dr. Martin teaches computer science foundations, theoretical computer science and algorithm analysis. He is interested in formal languages and automata theory and computational complexity. Dr. Martin wrote the textbook Introduction to Languages and the Theory of Computation, which is widely adopted by universities around the country. He serves as freshman advisor, transfer advisor, and undergraduate coordinator for the department.



**Dr. Kendall E. Nygard, Professor  
PhD, Virginia Polytechnic Institute and State  
University, 1978**

Dr. Nygard teaches courses in simulation, social implications of computing, mathematical modeling, network optimization, systems analysis and design, and software testing and maintenance. His research interests include software systems for military mission planning for cooperative control of autonomous aircraft systems, software agents, and geographic information systems (GIS) for school transportation. Primary sponsors of his research are the Air Force and Navy. Starting in summer, 2006 he became graduate coordinator for the Department.



**Dr. William Perrizo, Engberg Presidential Professor  
Ph.D., University of Minnesota, 1972**

Dr. Perrizo teaches courses in database systems, data mining, bioinformatics, and networks. His research interests include database and information systems, data mining, data warehousing, distributed database systems, bioinformatics, precision agriculture, and remotely sensed data management and visualization. His research has been funded by many federal and private sources. Dr. Perrizo is a co-founder of the worldwide Virtual Conference on Bioinformatics. Dr. Perrizo has served in leadership roles for many conferences and on many boards and has a strong international reputation in research. In fall, 2007, he became one of the first seven University Distinguished Professors at NDSU, and in spring, 2008, was named Fargo-Moorhead Chamber of Commerce Professor



**Dr. Brian M. Slator, Professor and Department Head  
Ph.D., New Mexico State University, 1988**

Dr. Slator teaches courses in artificial intelligence (AI), multimedia educational systems, computer science problem solving, and comparative languages. His research interests revolve around active environments for learning, including the use of software agents, case-based reasoning, knowledge representation, multimedia systems, distance education, synthetic environments, and multi-user educational games. Dr. Slator is a recipient of the Ernest L. Boyer International Award for Excellence in Teaching, Learning and Technology.





**Dr. Vasant Ubhaya, Professor**  
**Ph.D., University of California, Berkeley, 1971**

Dr. Ubhaya teaches courses in Discrete Mathematics, Algorithm Analysis, Performance Evaluation, Mathematical Programming, and Dynamic Programming. He does research in Algorithms, Optimization and Approximation, and publishes his results regularly in journals. He is often invited by professional societies to organize and chair sessions, and give talks at their meetings. His research has been supported by the National Science Foundation and EPSCoR.



**Dr. Dianxiang Xu**  
**Ph.D., Nanjing University, China, 1995**

Dr. Xu is interested in formal methods in software engineering, software security, aspect-oriented programming, and intrusion prevention and detection. He is leading departmental initiatives in computer forensics. He also teaches courses in computer science foundations and in software testing.



**Dr. Weiyi (Max) Zhang, Assistant Professor**  
**PhD, Arizona State University, 2007**

Dr. Zhang joined the faculty in the Fall of 2007. He teaches courses in object oriented systems, and software engineering. His research interests are networking and bio-informatics.

## LECTURERS



**Ms. Dana Johnson, Adjunct Lecturer  
MS, University of Denver, 1980**

Ms. Johnson retired following the fall, 2005 semester, but continues to teach distance education courses for the Department from her mansion in Colorado. She also serves as web administrator for the Department.



**Mr. Sameer Abufardeh  
MS, St. Cloud State University, 2000**

Mr. Abufardeh teaches courses in Java. His research interest has been in the area of requirements engineering. He is an active Ph.D. student starting in Fall, 2004. He is expected to complete his Ph.D. in fall, 2008.



**Mr. Pratap Kotala, Lecturer  
MS, North Dakota State University, 2002**



Mr. Kotala left the Department to pursue entrepreneurial opportunities. He continues teaches the web-based business computer courses through Distance and Continuing Education.



**Richard Rummelt, Lecturer**  
**MS, Grand Valley State University, Michigan, 2005**

Mr. Rummelt teaches courses in Java and the advanced Visual Basic .NET courses. His research interest has been in the area of requirements engineering. He is an active Ph.D. student. Starting in spring, 2006, he is the faculty advisor for our new chapter of UPE, the Computer Science Honor Society.



**Oksana Myronovych, Lecturer**  
**MS, Kiev University, 1989**

Mrs. Myronovych teaches courses in Java and the advanced Visual Basic .NET courses. Her research interest has been in the area of requirements engineering. She is an active Ph.D. student. She is currently the Treasurer/Secretary for the student chapter of UPE, the Computer Science Honor Society.

## STAFF



**Lynn Thorp, Systems Technician**

Ms. Thorp administers department systems and configurations for the departmental instructional laboratories.



**Carole Huber, Administrative Assistant**

Ms. Huber coordinates the administrative functions of the department. This includes managing research and appropriated funds, purchasing and accounts payable. She is the contact person for all student employment applications, time-slips, and tuition waivers. She coordinates all Teaching/Research/Grading positions for the department.



**Betty Opheim,  
Part-time Administrative Secretary**

Ms. Opheim carries out office support functions, including data development, reporting, survey work, and assisting students and faculty.



**Stephanie Sculthorp,  
Administrative Secretary**

Ms. Sculthorp was recently hired in May 2008 as a full time Administrative Secretary to carry out office support functions.



**Otto Borchert**  
**Programmer Analyst**  
**MS, North Dakota State University, 2008**

Mr. Otto Borchert began his Programmer Analyst position August 2007 his duties include educational games, research and software development.



**Guy Hokanson**  
**Programmer Analyst**

Mr. Guy Hokanson began his Programmer Analyst position August 2007 his duties include educational games, research and software development.

# I. Goals/accomplishments for the current year

## A. INSTRUCTION AND STUDENT SUCCESS

### 1. Exit Interviews

During 2006-07, the Department started to interview graduating seniors. Each senior was asked to return a questionnaire and the results were tabulated. The questionnaire used is:

**Student Exit Interview  
Computer Science**

Date: \_\_\_\_\_

Interviewed By: \_\_\_\_\_

Student's name: \_\_\_\_\_

Degree Completed: \_\_\_\_\_

Address (after graduation):

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Email (after graduation): \_\_\_\_\_

1. What are your immediate future plans (job, graduate school):
  
2. What are your most memorable academic experiences of your time at NDSU:
  
3. In what areas or skills do you feel the NDSU Computer Science program has done the best job of preparing you for your future:
  
4. In what areas of skills do you feel the NDSU Computer Science program has not done as good a job as it should in preparing you for your future:
  
5. The next set of questions concern our goals for your learning in the Computer Science undergraduate programs. You should rank how well you feel you have mastered each goal on a scale from 1 to 5 where 1 means very poorly, 2 means almost adequately, 3 means adequately for my future plans, 4 means a little more than adequately, and 5 means much more than adequately.

1. Knowledge in Scientific and Technical areas.
<b>Graduates will have sufficient breadth and depth in the fundamental scientific and technical areas of computer science, to provide for their success as computer science professional practitioners, lifelong learners, professional software developers, and graduate students. 1 2 3 4 5</b>
2. Development of computer-based systems.
<b>Graduates will be capable of applying scientific methodology to the design, implementation, analysis, and evaluation of computer based systems. 1 2 3 4 5</b>
3. Skills in project-oriented teamwork and communication.
<b>Graduates will have the ability to work collaboratively with others in complex problem settings involving cross-functional relationships, including effectively communicating both orally and in writing. 1 2 3 4 5</b>
4. Understanding of ethical, cultural, societal, legal and global issues in computing.
<b>Graduates will understand and be able to incorporate into their work considerations that relate to empowerment, quality of life, risks and responsibilities, and privacy 1 2 3 4 5</b>

6. What would you like to see us do that we did not do in your program:

7. Why:

8. What would you like to see us do more of:

9. Why:

10. What would you like us to do less of:

11. Why:

12. What were the most significant barriers to your doing better or getting more out of your Computer Science program?

13. Why?

The results of these questionnaires will be used to assist in assessing our B.S. and B.A. in Computer Science. We planned to do a similar survey of graduates two or three years after graduation, but did not complete that survey during 2006-07. Such a survey of recent alumni is now underway (summer, 2008). As of July 15, 2008, we had just over 100 responses from alumni.



Nineteen graduating seniors returned completed surveys in 2007-08. Selected results are given next. More complete results will appear in the Department's Assessment Report.

1. Immediate future plans: 14 job in the field, 4 graduate school, 1 unsure;
2. Most memorable academic experiences: 5 capstone software development project; 8 discussions with fellow students concerning assignments; 6 discussions with faculty;
3. What NDSU has done best: software development, networking, working in groups;
4. Need for NDSU improvement: communication, UNIX experience, software testing, use of comprehensive development environments;
5. Achievement of Goals:
  - a. Scientific and technical areas: 3 rated as 3, 7 rated as 4, 9 rated as 5
  - b. Development: 2 rated as 3, 12 rated as 4, 4 rated as 5, 1 did not rate
  - c. Teamwork and communication: 6 rated as 3, 5 rated as 4, 8 rated as 5
  - d. Ethical issues: 5 rated as 2, 8 rated as 3, 4 rated as 4, 2 rated as 5
6. Missing, but desired: scripting languages, C++, .NET, Eclipse;
7. We should do more: team work, work with industry, UNIX, testing, coordination among classes;
8. We should do less: theory, repetitive assignments

### **9. Capstone Projects:**

The 2007-08 academic year marked the sixth year in which capstone projects for seniors in CS have been sponsored by external constituencies, primarily private corporations. The intent is to help students develop a strong background in real software development issues, learn software project management skills, and develop the ability to work in teams. Successful student teams use many of the skills they learned in earlier Computer Science courses. The sponsors for spring semester 2008 are as follows:

3M  
CNSE  
Echelon  
Green Square  
IBM  
Invie Consulting  
Microsoft  
NISC  
Phoenix International  
Polaris  
Rockwell Collins  
Sundog  
West

More than twenty companies proposed projects for our student teams to do. The thirteen companies listed were those selected by our capstone projects coordinator, Dean Knudson. Seven of these companies are repeats from last year and six are new.

Particularly noteworthy is the return of Microsoft which sat out the last three years due to intellectual property concerns.

**Summary tabulation of the Project Sponsor Survey, Compiled May, 2008**

PROJECT	OPINION OF CAPSTONE PROGRAM	WILLING TO SPONSOR NEXT YEAR	FINAL GRADE FROM SPONSOR	COMMENTS – SPONSOR/MENTOR
3M	Good	Likely	A	Sponsoring next year is highly dependent on my availability, but we would like to do so.
CNSE	Good	Likely	B/D	Run very well.
Echelon	Good	Marginal	B	I think it is a great opportunity you are providing for the students to get an idea of what to expect in the “real world”.
Green Square	Very Good	For Sure	A	This is an excellent opportunity for students to get real world experience and work in a team environment.
IBM	Very Good	For Sure	A	No comments this year
Invie Consulting	Good	For sure	B	I think both students and mentors have benefited from our involvement in the capstone program.
Microsoft	Very Good	For sure. Likely	B	I think Capstone is a great program. It gives the students insight into a real-world company setting and provides the sponsor companies insights into the students NDSU is educating. It is somewhat of an investment, but there are benefits all around.
NISC	Very Good	For sure	A	We had an excellent experience in our 1 <sup>st</sup> Capstone Project. We found the project beneficial to our organization and the project team.
Phoenix	Good	For sure	A	This year was “Very Good” – other years have not been as valuable for us. We will use this tool going forward.
Polaris	Very Good	For Sure	A	Great exposure for the students. Great opportunity for organizations to build a relationship with NDSU and students.
Rockwell Collins	Very good	For sure	A+	I think this is a great opportunity for the students and for the employers as well.
Sundog	Very Good	For Sure	A-	Excellent program. The biggest challenge is defining a good project scope that can be implemented within the available time and resources.
West	Very Good	Likely	A	Impressed with each student’s skill set and commend the program for pushing to expose students to real world development projects. Great opportunity for students and also has benefit to the sponsor companies – a win-win for both sides.

### 3. Advising Efforts:

#### ADVISEES 2007-2008

Aceituna	Daniel	GR	undecided	MS-Software Engineering
Addy	Noah	GR	undecided	MS-Computer Science
Annupureddy	Anupama	GR	undecided	MS-Computer Science
Carlson	Ryan	GR	undecided	MS-Software Engineering
Christeson	Eric	GR	undecided	MS-Software Engineering
Emmadi	Praveen Kumar	GR	undecided	MS-Computer Science
Falah	Bouchaib	GR	undecided	PHD-Software Engineering
Gunderson	Karl	GR	undecided	MS-Software Engineering
Johnson	Bryce	GR	undecided	PHD-Software Engineering
Joseph	Priya	GR	undecided	MS-Computer Science
Kaliki	Srikanth	GR	undecided	PHD-Software Engineering
Kallam,	Lakshmi	GR	undecided	MS-Software Engineering
Kazeck	Jerilyn	GR	undecided	MS-Software Engineering
Kunala	Santosh	GR	undecided	MS-Computer Science
Lin	Fengjing	GR	undecided	PHD-Computer Science
Maddi	Sunil	GR	undecided	MS-Computer Science
Moses	Joseph	GR	undecided	MS-Computer Science
Njos	Robby	GR	undecided	MS-Computer Science
Osmani	Md	GR	undecided	MS-Computer Science
Schlecht	Ryun	GR	undecided	MS-Computer Science
Shanmugasundaram	Vijayakumar	GR	undecided	PHD-Computer Science
Tirupathi	Ambika	GR	undecided	MS-Computer Science
Vellaswamy	Ashok	GR	undecided	MS-Computer Science
Yamparala	Sri Harsha	GR	undecided	MS-Computer Science
Al-Azzam	Omar	GR	Denton, Anne	PHD-Computer Science
Anantha Raman	Lakshmi	GR	Denton, Anne	MS-Computer Science
Besemann	Christopher	GR	Denton, Anne	PHD-Computer Science
Dorr	Dietmar	GR	Denton, Anne	PHD-Computer Science
Fazal	Nazeer	GR	Denton, Anne	MS-Computer Science
Feist	Matthew	GR	Denton, Anne	MS-Computer Science
Ganesan	Arjun	GR	Denton, Anne	MS-Computer Science
Gorla	Vijaya	GR	Denton, Anne	MS-Computer Science
Hanson	Christopher	SR	Denton, Anne	BS-Computer Science
Hauschild	Nicholas	SR	Denton, Anne	BS-Computer Science
Helsene	Adam	SR	Denton, Anne	BS-Computer Science
Hummel	Todd	FR	Denton, Anne	BS-Computer Science
Imholte	Randy	SR	Denton, Anne	BS-Computer Science
Jain	Harsh	GR	Denton, Anne	MS-Computer Science
Jain	Jenender	GR	Denton, Anne	MS-Computer Science
Jinka	Vasuprakash	GR	Denton, Anne	MS-Computer Science
Johanneck	Charles	JR	Denton, Anne	BS-Computer Science

Rasmussen	Kevin	SO	Denton,Anne	BS-Computer Science
Woznica	Szymon	GR	Denton,Anne	MS-Computer Science
Wu	Jianfei	GR	Denton,Anne	MS-Computer Science
Brown	Ken	SR	Du,Xiaojiang	BS-Computer Science
Chauhan	Anuj	GR	Du,Xiaojiang	MS-Software Engineering
Ghai	Vandana	SR	Du,Xiaojiang	BS-Computer Science
Gronfur	Justin	SR	Du,Xiaojiang	BS-Computer Science
Gupta	Vikas	SR	Du,Xiaojiang	BS-Computer Science
Hazrati	Shashank	SR	Du,Xiaojiang	BS-Computer Science
Jayawardena	Supra	SO	Du,Xiaojiang	BS-Computer Science
Johnson	Trevor	SR	Du,Xiaojiang	BS-Computer Science
Kambhampaty	Krishna	GR	Du,Xiaojiang	PHD-Computer Science
Karels	Paul	SR	Du,Xiaojiang	BS-Computer Science
Kondakindi	Swathi	GR	Du,Xiaojiang	MS-Computer Science
Lee	Rikki	SR	Du,Xiaojiang	BS-Computer Science
Levi	Nathan	SR	Du,Xiaojiang	BS-Computer Science
Rizvi	Huma	GR	Du,Xiaojiang	MS-Software Engineering
Scholl	Jeffrey	JR	Du,Xiaojiang	BS-Computer Science
Williamson	Tyler	JR	Du,Xiaojiang	BS-Computer Science
Huq	Shamima	GR	Juell,Paul	MS-Computer Science
Lu	Tingda	GR	Juell,Paul	MS-Computer Science
Holisky	Adam	JR	Kamel,Ahmed M	BS-Computer Science
Bhargava	Anirudh	SR	Kim,Sung	BS-Computer Science
Hoff	Garrett	GR	Kim,Sung	MS-Computer Science
Natarajan	Ramesh	GR	Kim,Sung	MS-Computer Science
Ramamurthy	Durga	GR	Kim,Sung	MS-Computer Science
Somavarapu	Murali	GR	Kim,Sung	MS-Computer Science
Vellaswamy Cheliah	Ganesh Kumar	GR	Kim,Sung	MS-Computer Science
Wang	Yan	GR	Kim,Sung	MS-Computer Science
Gupta	Munmun	SR	Li,Honglin	BS-Computer Science
Johnson	Tyler	SR	Li,Honglin	BS-Computer Science
Kalvoda	Justin	SR	Li,Honglin	BS-Computer Science
Khanna	Ashish	SR	Li,Honglin	BS-Computer Science
Kramer	Christopher	SR	Li,Honglin	BS-Computer Science
Longanecker	Joel	SO	Li,Honglin	BS-Computer Science
Mart	David	JR	Li,Honglin	BS-Computer Science
Tufton	Patrick	SR	Li,Honglin	BS-Computer Science
Abufardeh	Sameer	GR	Magel,Kenneth	PHD-Software Engineering
Banga	Surjeet	GR	Magel,Kenneth	MS-Software Engineering
Bhogadi	Manu	GR	Magel,Kenneth	MS-Software Engineering
Boyko	Gregory	GR	Magel,Kenneth	MS-Software Engineering
Brewer	Galen	SO	Magel,Kenneth	BS-Computer Science
Cimic	Senad	GR	Magel,Kenneth	MS-Software Engineering
Conklin	Russell	SR	Magel,Kenneth	BS-Computer Science
Dalquist	Lisa	SR	Magel,Kenneth	BS-Computer Science
Eda	Ravi	GR	Magel,Kenneth	MS-Software Engineering
Faught	David	SR	Magel,Kenneth	BS-Computer Science

Gupta	Munmum	SR	Magel,Kenneth	BS-Computer Science
Hedahl	Angela	GR	Magel,Kenneth	MS-Software Engineering
Hendrickson	Andrew	FR	Magel,Kenneth	BS-Computer Science
Herath	Shanaka	GR	Magel,Kenneth	MS-Software Engineering
Khanna	Ashish	SR	Magel,Kenneth	BS-Computer Science
Knoll	Kenneth	JR	Magel,Kenneth	BS-Computer Science
Kramer	Christopher	SR	Magel,Kenneth	BS-Computer Science
Limke	Jed	GR	Magel,Kenneth	MS-Software Engineering
Longanecker	Joel	JR	Magel,Kenneth	BS-Computer Science
Manori	Anshuman	GR	Magel,Kenneth	MS-Software Engineering
Mart	Jay	SR	Magel,Kenneth	BS-Computer Science
McGinnity	Steve	GR	Magel,Kenneth	MS-Software Engineering
Minot	Scott	GR	Magel,Kenneth	MS-Software Engineering
Mohammed	Khan	GR	Magel,Kenneth	PHD-Software Engineering
Murugaiyan	Elangovan	GR	Magel,Kenneth	MS-Software Engineering
Myronovych	Oksana	GR	Magel, Kenneth	PHD-Software Engineering
Nelson	Douglas	SR	Magel,Kenneth	BS-Computer Science
Oesterreich	David	JR	Magel,Kenneth	BA-Computer Science
Olson	Stephan	SR	Magel,Kenneth	BA-Computer Science
Paulus	Benjamin	SR	Magel,Kenneth	BS-Computer Science
Pikalek	Jonathan	GR	Magel,Kenneth	PHD-Computer Science
Pillakuppam	Naresh	GR	Magel,Kenneth	MS-Software Engineering
Pinagapani	Sathish	GR	Magel,Kenneth	MS-Computer Science
Potla	Yaswanth	GR	Magel,Kenneth	MS-Software Engineering
Rahman	Mohamed Saif Ur	GR	Magel,Kenneth	MS-Software Engineering
Roseen	Jeremy	GR	Magel,Kenneth	MS-Software Engineering
Rummelt	Richard	GR	Magel,Kenneth	PHD-Software Engineering
Sarker	Mridula	GR	Magel,Kenneth	MS-Software Engineering
Schomer	Nathaniel	JR	Magel,Kenneth	BS-Computer Science
Schuler	Jonathan	SR	Magel,Kenneth	BS-Computer Science
Serfling	Roger	SR	Magel,Kenneth	BS-Computer Science
Sharma	Mayukh	GR	Magel,Kenneth	MS-Computer Science
Shrestha	Bickrant	GR	Magel,Kenneth	MS-Software Engineering
Singh	Satwant	SR	Magel,Kenneth	BS-Computer Science
Sivanandam	Dinesh	GR	Magel,Kenneth	MS-Computer Science
Srichinta	Pallavi	GR	Magel,Kenneth	MS-Software Engineering
Stone	Jason	SR	Magel,Kenneth	BS-Computer Science
Swan	Mark	SR	Magel,Kenneth	BS-Computer Science
Thalloji	Pramodh	GR	Magel,Kenneth	MS-Software Engineering
Timm	Geoffrey	SO	Magel,Kenneth	BS-Computer Science
Upadhyay	Rajat	GR	Magel,Kenneth	MS-Software Engineering
Verma	Sachin	SR	Magel,Kenneth	BS-Computer Science
Ward	Elizabeth	SR	Magel,Kenneth	BS-Computer Science
Ahif	Travis	SO	Martin III,John C	BS-Computer Science
Al Dhanhi	Mahmoud	SO	Martin III,John C	BS-Computer Science
Albee	Christopher	JR	Martin III,John C	BS-Computer Science
Alic	Edin	FR	Martin III,John C	BS-Computer Science
Barsness	Timothy	SR	Martin III,John C	BS-Computer Science
Baskerville	Patrick	SR	Martin III,John C	BS-Computer Science
Bauer	Nicole	FR	Martin III,John C	BS-Computer Science
Bochman	Jayme	FR	Martin III,John C	BS-Computer Science
Bouret	Megan	SR	Martin III,John C	BS-Computer Science

Braaten	Evan	SR	Martin III,John C	BS-Computer Science
Bredahl	Joseph	FR	Martin III,John C	BS-Computer Science
Bremseth	Lucas	FR	Martin III,John C	BS-Computer Science
Brown	Cody	SO	Martin III,John C	BS-Computer Science
Byberg	Travis	SR	Martin III,John C	BS-Computer Science
Carlsrud	Ryan	SO	Martin III,John C	BS-Computer Science
Carr	Joel	JR	Martin III,John C	BS-Computer Science
Chadha	Apurav	SR	Martin III,John C	BS-Computer Science
Chowdhury	Amanul	SR	Martin III,John C	BS-Computer Science
Christenson	Anna	JR	Martin III,John C	BS-Computer Science
Christian	Benjamin	FR	Martin III,John C	BS-Computer Science
Cline	Tyler	FR	Martin III,John C	BS-Computer Science
Coppin	Josh	FR	Martin III,John C	BS-Computer Science
Daigle	Nicholas	JR	Martin III,John C	BS-Computer Science
Dandey	Santosh Raj	GR	Martin III,John C	MS-Computer Science
Dosso	Vamorris	SO	Martin III,John C	BS-Computer Science
Dotzenrod	Neil	SO	Martin III,John C	BS-Computer Science
Dougherty	Jacob	FR	Martin III,John C	BS-Computer Science
Dukart	Ryan	SO	Martin III,John C	BS-Computer Science
Eluzai	Wani	JR	Martin III,John C	BS-Computer Science
Emter	Travis	JR	Martin III,John C	BS-Computer Science
Engleson	Kyle	SO	Martin III,John C	BS-Computer Science
Erbentraut	Eric	FR	Martin III,John C	BS-Computer Science
Ewert	Shane	SO	Martin III,John C	BS-Computer Science
Ferguson	Benjamin	FR	Martin III,John C	BS-Computer Science
Ferguson	Benjamin	FR	Martin III,John C	BS-Computer Science
Frohlich	Mark	SR	Martin III,John C	BS-Computer Science
Frohlich	Mark Richard	SR	Martin III,John C	BS-Computer Science
Garner	Christopher	FR	Martin III,John C	BS-Computer Science
Gedgaud	Philip	SO	Martin III,John C	BS-Computer Science
Gjorven	Michael	JR	Martin III,John C	BS-Computer Science
Gmyrek	Dylan	SR	Martin III,John C	BS-Computer Science
Gooduru	Ramakrishnareddy	GR	Martin III,John C	MS-Computer Science
Gupta	Dhruv	SR	Martin III,John C	BS-Computer Science
Hansen	Justin	SR	Martin III,John C	BS-Computer Science
Hartleib	Joel	SR	Martin III,John C	BS-Computer Science
Heimbuch	Jordon	SO	Martin III,John C	BS-Computer Science
Helbling	Chad	SO	Martin III,John C	BS-Computer Science
Held	Ashley	FR	Martin III,John C	BS-Computer Science
Helm	David	SR	Martin III,John C	BS-Computer Science
Helmer	Brady	JR	Martin III,John C	BS-Computer Science
Honeyman	Matthew	SO	Martin III,John C	BS-Computer Science
Huo	Yupu	FR	Martin III,John C	BS-Computer Science
Irvine II	James	FR	Martin III,John C	BS-Computer Science
Jackson	Abram	FR	Martin III,John C	BS-Computer Science
Jaidev	Akanksha	SR	Martin III,John C	BS-Computer Science
Jain	Ripudaman	SR	Martin III,John C	BS-Computer Science
Jechort	Alan	SR	Martin III,John C	BS-Computer Science
Jin	Han	SO	Martin III,John C	BS-Computer Science
Johnson	Kent Charles	FR	Martin III,John C	BS-Computer Science
Kaale	Ikania	SR	Martin III,John C	BS-Computer Science
Kaber	Brett	SO	Martin III,John C	BS-Computer Science
Kar	Angshu	GR	Martin III,John C	PHD-Computer Science



Kariluoma	Matti	SR	Martin III,John C	BS-Computer Science
Kaufman	Mark	SO	Martin III,John C	BS-Computer Science
Kautzman	Michael	SO	Martin III,John C	BS-Computer Science
Kerber	Dustin	JR	Martin III,John C	BS-Computer Science
Khandal	Milind	SR	Martin III,John C	BS-Computer Science
Klingbeil	Seth	SO	Martin III,John C	BS-Computer Science
Konieska	Adam	SO	Martin III,John C	BA-Computer Science
Kramer	Andrew	FR	Martin III,John C	BS-Computer Science
Kressin	Steven	FR	Martin III,John C	BS-Computer Science
Kunwar	Ishita	SR	Martin III,John C	BS-Computer Science
Kwiecien	Stanley	JR	Martin III,John C	BS-Computer Science
Lanke	Ramesh	GR	Martin III,John C	MS-Computer Science
Lawler	Mark	FR	Martin III,John C	BS-Computer Science
Lee	Ryan	SO	Martin III,John C	BS-Computer Science
Lein	Nicholas	FR	Martin III,John C	BS-Computer Science
Lennington	Matthew	JR	Martin III,John C	BS-Computer Science
Lenthe	Josiah	SR	Martin III,John C	BS-Computer Science
Lin	Yong-Sheng	SO	Martin III,John C	BS-Computer Science
Lindstrom	Robert	SO	Martin III,John C	BS-Computer Science
Lofgren	Jacob	SO	Martin III,John C	BS-Computer Science
Lorz	Julius	SO	Martin III,John C	BS-Computer Science
Lutz	Jared	SR	Martin III,John C	BS-Computer Science
Lynch	Anthony	JR	Martin III,John C	BS-Computer Science
Mahoo	Christopher	SO	Martin III,John C	BS-Computer Science
Makosky	Matthew	SR	Martin III,John C	BS-Computer Science
Mason	Matthew	SR	Martin III,John C	BS-Computer Science
Mattson	Jeremiah	FR	Martin III,John C	BS-Computer Science
Maurya	Rajeshwar	SO	Martin III,John C	BS-Computer Science
McDaniel	Trevor	SO	Martin III,John C	BS-Computer Science
Mehinagic	Jasmin	SO	Martin III,John C	BS-Computer Science
Mehrotra	Anand	SR	Martin III,John C	BS-Computer Science
Mehrotra	Surbhit	SR	Martin III,John C	BS-Computer Science
Mudgal	Akshay	SR	Martin III,John C	BS-Computer Science
Nash	Brock	FR	Martin III,John C	BS-Computer Science
Neibert	John	FR	Martin III,John C	BS-Computer Science
Nelson	Jonathan Robert	FR	Martin III,John C	BS-Computer Science
NLN	Arun	SR	Martin III,John C	BS-Computer Science
Nordlie	Jeffrey	FR	Martin III,John C	BS-Computer Science
Novotny	Steven	SR	Martin III,John C	BS-Computer Science
Novotny	Tyler	FR	Martin III,John C	BS-Computer Science
Oberlander	Shane	FR	Martin III,John C	BS-Computer Science
Otto	Andrew	SO	Martin III,John C	BS-Computer Science
Palazzo	Anthony	FR	Martin III,John C	BS-Computer Science
Parson	Scott	JR	Martin III,John C	BS-Computer Science
Parvathaneni	Rohit	SR	Martin III,John C	BS-Computer Science
Passi	Vibhu	SR	Martin III,John C	BS-Computer Science
Pavicic	Abel	SO	Martin III,John C	BS-Computer Science
Peabody	Matthew	SR	Martin III,John C	BS-Computer Science
Piehl	Matthew	SO	Martin III,John C	BS-Computer Science
Prince	Adam	FR	Martin III,John C	BS-Computer Science
Pushpala Vijay	Manoj	GR	Martin III,John C	MS-Computer Science
Query	Peter	FR	Martin III,John C	BS-Computer Science
Reindl	Phillip	SR	Martin III,John C	BS-Computer Science

Reinhardt	Lee	SR	Martin III,John C	BS-Computer Science
Roemmich	Christopher	FR	Martin III,John C	BS-Computer Science
Rohik	Austin	FR	Martin III,John C	BS-Computer Science
Rostad	Charles	SO	Martin III,John C	BS-Computer Science
Samanta	Andrew	FR	Martin III,John C	BS-Computer Science
Samanta	Alex	JR	Martin III,John C	BS-Computer Science
Samuelson	Matthew	SR	Martin III,John C	BS-Computer Science
Saran	Ripunjaya	SR	Martin III,John C	BS-Computer Science
Saroha	Jitender	SR	Martin III,John C	BS-Computer Science
Saxton	Robert	SO	Martin III,John C	BS-Computer Science
Sayami	Siddhartha	FR	Martin III,John C	BS-Computer Science
Schelkoph	Daniel	SR	Martin III,John C	BS-Computer Science
Schepers	John	SO	Martin III,John C	BS-Computer Science
Schlenvogt	Bethany	FR	Martin III,John C	BS-Computer Science
Schmidt	Mathew	SO	Martin III,John C	BS-Computer Science
Schreiber	Jason	SO	Martin III,John C	BS-Computer Science
Seelig	Celton	SO	Martin III,John C	BS-Computer Science
Sehgal	Nakul	SR	Martin III,John C	BS-Computer Science
Sheoran	Arun	SR	Martin III,John C	BS-Computer Science
Singh	Kunal	SR	Martin III,John C	BS-Computer Science
Skrei	Brandon	JR	Martin III,John C	BS-Computer Science
Smith	Matthew	JR	Martin III,John C	BS-Computer Science
Smock	Adam	SO	Martin III,John C	BS-Computer Science
Sonalkar	Vishal	SR	Martin III,John C	BS-Computer Science
Stack	Jordan	SO	Martin III,John C	BS-Computer Science
Stenger	Phillip	FR	Martin III,John C	BS-Computer Science
Stockton	Alexander	JR	Martin III,John C	BS-Computer Science
Syverson	Jesse	FR	Martin III,John C	BS-Computer Science
Thompson	Benjamin	FR	Martin III,John C	BS-Computer Science
Thompson	Christopher	JR	Martin III,John C	BS-Computer Science
Torgerson	David	JR	Martin III,John C	BS-Computer Science
Triplett	Jeffrey	JR	Martin III,John C	BS-Computer Science
Utke	John	FR	Martin III,John C	BS-Computer Science
Wadduwage	Don	FR	Martin III,John C	BS-Computer Science
Wahlund	Collin	SR	Martin III,John C	BS-Computer Science
Westerholm	James	JR	Martin III,John C	BS-Computer Science
Wiesenborn	Jesse	SO	Martin III,John C	BS-Computer Science
Wiggins	Jacob	FR	Martin III,John C	BS-Computer Science
Wuethrich	Jonathan	SO	Martin III,John C	BS-Computer Science
Aakula	Srikanth	GR	Nygaard,Kendall E	MS-Computer Science
Acharya	Shashanka	GR	Nygaard,Kendall E	MS-Computer Science
Addy	Sydney	GR	Nygaard,Kendall E	MS-Computer Science
Al-Nimer	Loai	GR	Nygaard,Kendall E	PHD-Computer Science
		GR	Nygaard,Kendall E	PHD-Software Engineering
Amaran	Pradeep	GR	Nygaard,Kendall E	MS-Computer Science
Amuge	Betty	GR	Nygaard,Kendall E	MS-Computer Science
Arora	Barjesh	GR	Nygaard,Kendall E	PHD-Computer Science
Basu	Samidip	GR	Nygaard,Kendall E	MS-Computer Science
Brown	Jeremy	GR	Nygaard,Kendall E	MS-Computer Science
		GR	Nygaard,Kendall E	MS-Computer Science
Chatterjee	Arijit	GR	Nygaard,Kendall E	MS-Computer Science
Chinthakayala	Krishna	GR	Nygaard,Kendall E	MS-Computer Science

DeSoysa	Shanaka	GR	Nygaard,Kendall E	MS-Computer Science
Dumpala	Chaitanya	GR	Nygaard,Kendall E	MS-Computer Science
ElAriss	Omar	GR	Nygaard,Kendall E	PHD-Computer Science
Fazal	Kareem	GR	Nygaard,Kendall E	MS-Computer Science
Gagneja	Kanwalinder	GR	Nygaard,Kendall E	PHD-Computer Science
Ganapa	Sireesha	GR	Nygaard,Kendall E	MS-Computer Science
Gangannagari	Rajendar	GR	Nygaard,Kendall E	MS-Computer Science
Ganti	Annaji	GR	Nygaard,Kendall E	MS-Computer Science
Garg	Bandana	GR	Nygaard,Kendall E	MS-Computer Science
Garimedi	Rajani	GR	Nygaard,Kendall E	MS-Computer Science
Gupta	Divya	GR	Nygaard,Kendall E	MS-Computer Science
Huff	Nathan	GR	Nygaard,Kendall E	MS-Computer Science
Ireddy Naga	Krishnakanth	GR	Nygaard,Kendall E	MS-Computer Science
Jonnalagadda	Vindhya	GR	Nygaard,Kendall E	MS-Computer Science
Kadam	Ramchandra	GR	Nygaard,Kendall E	MS-Computer Science
Kandah	Farah	GR	Nygaard,Kendall E	PHD-Computer Science
Kapoor	Chetan	GR	Nygaard,Kendall E	MS-Computer Science
Khanchandani	Kavita	GR	Nygaard,Kendall E	MS-Computer Science
Kheerwal	Anoop	GR	Nygaard,Kendall E	MS-Computer Science
Kondamarri	Samuel	GR	Nygaard,Kendall E	MS-Computer Science
Kroshus	John	GR	Nygaard,Kendall E	MS-Computer Science
Lua	Chin	GR	Nygaard,Kendall E	PHD-Software Engineering
Lundell	Martin	GR	Nygaard,Kendall E	PHD-Software Engineering
Marback	Aaron	GR	Nygaard,Kendall E	PHD-Computer Science
Mattaparthu	Harika	GR	Nygaard,Kendall E	MS-Computer Science
Mukhami	Sudesh	GR	Nygaard,Kendall E	MS-Computer Science
Mukka	Hari	GR	Nygaard,Kendall E	MS-Computer Science
Narayanan	Vasant	GR	Nygaard,Kendall E	MS-Computer Science
Pandey	Shivendushital	GR	Nygaard,Kendall E	MS-Computer Science
Paturu	Suresh	GR	Nygaard,Kendall E	MS-Computer Science
Perubhotla	Sritej	GR	Nygaard,Kendall E	MS-Computer Science
Pillarkuppam	Naresh	GR	Nygaard,Kendall E	MS-Software Engineering
Poreddy	Sandeep	GR	Nygaard,Kendall E	MS-Computer Science
Pullagurala	Praveen	GR	Nygaard,Kendall E	MS-Computer Science
Raavi	Sandeep	GR	Nygaard,Kendall E	MS-Computer Science
Radermacher	Alex	GR	Nygaard,Kendall E	MS-Computer Science
Raidu	Venkata	GR	Nygaard,Kendall E	MS-Computer Science
Rajaraman	Thilak Kumar	GR	Nygaard,Kendall E	MS-Computer Science
Sachdev	Rajeev	GR	Nygaard,Kendall E	MS-Computer Science
Sambaraju	Sharath	GR	Nygaard,Kendall E	MS-Computer Science
Sathiasaelan	Anu Evelyn	GR	Nygaard,Kendall E	MS-Computer Science
Saxena	Kaustbh	GR	Nygaard,Kendall E	MS-Computer Science
Sehgal	Anika	GR	Nygaard,Kendall E	MS-Computer Science
Sikharam	Sandeep	GR	Nygaard,Kendall E	MS-Computer Science
Sundaram	Anita	GR	Nygaard,Kendall E	MS-Computer Science
Suravarapu	Vijay Anand	GR	Nygaard,Kendall E	MS-Computer Science
Tang	Jingpeng	GR	Nygaard,Kendall E	PHD-Computer Science
Vanteru	Siva	GR	Nygaard,Kendall E	MS-Computer Science
Conway	Darren	SO	Perrizo,William K	BS-Computer Science
Fleming	Eric	JR	Perrizo,William K	BS-Computer Science
Jockheck	William	GR	Perrizo,William K	PHD-Computer Science
Katiyar	Arti	SR	Perrizo,William K	BS-Computer Science

Knight	Zachary	FR	Perrizo,William K	BS-Computer Science
Laney	Nicholas	SO	Perrizo,William K	BS-Computer Science
Maier	Andrew	JR	Perrizo,William K	BS-Computer Science
Nayak	Gaurav	SR	Perrizo,William K	BS-Computer Science
Shao	Tian	FR	Perrizo,William K	BS-Computer Science
Svingen	Katlin	FR	Perrizo,William K	BS-Computer Science
Weber	Ian Joseph	FR	Perrizo,William K	BS-Computer Science
Zumwalde	Sarah	SO	Perrizo,William K	BS-Computer Science
Agarwal	Niti	SR	Slator,Brian	BS-Computer Science
Borchert	Otto	GR	Slator, Brian	PHD-Computer Science
Peterson	Zach	SO	Slator,Brian	BS-Computer Science
Devina	Laiphangbam	GR	Slator, Brian	MS-Computer Science
Dischinger	Benjamin	GR	Slator,Brian	MS-Computer Science
Frueh	Ryan	FR	Slator,Brian	BS-Computer Science
Heltemes	Darin	SR	Slator,Brian	BS-Computer Science
Hokanson	Guy	GR	Slator,Brian	MS-Computer Science
Lemke	Todd	SR	Slator,Brian	BS-Computer Science
Oxton	Tyler	FR	Slator,Brian	BS-Computer Science
Shaske	Jacob	JR	Slator,Brian	BS-Computer Science
Wangota	Paul	JR	Slator,Brian	BS-Computer Science
Bapanpally	Pavan	GR	Ubhaya,Vasant A	MS-Computer Science
Chintapalli	Veera Venkata	GR	Ubhaya,Vasant A	MS-Computer Science
Crump	James	SO	Ubhaya,Vasant A	BS-Computer Science
Dass	Pranav	GR	Ubhaya,Vasant A	MS-Computer Science
Kumar	Pankaj	SR	Ubhaya,Vasant A	BS-Computer Science
Mehinagic	Damir	JR	Ubhaya,Vasant A	BS-Computer Science
Olson	Michael	SR	Ubhaya,Vasant A	BS-Computer Science
Pathak	Neelmani	SR	Ubhaya,Vasant A	BS-Computer Science
Sharma	Aman	SR	Ubhaya,Vasant A	BS-Computer Science
Sheoran	Varun	SR	Ubhaya,Vasant A	BS-Computer Science
Thompson	Christopher	SO	Ubhaya,Vasant A	BS-Computer Science
Vinta	Naveen	GR	Ubhaya,Vasant A	MS-Computer Science
Boss	Stephen	SR	Xu,Dianxiang	BS-Computer Science
Bunkowski	Joseph	SO	Xu,Dianxiang	BS-Computer Science
Chakravarthi	Satheesh	GR	Xu,Dianxiang	MS-Computer Science
Gallenbeck	Gerald	JR	Xu,Dianxiang	BS-Computer Science
Guduru	Vasumathi	GR	Xu,Dianxiang	MS-Computer Science
Gurram	Kiran	GR	Xu,Dianxiang	MS-Computer Science
Gurram	Samyuktha	GR	Xu,Dianxiang	MS-Computer Science
Hillius	Parker	SR	Xu,Dianxiang	BS-Computer Science
Maas	Timothy	SR	Xu,Dianxiang	BS-Computer Science
Rana	Pradhuman	SR	Xu,Dianxiang	BS-Computer Science
Singh	Amar	SR	Xu,Dianxiang	BS-Computer Science
Sprague	Matthew	JR	Xu,Dianxiang	BS-Computer Science
Stockwell	Perry	FR	Xu,Dianxiang	BS-Computer Science

#### **4. Curriculum and course development and changes:**

Curriculum review and improvement continued during 2007-08. We refined our proposal for a Bachelor of Science in Applied Computing. Additional specializations were considered for this program including game development and artificial intelligence. The specialization requirement was increased from three courses to four courses. Each specialization was organized with an introductory course and three more advanced courses. To offset the increased specialization requirement, the core component was reduced by one course. The proposal is almost complete and should be submitted to the College Curriculum Committee during fall, 2008.

The Master of Software Engineering degree proposal finally passed the College Curriculum Committee and has begun review by a subcommittee of the Graduate Council. We are hopeful for final approval during the spring of 2009 with initial implementation fall, 2009.

#### **5. Accreditation and reviews:**

The B.S. in Computer Science has been accredited since 1986, the first year that accreditation was available. The ABET visit and review in the fall of 2007 was very successful. The B.S. continues to be accredited through June, 2009. Our reviewer has requested that we consider the M.S. in Computer Science and the M.S. in Software Engineering for possible submission for ABET accreditation. The Department will consider these possibilities in the future.

The department is also considering a strategy of switching the accreditation schedule to align with the NDSU College of Engineering. This might serve to reduce the onerous paperwork required by ABET and possibly offer economies of scale leading to shared and/or reduced costs.

The main accreditation activity during the remainder of 2007-08 was to reformulate our B.S. goals and objectives to reflect new required objectives approved by ABET for accredited programs in the fall of 2007. We hope to complete the extensive mapping of our courses to the new goals and objectives during the summer of 2008 for implementation in the fall.

#### **6. Activities in student recruitment/retention, enrollment management, and other student activities:**

The Department continued the two initiatives begun in 2005-06: introduction of a student honor society; and early selection of graduate teaching assistants as a recruiting tool. We implemented a sorely needed new web site also.

At the undergraduate level the Department recognizes there is a retention problem. We have identified the problems as three-fold:

- (1) Students are not always sufficiently motivated to learn the knowledge and skills they must learn;
- (2) Our courses are not sufficiently coordinated with each other to provide students with needed repeated reinforcement of skills and practices introduced in earlier courses;

(3) The analytical material we introduce in several courses is not well-accepted or mastered by many of our students.

We continue to attempt solutions to these problems.

*Senior professors teaching freshman and transfer students:*

Nearly all of the courses for CS majors, including those in the lower division, are taught by tenured or tenure-track professors, in accordance with ABET accreditation principles. Entry level courses are regularly taught by senior professors.

*Summer school activities:*

The department typically offers at least two graduate-level courses each summer, including at least one of the four graduate core courses. At least two courses for undergraduate majors are also offered. Service courses, such as CSci 114 and 116 are offered also. The department offers several courses each summer under the self-support program. The self-support program is very beneficial for the department. Some distance education courses are presented as well.

*Career Center student employment*

CS Bachelor students employment rate is 86% at a salary range of Low-Average-High being 27-51-69K. We believe these figures significantly underestimate the real employment rate since many graduating students do not go through the Career Center to procure employment. Our own discussions with graduating students indicate an employment rate near 100% for students who immediately seek employment.

**7. *Distance Education and use of Technology in Courses:***

The Department offers distance versions of CSci 114, and 116 every semester and in the summer. Other service courses are offered via distance less frequently. Starting fall, 2006, we offered the Graduate Certificate in Software Engineering including four courses and a seminar through distance to students in India and elsewhere. We hope to expand our graduate distance education offerings to the M.S. in Software Engineering within the next three years. Starting late summer of 2008, we expect to advertise the Certificate program regionally as well.

Every Computer Science course uses technology extensively. Courses use the Internet for delivery and many courses require extensive computer work. We are heavy users of Blackboard.

**8. *Assessment***

The Department reorganized our assessment procedures during the fall of 2005. We have been gathering data on our achievement of our program-specific objectives in both fall, 2007 and spring, 2008. Specific changes undertaken during 2007-08 as a result of these assessments include:

1. Continued to refine our introductory course sequence to be more interesting to students and more motivating;
2. Modified our theory courses (CSci 335, 336) to improve student motivation and understanding;
3. Introduced additional writing assignments for varied audiences in several upper division courses.



## B. RESEARCH/CREATIVE ACTIVITY

### 1. Research overview:

While almost all tenure track faculty regularly publish in high-quality media, external grants continue to be concentrated among too few faculty. The Department started a research enhancement program for junior faculty during 2005-06. This program continued in 2007-08. A new program to encourage visits by more senior faculty in research areas of interest to our junior faculty was begun in 2006-07. This program paid expenses and a small honorarium either for senior faculty to travel to NDSU to work intensively with our faculty for two weeks or for our faculty to travel to work intensively with senior faculty elsewhere for one or two weeks.

Our long range goal for the next three to five years is to improve the visibility and prestige of the Department's research programs nationally. We believe the rather low prestige of the Department outside our region (where we are widely imitated as a research and teaching leader) hurts our grant acquisition capability from federal funding agencies and from large corporations. However, the NSF did cite our program as being in the top-100 Computer Science programs during 2006-07.

The Department has active research programs in data mining, software engineering, networks, virtual environments, computer systems, software security, and bioinformatics. These programs should continue to achieve more visibility within the profession.

### 2. Grants/Contracts/Research:

#### COMPUTER SCIENCE DEPARTMENT GRANTS AND CONTRACTS, PART 1 PROJECTS INITIATED PRIOR TO JULY 1, 2007, AND CONTINUING INTO THE 2007- 2008 ACADEMIC YEAR

YEAR	GRANT #	PRINCIPAL INVESTIGATOR	TITLE	FUNDING SOURCE	AMOUNT
7/05 to 10/07	10466	Denton	USDA – CREES Project		61,955
7/05 to 6/08	10693	Denton	Data Mining in the Presence of Quantitatively Diverse Information	NSF	272,557
5/1/07 to 4/30/08	12263	Du	Dept of Army Heterogeneous Sensor Network Testbed Research	Department of Army	58,150
3-2-07 to 3-2-08		Magel	Five - \$1000 awards	Microsoft Great Plains	5,000
2-26-07 to 2-26-08		Magel	Five scholarships	Microsoft Great Plains	10,000
8/15/06 to 8/14/07	12099	Nygaard/Du	Smart Sensing and Decision making for NASA Sensor Webs	NASA/UN D	57,479
7/93 ----	5512	Perrizo	Residual Value Surrogates	Dakota Race Mgmt.	16,469
8/15/06 to	11337	Perrizo	Sixth Virtual Conference on	NSF	17,114

YEAR	GRANT #	PRINCIPAL INVESTIGATOR	TITLE	FUNDING SOURCE	AMOUNT
7/31/07			Genomics and Bioinformatics		
8/15/06 to 7/31/07	12110	Perrizo	Sixth Virtual Conference on Genomics and Bioinformatics/Travel	NSF	700
8/15/06 to 7/31/07	11284	Slator	Pilot Project: Research on Serious Games fo Geoscience Education	NSF	73,959
<b>TOTAL</b>					<b>573,383</b>

**COMPUTER SCIENCE DEPARTMENT GRANTS AND CONTRACTS  
PROJECTS INITIATED DURING THE JULY 1, 2007 TO JUNE 30, 2008 TIME PERIOD**

YEAR	GRANT #	PRINCIPAL INVESTIGATOR	TITLE	FUNDING SOURCE	AMOUNT
11-30-07		Du	Travel award		1,000
09-01-07 to 08-31-10	12474	Du	CRI – A Heterogeneous Sensor Network Laboratory for Iegrated Research and Education	NSF	88,370
09-01-07 to 07-31-08	12649	Du	NeTS NOSS – Collaborative Research	NSF	122,376
10-15-07 to 04-30-08	13727	Du	Effective Communication Systems for NASA EPSCoR Seed Award	UND NASA/EPSCoR	4,815
10-15-07 to 8-30-08	37100	Du	Monitoring Control of Wheat Diseases using Wireless Sensor Networks	NDAES/CSM	10,,000
3/08 to 5/08	18277	Knudson	Salary & travel Award	VP Office	4500
02-04-08 to 05/31/8	13999	Magel	Fellowship for Deitmar Dorr	Microsoft Rsearch Foundation	15,000
1/08 to 7/31/08	18139	Nygaard	Military Logistics	Upper Great Plains	15,000
07-01-07 to 06-30-08	13546	Slator	EPSCoR New Faculty Award	NDSU/EPSCoR	40,000
11/07		Student Award	DigiKey student winning first	DigiKey	1,800
11/07		Student Award	DigiKey student winning first	DigiKey	3,000
07-01-07 to 12-31-07	13299	Xu	Testing for Software Safety	NASA/University of Texas	25,000
05-02-07 to 06-30-08	13760	Xu	NASA EPSCoR GRA Award	NASA/UND	13,053
<b>Totals</b>					<b>343,914</b>

## **1. Articles/Books/Publications and Presentations:**

### **Anne Denton**

#### **Publications**

##### **Refereed publications**

1. **Anne Denton**, Jianfei Wu, Megan K. Townsend, and Birgit M. Pr, "Relating gene expression data on two-component systems to functional annotations in *Escherichia coli*", *BMC Bioinformatics* (in press).
2. Dietmar H. Dorr and **Anne M. Denton**, "Generalised sequence signatures through symbolic clustering" *International Journal of Data Mining and Bioinformatics* (in press -- requested extended version of the workshop paper 6. below).
3. H. Dorr, **Anne M. Denton**, "Clustering sequences by overlap," *International Journal of Data Mining and Bioinformatics*, (in press).
4. **Anne M. Denton**, Christopher A. Besemann and Dietmar H. Dorr, "Pattern-based Time-series Subsequence Clustering Using Radial Distribution Functions," *Knowledge and Information Systems (KAIS) Journal*, (in press). DOI:10.1007/s10115-008-0125-7
5. Dietmar Dorr and **Anne Denton**, "A pattern mining approach toward discovering generalized sequence signatures," In Proc. SIAM International Conference on Data Mining (SDM08), Atlanta, GA, April 24-26, 2008. (Poster paper, acceptance rate overall 27%)
6. Kenneth Lepper, Steven L. Reneau, Jennifer Thorstad, **Anne Denton**, "OSL dating of a lacustrine to fluvial transitional sediment sequence in Valle Toledo, Valles caldera, New Mexico," *New Mexico Geology*, 29(4), 112-116, 2007.
7. Dietmar Dorr and **Anne Denton**, "Generalized sequence signatures through symbolic clustering," In Proc. 6th Int'l Conf' on Machine Learning and Applications (Workshop on Machine Learning in Biomedicine and Bioinformatics), Cincinnati, OH, pp. 567-572, Dec. 13-15, 2007. (ISBN:0-7695-3069-9)
8. Jianfei Wu and **Anne Denton**, "Mining vector-item patterns for annotating protein domains," In Proc. Mining Multiple Information Sources Workshop in conj. with the ACM KDD '07 Conf. on Knowledge Discovery and Data Mining, San Jose, CA, Aug. 12, 2007. (Acceptance rate: 36%) (ISBN: 978-1-59593-840-4)

##### **Peer-reviewed book chapters**

1. **Anne Denton**, "Clustering of time series data," in Encyclopedia of Data Warehousing and Mining, 2nd Edition, ed. John Wang, Idea Group Publishing, Hershey, PA, 2008 (in press).
2. **Anne Denton** and Christopher Besemann, "Association rule mining of relational data," in Encyclopedia of Data Warehousing and Mining, 2nd Edition, ed. John Wang, Idea Group Publishing, Hershey, PA, 2008 (in press).

##### **Pending publications**

1. **Anne Denton**, "Subspace sums for extracting non-random data from massive noise," submitted to *Knowledge and Information Systems* (in second review).

2. Dietmar Dorr and **Anne Denton**, "Establishing relationships among patterns in stock market data," submitted to *Data and Knowledge Engineering* (major revision requested).
3. **Anne Denton** and Jianfei Wu, "Data Mining of Vector-Item Patterns Using Neighborhood Histograms" submitted to *Knowledge and Information Systems*.

## [Hyunsook Do](#)

### **Publications**

#### **Refereed Journal Papers**

1. Alex Orso, **Hyunsook Do**, Gregg Rothermel, Mary J. Harrold, and David S. Rosenblum, Using ComponentMetadata toRegressionTestComponent-BasedSoftware, *Journal ofSoftwareTesting, Verification, and Reliability*, Volume17,No. 2,2007, pages 61-94.
2. **Hyunsook Do** and Gregg Rothermel, On the Use of Mutation Faults in Empirical Assessments of Test Case Prioritization Techniques,*IEEETransactions onSoftware Engineering*, Volume 32, No. 9, September, 2006,pages 733-752.
3. **Hyunsook Do**, Gregg Rothermel, and Alex Kinner, Prioritizing JUnit Test Cases: An Empirical Assessment and Cost-Benefits Analysis, *Empirical Software Engineering: AnInternationalJournal*,Volume11,No. 1,2006,pages33-70.

#### **Refereed Conference Papers**

1. **Hyunsook Do** and Gregg Rothermel, An Empirical Study of Regression Testing Techniques Incorporating Context and Lifetime Factors and Improved Cost-Benefit Models, *ACM SIGSOFT Symposium on Foundations of Software Engineering (FSE)*, November, 2006.

#### **Pending publications**

1. **Hyunsook Do** and Gregg Rothermel, Using Sensitivity Analysis to Create Simplified Economic Models for Regression Testing, *ACM SIGSOFT International Symposium onSoftwareTesting andAnalysis(ISSTA)*,December,2007.

## [Xiaojiang Du](#)

### **Publications**

#### **Referred, Peer-Reviewed Journal Papers**

1. **X. Du**, M. Shayman and R. Skoog, "Designing Fault Tolerant Networks to Prevent Poison Message Failure", *Security and Communication Networks, Wiley*, Vol. 1, Issue 1, pp. 1–17, Jan. 2008.
2. Y. Xiao, **X. Du**, J. Zhang, and S. Guizani, "Internet Protocol Television (IPTV): the Killer Application for the Next Generation Internet," *IEEE Communications Magazine*, Vol. 45, No. 11, pp. 126–134, Nov. 2007.
3. **X. Du**, M. Guizani, Y. Xiao, and H. H. Chen, "Two Tier Secure Routing Protocol for Heterogeneous Sensor Networks," *IEEE Transactions on Wireless Communications* Vol. 6, Issue 9, pp. 3395–3401, Sept. 2007.

4. Y. Xiao, H. Chen, **X. Du**, and M. Guizani, "Performance Analysis of Blanket Paging, Sequential Probability Paging, and Pipeline Probability Paging for Wireless Systems," *IEEE Transactions on Vehicular Technology*, Volume: 56, Issue: 5, pp. 2745 – 2755, Sept. 2007.
5. **X. Du**, M. Zhang, K. Nygard, S. Guizani, and H. H. Chen, "Self-Healing Sensor Networks with Distributed Decision Making," *International Journal of Sensor Networks*, Vol. 2, Nos. 5/6, pp. 289–298, 2007.
6. Q. Wu, N. Rao, **X. Du**, S.S. Iyengar, and V. K. Vaishnavi, "On Efficient Deployment of Sensors on Planar Grid," *Computer Communications, Elsevier*, Vol. 30, pp. 2721–2734, 2007.

### Accepted, Peer-Reviewed Journal Papers

1. **X. Du**, M. Guizani, Y. Xiao, S. Ci, and H. H. Chen, "A Routing-Driven Elliptic Curve Cryptography based Key Management Scheme for Heterogeneous Sensor Networks," *IEEE Transactions on Wireless Communications*, accepted, to appear.
2. **X. Du**, M. Guizani, Y. Xiao, and H. H. Chen, "Secure and Efficient Time Synchronization in Heterogeneous Sensor Networks," *IEEE Transactions on Vehicular Technology*, May 2008, to appear.
3. **X. Du**, Y. Xiao and F. Dai "Increasing Network Lifetime by Balancing Node Energy Consumption in Heterogeneous Sensor Networks," *Wireless Communications and Mobile Computing, Wiley*, Issue 8, pp. 125–136, 2008, to appear.
4. **X. Du**, and H. H. Chen, "Security in Wireless Sensor Networks," *IEEE Wireless Communications Magazine*, accepted, to appear.
5. **X. Du**, and D. Wu, "Joint Design of Routing and Medium Access Control for Hybrid Mobile Ad Hoc Networks," *ACM Mobile Networks and Applications (MONET)*, accepted, to appear.

### Referred, Peer-Reviewed Conference Papers

1. J. Brown, **X. Du**, and K. Nygard, "An Efficient Public-Key-Based Heterogeneous Sensor Network Key Distribution Scheme," in *Proc. of IEEE GLOBECOM 2007*, Nov. 2007, Washington, D.C. (Acceptance rate: 30 %)
2. **X. Du**, M. Guizani, Y. Xiao, and H. H. Chen, "A Secure Time Synchronization Scheme for Heterogeneous Sensor Networks," in *Proc. of IEEE GLOBECOM*, Nov. 2007, Washington, D.C. (Acceptance rate: 30 %)
3. **X. Du**, H. H. Chen, Y. Xiao, and M. Guizani, "A Pseudo-Random Function based Key Management Scheme for Heterogeneous Sensor Networks," in *Proc. of IEEE GLOBECOM 2007*, Nov. 2007, Washington, D.C. (Acceptance rate: 30 %)
4. Y. Xiao, H. Chen, **X. Du**, and M. Guizani, "Paging Schemes Performance for Wireless Systems," in *Proc. of IEEE GLOBECOM 2007*, Nov. 2007, Washington, D.C. (Acceptance rate: 30 %)
5. **X. Du**, D. Mandala, C. You, and Y. Xiao, "A Boundary-Node based Localization Scheme for Heterogeneous Wireless Sensor Networks," in *Proc. of IEEE MILCOM 2007*, Oct. 2007, Orlando, FL. (Acceptance rate: 30 %)

## Yan Gu

### Refereed publications

1. **Yan Gu** and Richard Fujimoto, "Adaptive Model Update Algorithms in Remote Network Emulation", accepted to 22nd ACM/IEEE/SCS Workshop on Principles of Advanced and Distributed Simulation (PADS 2008)

### Pending publications

One paper submitted to SIMULATION journal is under revision.

I am currently working on papers due in April to MASCOTS 2008, WSC 2008 and MilCOMM 2008.

## Dean Knudson

### Refereed Publications

1. **Dean Knudson**, Alan Braaten, Kenneth Magel, Kendall Nygard, "Software Engineering in Computer Science Capstone Projects", *2007 International Conference on Software Engineering Theory and Practice*, Orlando, FL, July 9-12, 2007.

### Presentations

1. Keynote speaker, "Tales from 40 Years in the Software Industry Trenches", joint talk to the following conferences: *International Conference on Artificial Intelligence and Pattern Recognition (AIPR-07)*, *International Conference on Enterprise Information Systems and Web Technologies (EISWT-07)*, *International Conference on High Performance Computing Networking and Communication Systems (HPCNCS-07)*, *International Conference on Software Engineering Theory and Practice (SETP-07)*, July 9-12, 2007.

### Pending Publications

1. **Dean Knudson**, Kenneth Magel, "Comments on the Use of TWiki, Blackboard Portfolios and Trac to Share Proprietary Information in Student Projects", *SITE 2008 – Society for Information Technology & Teacher Education International Conference*, Las Vegas, NV, March 3-7, 2008, accepted, to appear.

## Jun Kong

### Publications:

1. C. Y. Zhao, **J. Kong**, J. Dong, and K. Zhang, "Pattern Based Design Evolution Using Graph Transformation", *Journal of Visual Languages and Computing*, Vol.18(4), 2007, 378-398.
2. **J. Kong**, K. Zhang, and X. Q. Zeng, "Spatial Graph Grammars for Graphical User Interfaces", *ACM Transactions on Computer-Human Interaction*, Vol.13(2), 2006, 268-307.
3. G. L. Song, **J. Kong**, and K. Zhang, "AutoGen: Easing Model Management through Two Levels of Abstraction", *Journal of Visual Language and Computing*, Vol.17(6), 2006, 508-527.
4. H. Ahmadi and **J. Kong**, "An Efficient Web Browsing on Small Screens", *ACM International Conference on Advanced Visual Interfaces – AVI'08*, 2008.



5. J. Limke, **J. Kong**, and J. Dong, "Adaptation in a Pervasive Computing Environment", *International Conference on Software Engineering Theory and Practice*, 2008.
6. C. Y. Zhao, **J. Kong**, and K. Zhang, "Design Pattern Evolution and Verification Using Graph Transformation", *Proc. The 40<sup>th</sup> Hawaii International Conference on System Sciences*, 2007, 290-296.

### **Pending Publications:**

1. **J. Kong**, K. Zhang, J. Dong, and D. Xu, "Specifying behavioral semantics of UML diagrams through Graph transformations", Submitted to *Journal of Systems and Software*, 2007.
2. **J. Kong** and D. Xu, "A UML-based Framework for Design and Analysis of Secure Software", Submitted to *32nd Annual IEEE International Computer Software and Applications Conference*, 2008.
3. H. Ahmadi and **J. Kong**, "On A Classification of Adaptive Layouts for Mobile Web Browsing", Submitted to *IEEE Symposium on Visual Languages and Human-Centric Computing*, 2008.

## **Kenneth Magel**

### **Publications**

#### **Fully Refereed Journal Articles**

1. "GUI Path Oriented Test Generation Algorithms", with I. Alsmadi, 2007 International Conference on Software Engineering Theory and Practice, Orlando, Florida, July 9 – 12, 2007.
2. Dean Knudson, Alan Braaten, Kenneth Magel, Kendall Nygard, "Software Engineering in Computer Science Capstone Projects", *2007 International Conference on Software Engineering Theory and Practice*, Orlando, FL, July 9-12, 2007.
3. "Building a User Interface Test Automation Framework", with I. Alsmadi (graduate student), *International Journal of Software Engineering*, Vol. 1, no. 2 (September, 2007), pages 76 – 81.
4. "GUI Structural Metrics and Testability Testing", with I. Alsmadi (graduate student), *IASTED International Conference on Software Engineering and Applications*, Cambridge, November 19 – 21, 2007.

### **Pending Publications**

1. Dean Knudson, **Kenneth Magel**, "Comments on the Use of TWiki, Blackboard Portfolios and Trac to Share Proprietary Information in Student Projects", *SITE 2008 – Society for Information Technology & Teacher Education International Conference*, Las Vegas, NV, March 3-7, 2008, accepted, to appear.

## Kendall Nygard

### Publications

#### Fully Refereed Journal Articles

1. Lundell, Martin, Dianxiang Xu, Denver Tolliver and **Kendall E. Nygard**, A multi-agent design for sense and respond logistics simulation, World Review of Intermodal Transportation Research, accepted in 2007, forthcoming in 2008.
2. Du, Xiaojiang, M. Zhang, **K. Nygard**, M. Guizani, and H. H. Cen, "Self-Healing Sensor Networks with Distributed Decision Making," International Journal of Sensor Networks, 2007
3. Xu, Dianxiang, Vivek Goel, **Kendall Nygard** and Eric Wong, "Aspect-Oriented Specification of Threat-Driven Security Requirements." International Journal of Computer Applications in Technology (IJCAT) Special Issue on: "Concern-Oriented Software Evolution," 2007.

#### Fully Refereed Proceedings

1. **Kendall E. Nygard**, Martin Lundell, Dianxiang Xu, and Jonathan Pikalek, "Multi-agent Designs for Ambient Systems," Proceedings of the First International Conference on Ambient Media and Systems, accepted in December, 2007, published in February, 2008.
2. J. Brown, X. Du, and **K. Nygard**, "An Efficient Public-Key-Based Heterogeneous Sensor Network Key Distribution Scheme," in Proc. of IEEE GLOBECOM 2007, Washington, D.C., Nov. 2007.
3. V. Shanmugasundaram,, P. Juell, P., C. Hill and **K. Nygard**, (2007). Cognitive Model for Learning Java. In C. Montgomerie & J. Seale (Eds.), Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications 2007, Chesapeake, VA: AACE., pp. 2631-2640, 2007.
4. Shanmugasundaram, V., P. Juell,, C. Hill, **K. Nygard**, Effectiveness of BlueJ in Learning Java. In C. Montgomerie & J. Seale (Eds.), Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications 2007, Chesapeake, VA, AACE (pp. 3776-3781), 2007.

#### Refereed Abstracts

1. Chin Lua, Jingpeng Tang, Karl Altenberg, and **Kendall Nygard**, Adaptive Swarm Emergent Intelligent Methodologies, Development and Validation, 8th International Conference on Cooperative Control and Optimization, January, 2008, accepted in 2007.
2. Jingpeng Tang, Doug Schesvold, Jonathan Pikalek, Karl Altenburg, and **Kendall E. Nygard**, "Hierarchical Control for Forward Air Controller UAV Agents," 8th International Conference on Cooperative Control and Optimization, January, 2008, accepted in 2007.
3. Dass, P. and **K. Nygard**, Efficient Scheduling of QoS in long-range mobile sensor nodes, International Conference on Advances in Interdisciplinary Statistics and Combinatorics, 2007

## William Perrizo

### Publications

#### Refereed Publications:

1. "Support of Association Rule Mining using Tuple Count Cubes", Journal of Information & Knowledge Management, Vol.6, No.4, Dec., 2007, pp. 271-280, iKMS & World Scientific Publishing Co., Q. Ding, **W. Perrizo**.

## Brian Slator

### **Publications**

#### **Conference Papers**

1. Hill, Curt, **Brian M. Slator**, and Vijayakumar Shanmugasundaram. (2007). ProgrammingLand: A Visualization Enhanced Hypertextbook. 37th ASEE/IEEE Frontiers in Education Conference. October 10-13, Milwaukee, WI.
2. Hill, Curt, **Brian M. Slator**, Vijayakumar Shanmugasundaram. (2007). Measuring the Effectiveness of ProgrammingLand. IASTED International Conference on Web Based Education (WBE-07), Chamonix, France, March 14-16.
3. Hill, Curt, **Brian M. Slator**, Vijayakumar Shanmugasundaram and Lisa M. Daniels. (2006). An Online Computer Science Instructional Resource. IASTED International Conference on Web Based Education (WBE 2006), Puerto Vallarta, Mexico, January 23-25, pp. 332-336.

#### **Book Chapters**

1. **Slator, Brian M.**, Otto Borchert, Lisa Brandt, Harold Chaput, Kellie Erickson, Gabriel Groesbeck, Jacob Halvorson, Justin Hawley, Guy Hokanson, Dan Reetz, Brad Vender (2007). From Dungeons to Classrooms: the evolution of MUDs as learning environments. Edited by L.C. Jain, Evolution of Technology and Pedagogy. Studies in Computational Intelligence (SCI) 62, pp. 119-159. Springer-Verlag, Germany.

## Vasant Ubhaya

### **Publications**

#### **Pending publications (refereed):**

1. Lipschitzian Operators in Best Approximations by Bounded or Continuous Functions, Encyclopedia of Optimization, Springer-Verlag, New York, Berlin, to be published July, 2008.
2. Regression by Special Functions: Algorithms and Complexity, Encyclopedia of Optimization, Springer-Verlag, New York, Berlin, to be published July, 2008.

## Dianxiang Xu

### **Publications**

#### **Referred Publications:**

1. **Dianxiang Xu**, Weifeng Xu, and W. Eric Wong, Testing Aspect-Oriented Programs with UML Design Models, *International Journal of Software Engineering and Knowledge Engineering*, Accepted in 2007.
2. **Dianxiang Xu**, Vivek Goel, Kendall Nygard, and W. Eric Wong. Aspect-Oriented Specification of Threat-Driven Security Requirements, *International Journal of Computer Applications in Technology*, Special Issue on Concern Oriented Software Evolution, Vol. 31, Nos. 1/2, pp. 131-

3. Martin C. Lundell, **Dianxiang Xu**, Denver Tolliver, and Kendall E. Nygard. A Multi-Agent Design for Sense and Respond Logistics Simulation, *World Review of Intermodal Transportation Research*, Vol. 1, No. 4, 2007, pp. 459-471.

### **Pending Publications:**

1. **Dianxiang Xu**, Weifeng Xu, W. Eric Wong, Automated Test Code Generation from Class State Models, Submitted to *International Journal of Software Engineering and Knowledge Engineering*. One of the top-rated SEKE'07 papers invited to expand for consideration of journal publication.
2. **Dianxiang Xu**, Izzat Alsmadi, and Weifeng Xu, Modeling and Verifying Aspect-Oriented Systems with State Models, Submitted to *Journal of Systems and Software*.
3. **Dianxiang Xu**, Omar El-Ariss, Weifeng Xu, Ramakrishnareddy Gooduru, Automated Generation of State-Based Aspect Tests: A Comparative Study, Submitted to *ISSTA'08*.
4. Omar El Ariss, **Dianxiang Xu**, W. Eric Wong, Yuting Chen, and Yann-Hang Lee, A Systematic Approach for Integrating Fault Trees into System Statecharts, submitted to *COMPSAC'08*.
5. Jun Kong and **Dianxiang Xu**. UML-based Design and Analysis of Secure Software, submitted to *COMPSAC'08*.

## [Weiyi Zhang](#)

### **Publications**

### **Journal Papers**

1. **Weiyi Zhang**, Guoliang Xue, Jian Tang, and Krishnaiyan Thulasiraman; *Faster Algorithms for Constructing Recovery Trees Enhancing QoS and QoS*; IEEE/ACM Transactions on Networking; To appear.
2. Guoliang Xue, **Weiyi Zhang**, Jian Tang, and Krishnaiyan Thulasiraman; *Polynomial Time Approximation Algorithms for Multi-Constrained QoS Routing*; IEEE/ACM Transactions on Networking; To appear.
3. Guoliang Xue, Arunabha Sen, **Weiyi Zhang**, Jian Tang, and Krishnaiyan Thulasiraman; *Finding a Path Subject to Many Additive QoS Constraints*; IEEE/ACM Transactions on Networking; Vol. 15(2007), pp. 201-211.
4. Guoliang Xue, **Weiyi Zhang**, Tie Wang and Krishnaiyan Thulasiraman; *On the partial path protection scheme for WDM optical networks and polynomial time computability of primary and secondary paths*; Journal of Industrial and Management Optimization; Vol. 3, No. 4, 2007, pp. 625-643.
5. Jian Tang, Guoliang Xue, and **Weiyi Zhang**; *Cross-layer optimization for end-to-end rate allocation in multi-radio wireless mesh networks*; ACM Wireless Networks (WINET); In press, 2007.
6. Jian Tang, Guoliang Xue, and **Weiyi Zhang**; *Cross-layer Design for End-to-End Throughput and*

## Conference Papers

1. **Weiyi Zhang**, Guoliang Xue, and Satyajayant Misra; *Fault-tolerant Relay Node Placement in Wireless Sensor Networks: Problems and Algorithms*; IEEE INFOCOM'2007: IEEE Conference on Computer Communications (acceptance ratio:18%), pp. 1649-1657.
2. Guoliang Xue and **Weiyi Zhang**; *Multiconstrained QoS routing:Greedy is good*; BEST PAPER AWARD; IEEE GLOBECOM'2007: IEEE Global Communications Conference, Washington, DC, November 26-30, 2007.
3. Satyajayant Misra, **Weiyi Zhang**, and Guoliang Xue; *A Technique to Enhance Localization in the Presence of NLOS Errors*; IEEE GLOBECOM'2007: IEEE Global Communications Conference, Washington, DC, November 26-30, 2007.
4. Xiaojiang Du, Devendar Mandala, **Weiyi Zhang**, Chao You, Yang Xiao; *A Boundary-Node based Localization Scheme for Heterogeneous Wireless Sensor Networks*; IEEE MILCOM'2007: IEEE Military Communications Conference, Orlando, FL, October 2007.

## Pending Publications

1. **Weiyi Zhang**, Xiaojiang Du, and Shanaka de Soysa; *Dynamic p-cycle Construction With Link Capacity Consideration*; 17Th International Conference On Computer Communications And Networks, ICCCN'2008; Submitted.
2. **Weiyi Zhang**, Jian Tang, and Xiaojiang Du; *Regenerator Placement in WDM Networks Under Signal Quality Constraints*; 17Th International Conference On Computer Communications And Networks, ICCCN'2008; Submitted.
3. Xiaojiang Du and **Weiyi Zhang**; *Minimum Energy Routing in Heterogeneous Wireless Sensor Networks*; Fifth Annual IEEE Communications Society Conference on Sensor, Mesh, and Ad Hoc Communications and Networks, SECON'2008; Submitted.

Publishing rates for graduate students,  
compiled May, 2008

Name of Student	Degree Program
Hawley, Justin	MS
Erickson, Kellie	MS
Dass, Kausik	MS
Wu, Jianfei	MS in progress
Almadi, Hamed	PhD in progress

Limke, Jed	PhD in progress
Brown, Jeremy	MS in progress
Lua, Chin	PhD in progress
ElAriss, Omar	PhD in progress
Alsmadi, Izzat	PhD in progress
Besemann, Christopher	PhD in progress
Borchert, Otto	MS in progress
Dischinger, Benjamin	MS in progress
Dorr, Deitmar	PhD in progress
Goel, Vivek	MS
Hill, Curt	Ph.D.
Hoff, Garrett	MS in progress
Hokanson, Guy	MS in progress
Lundell, Martin	Ph.D. in progress
Pikalek, Jonathan	PhD in progress
Shanmugasundaram, Vijay	MS
Tang, Jingping	Ph.D. in progress
Vender, Bradley	MS
Wu, Weihua	MS
Xu, Wiefeng	PhD in progress

## **C. OUTREACH**

### **1. Professional Service:**

The Department continues to be very active in service to the profession. Most faculty regularly review for conferences and journals. Seven faculty review for national funding agencies. Three faculty review Ph.D. dissertations internationally.

### **2. Alumni Events and other community related activities:**

The Department continues to expand our efforts to reach alumni.. We have a web site that we hoped would be a resource for alumni, but it is not used very much. We created a new Departmental Web Site which has gotten rave reviews, especially by those who remember our previous web site.

At the urging of our College Dean, the Department started a newsletter during 2007-08. We have received some favorable comments from alumni and hope to continue to expand on relationships with our alumni.

The department continues to foster relations with area businesses, in particular Microsoft Great Plains. Two social/technical events were held in the past year, one at each site.

### **3. Fund-raising accomplishments and other outreach activities:**

We received a little over \$3,500 from alumni and friends this academic year in money and equipment. We need to do better. During the next academic year, we will make an effort to contact successful alumni. Our goal is to increase alumni giving to \$25,000 per year within five years.

#### **4. Cooperative Education:**

##### Placement Summary Fall 2007

<b>Student</b>	<b>Employer</b>	<b>Job Type</b>
Anand, Surekha	Green Square Inc.; Fargo, ND	Full-time Coop
Banga, Surjeet	Thomson West Eagan, MN	Full-time Coop
Barjesh, Arora	Peri Software Solutions Jersey City, NJ	Full-time Coop
Balasubramanian, Arunkumar	ObjectWin Technology, Inc, Huston, TX	Full-time Coop
Chakravarthi, Satheesh	ObjectWin Technology, Inc, Huston, TX	Full-time Coop
Ganapa, Sireesha	Orbitz Worldwide Travelport Chicago, IL	Full-time Coop
Ghai, Vandana	Otter Tail Power Co. Fergus Falls, MN	Full-time Coop
Gooduru, Ramakrishnareddy	Semator Technologies, Norcross, GA	Full-time Coop
Guduru, Vasumathi	Technosync, Inc. Princeton, NJ	Full-time Coop
Gupta, Dhruv	Green Square Inc., Fargo, ND	Part-time Coop
Gupta, Vikas	Volt Technical Resources Fargo, ND	Part-time Coop
Gurram, Samyuktha	Techfront Technologies, LLC Dallas, TX	Full-time Coop
Herath, Shanaka	Sierra Corporate Design Fargo, ND	Part-time Coop
Kheerwal, Anoop	Green Square Inc., Fargo, ND	Full-time Coop
Narayanan Kutty, Shyam	Eagle Creek Software Ser. Valley City, ND	Part-time Coop
Osmani, Morshed	Allegience Software Inc. Fargo, ND	Full-time Coop
Sharma, Mayukh	Indsoft, Inc Chicago, IL	Full-time Coop
Singh, Satwant	Otter Tail Power Co. Fergus Falls, MN	Full-time Coop

Placement Summary Spring 2008

<b>Student</b>	<b>Employer</b>	<b>Job Type</b>
Cimic, Senad	Thomason West Eagan, MN	Full-time Coop
Cimic, Senad	Thomason West Eagan, MN	Full-time Coop
Ghai, Vandana	Ecliptic Technologies, Inc Fargo, ND	Part-time Coop
Gupta, Dhruv	Green Square Inc., Fargo, ND	Full-time Coop
Gupta, Vikas	Phoenex International Fargo, ND	Full-time Coop
Gurram, Samyuktha	Techfront Technologies, LLC Dallas, TX	Full-time Coop
Hazrati, Shashank	Protech Associates Inc. Fargo, ND	Full-time Coop
Kar, Angshu	Noridan Mutual Insurance Company Fargo, ND	Full-time Coop
Sehgal, Ankita	Protech Associates Inc. Fargo, ND	Full-time Coop
Sharma, Mayukh	Indsoft, Inc Chicago, IL	Full-time Coop
Shrestha, Bickrant	Blue Cross/Blue Shield Fargo, ND	Part-time Coop

**D. SPECIAL INITIATIVES**

CoCISE Awards Fall 2007 and Spring 2008

<b>Students Name</b>	<b>Fall 2007 Award</b>	<b>Spring 2008 Award</b>
Sheldon Aldridge		\$2,000.00
Christopher Baumler	\$2,000.00	\$2,000.00
Joshua Friesz	\$2,000.00	\$2,000.00
Meghna Ghosal	\$2,000.00	\$2,000.00
Adam Hoffert	\$2,000.00	\$2,000.00
David Mayer		\$2,000.00
Andrew Ouradnik	\$2,000.00	\$2,000.00
Megan Bouret		\$2,000.00
Benjamin Christian	\$2,000.00	\$2,000.00
Ryan Frueh		\$2,000.00



Nicholas Hauschild	\$2,000.00	\$2,000.00
Brady Helmer		\$2,000.00
Trevor McDaniel	\$2,000.00	\$2,000.00
Phillip Reindl		\$2,000.00
Joseph Banken	\$2,000.00	\$2,000.00
Titus Brue		\$2,000.00
Matthew Ecklund	\$2,000.00	\$2,000.00
Ryan Kohlman		\$2,000.00
Joshua Longanecker		\$2,000.00
Judi Novotny	\$2,000.00	\$2,000.00
Kyle Esala	\$2,000.00	\$2,000.00
Jenien Estlick		\$2,000.00
Landon Leischner	\$2,000.00	\$2,000.00
Omran Mohamed		\$2,000.00
Gus Schlepp	\$2,000.00	\$2,000.00

**1. Cooperation programming/Interinstitutional activities:**

We are active participants in several interdisciplinary efforts. Our faculty are significant members of the interdisciplinary graduate program in Genomics and Bioinformatics. One of our largest research groups, Use of Technology in Education involves faculty and students from departments across this campus. Our cooperation with Electrical and Computer Engineering in offering three undergraduate courses continues well into its third decade.

**2. International activities:**

Dr. Kendall Nygard, Dr. Dianxiang Xu, and lecturer Richard Rummelt spent several weeks in China during 2007-08 building relationships with Chinese faculty. We will be hosting a delegation from several Chinese institutions in August, 2008 to explore collaboration opportunities in both curriculum and research.

Our existing program of faculty exchange with Cairo University in Egypt continues. Our existing twinning program for undergraduate and graduate students with the Ansal Institute of Technology in India continues. A student/faculty exchange program with the International Institute of Technology in India is starting.

**3. Interdisciplinary activities:**

The NDSU Computer Science Department is the largest and most prominent department of its kind over a wide geographical area that includes all of North and South Dakota and much of Manitoba, Montana and Minnesota. Given the increasingly prominent role of computing and information technology in our society, it is also of high importance for the department to grow and thrive, producing well-educated computing professionals. We believe that our graduates do leave the university well prepared and that they are competitive anywhere in the country.

The department fully participates and supports the goal of the university to become a Carnegie research extensive university. During 2007-08, the Department awarded three Ph.D. and

twenty-six M.S. degrees (September 1, 2006 through June 30, 2007 only). If summer is counted as well, the totals should increase significantly in both M.S. and Ph.D. graduates.

#### **4. Economic Development Efforts:**

The Department faculty met with several companies during 2007-08. As mentioned above, Microsoft visited campus on a number of occasions, and continued to fund undergraduate and graduate scholarships and fellowships for several students. Dr. Magel and Dr. Nygard attended several meetings with the Cass-Clay Economic Development Organization concerning their area economic development plan, particularly a major initiative in embedded systems.

### **E. Planning**

The fundamental strength of the Department lies in the rigor of its academic programs. The BS degree, in particular, is by far the most rigorous in the region. Although difficult, the programs are well supported by faculty and open opportunity for our graduates. Major future plans have been basically described elsewhere in the report, but are succinctly summarized as follows:

- In research and within graduate programs, strengthen and expand in network security, information assurance, bioinformatics, and software engineering,. Continue to maintain excellence in core areas of computer science.
- At the undergraduate level, develop a program that is a more applied alternative to the BS degree in computer science for students intending to enter the job market with a bachelor's degree. The program would expand existing elements of software engineering and information systems.
- Improve the quality of M.S. and Ph.D. students while reducing the total number of graduate students
- Diversify funding sources and the number of faculty receiving external funding
- Continue to foster international programs, such as the ones underway with Egypt and India.
- Expand departmental research funding and reputation
- Take steps to become a designated Center of Excellence in Information Assurance and security.

### **F. Enrollment and FTE Data**

**Student Credit Hours and FTEs Generated**

	2003-2004		2004-2005		2006-2006		2006-2007		2007-2008	
	Credit hours	FTE	Credit hours	FTE	Credit hours	FTE	Credit hours	FTE	Credit hours	FTE
100-200	7999	10.0	7098	8.87	7769	9.71	8468	10.59	9128	11.42
300-400	2467	4.53	2307	4.24	1806	3.32	2172	3.99	2638	4.85
600-700	1795	6.23	2095	7.27	1791	6.22	1743	6.05	2005	6.96
TOTAL	12261	20.76	11500	20.39	11366	19.25	12383	20.63	13773	23.23

**SUMMER II SCHEDULE  
2007**

<b>COURSE HOURS</b>	<b>CLASS TITLE</b>	<b>INSTRUCTOR</b>	<b>ENROLL</b>	<b>STUDENT CREDIT</b>
159	Computer Science Prob. Solv	K. Nygard	12	3
760	Dynamic Programming	V. Ubhaya	24	3
797	Master Paper	Staff	11	1-10
797R	Master Paper – <i>cont registration</i>	Staff	4	R
798	Master Thesis	Staff	0	1-10
798R	Master Thesis – <i>cont registration</i>	Staff	0	R
799	Doctoral Dissertation	Staff	4	1-15
799R	Doctoral Dissertation – <i>cont registration</i>	Staff	2	R

**FALL SEMESTER SCHEDULE  
2007**

<b>COURSE HOURS</b>	<b>CLASS TITLE</b>	<b>INSTRUCTOR</b>	<b>ENROLL</b>	<b>STUDENT CREDIT</b>
114	Microcomputer Packages	A.Chatterjee	56	3
114	Microcomputer Packages	S. Addy	52	3
114	Microcomputer Packages	P.Thalloji	53	3
114	Microcomputer Packages	B. Garg	53	3
114	Microcomputer Packages	V. Narayanan	53	3
114	Microcomputer Packages	V. Narayanan	55	3
114	Microcomputer Packages	D. Johnson (Cont Edu)	91	3
116	Business Use of Computers	A. Marback	55	4
116	Business Use of Computers	D. Akimov	54	4
116	Business Use of Computers	B. Falah	54	4
116	Business Use of Computers	S. Pandy	55	4
116	Business Use of Computers	C. Kapoor	53	4
116	Business Use of Computers	C. Kapoor	53	4
116	Business Use of Computres	P. Kotala (Cont. Edu)	37	4
116	Business Use of Computers	B. Johnson	37	4
116	Business Use of Computres	S. Kaliki (Cont. Edu)	39	4
122	Program in BASIC	N. Addy	45	3
122	Program in BASIC	O. Myronovych	40	3
155	Immigration (JAVA)	S. Kaliki	1	2
159	CS Problem Solving	J. Moses	18	3

160	Computer Science I	R. Rummelt	39	4
160	Computer Science I	I. Alsmadi	29	4
160	Computer Science I	R. Rummelt	42	4
161	Computer Science II	S. Abufardeh	20	4
161	Computer Science II	S. Abufardeh	20	4
172	Intermediate Basic/Visual	S. Cimic	22	3
214	Self-Paced C	G. Hoff	7	1
222	Discrete Mathematics	V. Ubhaya	43	3
227	Computing Fund. I	P. Kotala	45	3
277	Introduction to UNIX	J. Latimer	8	3
315	System Anal & Design	P. Kotala	30	3
335	Theoretical CS I	J. Martin	54	3
366	Files/Database System	A. Denton	51	3
372	Comparative Languages	V. Shanmugasundaram	49	3
373	Assembly Programming	V. Ubhaya	40	3
413	Principles of Software Eng.	D. Xu	31	3
458	Microcomputer Graphics	P. Juell	17	3
469	Network Security	J. Du	18	3
474	Operating Systems Conc.	J. Kong	40	3
474	Operating Systems Conc.	S. Abufardeh	20	3
488	Human-Computer Interaction	J. Kong	33	3
658	Microcomputer Graphics	P. Juell	1	3
669	Network Security	J. Du	13	3
688	Human-Computer Interaction	J. Kong	6	3
708	Foundations of Programming	J. Martin	42	3
713	Software Engineering I	K. Magel	44	3
713	Software Engineering I- <i>cont ed</i>	K. Magel	3	3
714	Software Planning and Est.	M. Zhang	14	3
715	Software Req/Definition/Analys	H. Do	11	3
715	Software Req/Definition/Analys	K. Magel ( <b>Cont. Edu</b> )	1	3
716	Software Design	K. Magel	1	3
718	Software Testing and Debugging	D. Xu	5	3
732	Introduction to Bioinformatics	A. Denton	7	3
765	Intro to Database Systems	B. Perrizo	47	3
778	Computer Networks	J. Du	34	3
790	Sem/Artificial Intelligence	P. Juell	8	1
790	Sem/Aspect-Oriented Soft. Dev.	D. Xu	10	1
790	Sem/Data Mining in Science	A. Denton	15	1
790	Sem/Educational Media	B. Slator	14	1
790	Sem/Software Engineering	K. Magel	12	1
790	Sem/Combinatorial Optimization	K. Nygard	10	1

797	Masters Paper	Staff	19	1-10
797R	Masters Paper	Staff	39	R
798	Master Thesis	Staff	7	1-10
798R	Master Thesis	Staff	11	R
799	Doctoral Dissertation	Staff	13	1-15
799R	Doctoral Dissertation	Staff	6	R

***SPRING SEMESTER SCHEDULE***  
***2008***

<b>COURSE HOURS</b>	<b>CLASS TITLE</b>	<b>INSTRUCTOR</b>	<b>ENROLL</b>	<b>STUDENT CREDIT</b>
114	Microcomputer Packages	K. Saxena	55	3
114	Microcomputer Packages	S. Addy	55	3
114	Microcomputer Packages	A. Chatterjee	55	3
114	Microcomputer Packages	B. Garg	54	3
114	Microcomputer Packages	V. Natarajan	55	3
114	Microcomputer Packages	V. Natarajan	56	3
114	Microcomputer Packages	D. Johnson (Cont Edu)	92	3
116	Business Use of Computers	S. Pandey	54	4
116	Business Use of Computers	S. Pandey	55	4
116	Business Use of Computers	A. Marback	60	4
116	Business Use of Computers	A. Marback	56	4
116	Business Use of Computers	C. Kapoor	55	4
116	Business Use of Computers	C. Kapoor	55	4
116	Business Use of Computers	P. Kotala (Cont Edu)	104	4
116	Business Use of Computers	C. Kapoor	39	4
122	Beginning BASIC/Visual BASIC	N. Addy	43	3
125	COBOL Programing	S. Kaliki	20	3
159	Computer Sc. Problem Solving	J. Moses	39	3
159	Computer Sc. Problem Solving	J. Moses (Cont Edu)	27	3
160	Computer Science I	R. Rummelt	42	4
160	Computer Science I	R. Rummelt	41	4
161	Computer Science II	S. Abufardeh	40	4
161	Computer Science II	S. Abufardeh	39	4
222	Discrete Mathematics	V. Ubhaya	36	3
228	Computing Fundamentals II	O. Myronvych	41	3
316	System Testing & Maintenance	O. Myronvych	23	3
336	Theoretical CS II	J. Martin	45	3
345	Topics on Personal Computers	B. Slator	14	3
371	Web Scripting Language	O. Myronvych	12	3

372	Comparative Prog Languages	A. Denton	43	3
373	Assembly Programming	V. Shanmugasundarm	19	3
374	Computer Organization	V. Shanmugasundarm	45	3
418	Simulation Models	K. Nygard	19	3
445	Software Projects Capstone	D. Knudson	37	3
459	Found/Computer Networks	X. Du	47	3
467	Algorithm Analysis	J. Martin	37	3
475	Operating Systems Design	J. Kong	40	3
479	Intro to Data Mining	W. Perrizo	3	3
489	Social Implications of Comp	K. Nygard	68	3
618	Simulation Models	K. Nygard	5	
659	Found/Computer Networks	J. Du	27	3
679	Intro to Data Mining	W. Perrizo	10	3
689	Social Implications of Comp	K. Nygard	8	3
716	Software Design	K. Magel	12	3
716	Software Design – <i>Dist. Ed</i>	K. Magel	1	3
717	Software Construction	D. Xu	19	3
718	Software Testing/Debugging	D. Xu	11	3
718	Software Test/Debugging <i>Dist Ed</i>	D. Xu	9	3
724	Survey/Artificial Intelligence	B. Slator	27	3
783	Topics/Adv. Tech. Logistics	K. Nygard	3	3
783	Topics/Adv. Tech. Logistics	H. Do	4	3
785	Wireless Networks/Mobile Compt.	W. Zhang	13	3
790	Sem/Educational Media	B. Slator	14	1
790	Sem/Formal Methods in Software Engr.	K. Magel	8	1
790	Sem/Building Secure Softwre	D. Xu	9	1
790	Sem/Optimization in Sensor Networks	K. Nygard	14	1
797	Masters Paper	Staff	29	1-10
797R	Masters Paper	Staff	41	R
798	Master Thesis	Staff	7	1-10
798R	Master Thesis	Staff	10	R
799	Doctoral Dissertation	Staff	9	1-15
799R	Doctoral Dissertation	Staff	4	R

***SUMMER I SCHEDULE***  
***2008***

<b>COURSE HOURS</b>	<b>CLASS TITLE</b>	<b>INSTRUCTOR</b>	<b>ENROLL</b>	<b>STUDENT CREDIT</b>
114	Microcomputer Packages	D. Johnson (Cont Edu)	56	4
116	Business Use of Computers	P. Kotala(Cont Edu)	37	4

122	Programming in Basic VB.NET	P. Kotala(Cont Edu)	36	3
445	Cappstone-Software Projects	K. Magel	11	3
473	Foundations of Digital Enter	K. Nygard	4	3
488	Human-Computer Interaction	J. Kong	3	3
688	Human-Computer Interaction	J. Kong	3	3
713	Software Engineering	K. Magel	4	3
716	Software Design	K. Magel	3	3
773	Foundations of Digial Enter	K. Nygard	37	3

## STUDENT RATING OF INSTRUCTION RESULTS 2007-2008

### FALL, 2007 and SPRING 2008

Questions	VG	G	IB	P	VP	OMI T	DEPARTMENT LEVEL		
							Mean	S.D.	#R
<b>100 TO 200 LEVEL</b>									
1. Your satisfaction with the instruction in this course.	30.6	47.4	14.9	5.0	1.6	0.5	4.035	0.895	2037
2. The instructor as a teacher.	33.6	43.1	16.6	4.5	1.9	0.3	4.098	0.892	2040
3. The ability of the instructor to communicate effectively	24.7	42.4	22.1	7.4	2.9	0.5	3.909	0.978	2036
4. The quality of this course	23.8	46.2	22.3	5.7	1.6	0.5	3.950	0.895	2033
5. The fairness of procedures for grading this course.	46.5	41.6	9.4	1.5	0.6	0.5	4.248	0.814	2035
6. Your understanding of the course content.	24.7	50.3	20.7	3.2	0.6	0.6	4.003	0.860	2039
<b>300 TO 400 LEVEL</b>									
1. Your satisfaction with the instruction in this course.	32.4	40.2	16.6	5.6	4.6	0.5	4.035	0.895	2037
2. The instructor as a teacher.	38.8	37.1	14.6	5.1	4.1	0.2	4.098	0.892	2040
3. The ability of the instructor to communicate effectively	32.9	40.3	16.3	7.6	2.7	0.0	3.909	0.978	2036
4. The quality of this course	24.9	41.0	21.5	6.3	5.9	0.5	3.950	0.895	2033
5. The fairness of procedures for grading this course.	42.2	39.3	11.5	4.1	2.9	0.0	4.248	0.814	2035
6. Your understanding of the course content.	25.9	45.6	20.0	4.4	3.7	0.5	4.003	0.860	2039
<b>600 TO 700 LEVEL</b>									
1. Your satisfaction with the instruction in this course.	48.0	38.3	8.6	2.7	1.2	1.2	4.035	0.895	2037
2. The instructor as a teacher.	50.8	38.7	7.0	1.6	0.8	1.2	4.098	0.692	2040
3. The ability of the instructor to communicate effectively	47.7	39.1	9.4	1.2	0.4	2.3	3.909	0.978	2036
4. The quality of this course	38.7	44.9	12.9	1.2	1.2	1.2	3.950	0.895	2033
5. The fairness of procedures for grading this course.	51.6	32.8	9.8	2.3	0.8	2.7	4.248	0.814	2035
6. Your understanding of the course content.	32.4	50.4	12.5	2.0	1.6	1.2	4.003	0.860	2039

## **Department Employment of graduates:**

Fall 2007

Graduate Teaching Assistants - 26

Graduate Assistants (Graders) - 30

Spring 2008 Graduate Teaching Assistants - 17

Graduate Assistants (Graders) – 26

## **GRADUATE STUDENTS 2007-2008**

### **Masters Students:**

Aakula, Srikanth	Hokanson, Guy Eric
Acharya, Shashanka	Huff, Nathan
Addy, Noah	Huq, Shamima
Addy, Sydney	Ireddy Naga, Krishnakanth
Amaran, Pradeep	Jian, Harsh
Amuge, Betty	Jain, Jenender
Anantha Raman, Lakshmi	Jonnalagadda, Vindhya
Annapureddy, Anupama	Joseph, Priya
Bapanpally, Pavan	Kadam, Ramchandra
Basu, Samdip	Kapoor, Chetan
Brown, Jeremy	Kar, Angshu
Chakravarthi, Satheesh	Khanchandani, Kavita
Chatterjee, Arijit	Kheerwal, Anoop
Chintapalli, Veera Venkata	Kondakindi, Swathi
Chinthakayala, Krishna	Kondamarri, Samuel
Dandey, Santosh	Kroshus, John
Dass, Pranav	Kunala, Santosh
DeSoysa Shanaka	Lanke, Ramesh
Devina, Laiphangbam	Lu, Tingda
Dischinger, Benjamin	Maddi, Sunil
Dumpala, Chaitanya	Mattaparthi, Harika
Emmadi, Praveen	Moses, Joseph
Fazal, Nazeer	Mukhami, Sudesh
Ganapa, Sireesha	Mukka, Hari Krishna
Ganesan, Arjun	Narayanan, Vasanth
Gangannagari, Rajendar	Natarajan, Ramesh
Ganti, Annaji Sharma	Njos, Robby
Garimedi, Rajani	Osmani, MD
Garg, Bandana	Pandey, Shivendushital
Gooduru, Ramkrishnareddy	Paturu, Suresh
Guduru, Vasumathi	Perubhotla, Sritej
Gupta, Divya	Pinagapani, Sathish
Gurram, Kiran	Poreddy, Sandeep
Gurram, Samyuktha	Potla, Yaswanth
Hoff, Garrett	Pullagurala, Praveen



Raavi Sandeep  
Radermacher, Alex  
Raidu, Venkata  
Rajaraman, Thilak  
Ramaurthy, Durga  
Sachdev, Rajeev  
Sambaraju, Sharath  
Sathiaseelan, Anu Evelyn  
Saxena, Kaustubh  
Schlecht, Ryun  
Sehgal, Ankita  
Sharma, Mayukh  
Sikharam, Sandeep  
Sivanandam, Dinesh

Somavarapu, Murali  
Sundaram, Anita  
Suravarapu, Vijay  
Tirupathi, Ambika  
Vanteru, Siva  
Vellaswamy Chelaiah, Ashok Kumar  
Vellaswamy Chelaiah, Ganesh Kumar  
Vijayan, Dhinuruju  
Vinta, Naveen  
Wang, Yan  
Woznica, Szymon  
Wu, Jianfei  
Yamparala, Sri Harsha

### **SOFTWARE ENGINEERING MASTERS**

Aceituna, Daniel  
Banga, Surjeet  
Bhogadi, Manu  
Bhowmick, Dibakar  
Boyko, Gregory  
Carlson, Ryan  
Chauhan, Anuj  
Christeson, Eric  
Cimic, Senad  
Debilt, Daniel  
Eda, Ravi  
Gunderson, Karl  
Herath, Shanaka  
Jahan, Farzana  
Kallam, Lakshmi  
Kazeck, Jerilyn

Limke, Jed  
Manori, Anshuman  
McGinnity, Steve  
Minot, Scott  
Murugaiyan, Elangovan  
Pillarikuppam, Naresh  
Pradhan, Basudha  
Rahman, Mohamed Saif Ur  
Rizvi, Huma  
Roseen, Jeremy  
Sarker, Mridula  
Shrestha, Bickrant  
Srichinta, Pallavi  
Thalloji, Pramodh  
Upadhyay, Rajat

### **PHD STUDENTS:**

Al-Azzam, Omar  
Al-Nimer. Loai  
Arora, Baresh  
Besemann, Christopher  
Dorr, Deitmar  
ElAriss, Omar  
Jockheck, William

Kambhampaty, Krishnan  
Kandah, Farah  
Lin, Fengjing  
Marback, Aaron  
Pikalek, Jonathan  
Shanmugasundaram, Vijaykumar  
Tang, Jingpeng

## SOFTWARE ENGINEERING PHD

Abufardeh, Sameer  
 Ahmadi, Hamed  
 Falah, Bouchaib  
 Johnson, Bryce  
 Kaliki, Srikanth  
 Lua, Chin

Lundell, Martin  
 Mohammed, Khan  
 Myronovych, Oksana  
 Rummelt, Richard  
 Satter, Medhi

### Computer Science Department Enrollment Data

AY	Enrollment Fall 2007					Total UG	Total Grad	Total Degrees		
	1st FR	2nd SO	3rd JR	4th SR	Fall 07/Spring 2008					
					BS/BA			MS Comp Sc. Software	PhD Comp Sc. Software	
2007-2008	65	43	50	84		242	174	43/1	33/3	4/2
2006-2007	47	46	36	68		197	148	32/2	19/0	3/2
2005-2006	50	30	46	64		190	128	37	11/1	5/0
2004-2005	49	37	47	84		217	178	45	22/5	4/0
2003-2004	82	64	48	86		280	178	108	24	0
2002-2003	96	69	51	91		397	90	110	20	3

### Graduate Degrees Awarded, 2007-2008

Summer Semester, 2007	Degree
Abdullah Mamun	MS, CS
Vikram Mehto	MS, CS
Martina Miteva	MS, CS
Ravi Oruganti	MS, CS

Weifeng Xu	PHD SE
<b>Fall Semester, 2007</b>	<b>Degree</b>
Shireesha Baddam	MS, CS
Prashanth Balakrishnan	MS, CS
Srinivas Challagolla	MS, CS
Robert Cosmano	MS, CS
Dhananjay Dimri	MS, CS
Vijaya Gorla	MS, CS
Kiran Kattakindi	MS, CS
Vijaya Mannepalli	MS, CS
Thiep Phan	MS, CS
Uday Srichinta	MS, CS
Sundeeep Vanga	MS, CS
Surjeet Banga	MS, SE
Magha Manan	MS, SE
Inderjeet Oberoi	MS, SE
Mahmuda Naznin	PHD CS
Amal Perera	PHD CS
Canton, Marie	PHD, CS
Alsmadi, Izzat	PHD, SE
<b>Spring Semester, 2008</b>	<b>Degree</b>
Lakshmi Anantha Raman	MS, CS
Arunprakash Ayyarsamy	MS, CS
Arun Kumar Balasubramanian	MS, CS
Otto Borchert	MS, CS
Sharath Bukkapatnam	MS, CS
Sireesha Ganapa	MS, CS
Helaly, Tanjina	MS, CS
Katib, Faraz	MS,CS
Anoop Kheerwal	MS, CS
Kunala, Santosh	MS, CS
Karthik Namasivayam	MS, CS
Shyam Narayanan Kutty	MS, CS
Ramesh Natarajan	MS, CS
Sritej Perubhotla	MS, CS
Peterson, Jason	MS, CS
Manoj Pushpala	MS, CS
Schlecht, Ryun	MS,CS
Tamizh pandian, Elampiralii	MS, CS
Tang, Jingpeng	PHD, CS

## ***H. Diversity:***

The Department has always had a significant international representation, particularly people of color from the Far East and the Indian sub-continent, principally in the graduate program. Recently this has extended to the undergraduate program as NDSU has started to offer twinning programs (start in India and spend the last year or two years at NDSU) at the undergraduate and graduate levels to students in India. We hope to expand these programs to Egypt (with which we have a faculty-student exchange) and China within the next few years. During 2006-07, three faculty traveled to China to make initial contacts with a variety of Chinese universities. These contacts expanded in 2007-08.

The Department has worked hard to improve the representation of women and other disadvantaged groups in our faculty and student body. The lack of women students is a national problem which has become a priority for the national organizations in Computer Science. Our approach has been to increase female representation on our faculty to serve as role models and mentors for female students. We have been very successful in this effort. Five of our last six faculty hires have been women (this past year we hired more than 1% of all the women to graduate with a Ph.D. in Computer Science in the United States). Presently we have six women Assistant Professors. The first of this cadre is expected to earn tenure and promotion during 2008-09.

Starting in 2008-09, the Department will use these female professors to try to increase the representation of women within our student population. This effort will have two components:

- Asking each female faculty member to assist with developing relationships with area high school;
- Forming a committee of female faculty to review our practices and curricula for anything which might make the programs less attractive to women than they should be.

We hope to expand our outreach efforts during the coming years.

Other disadvantaged groups whose representation in our programs should increase include Hispanics, Native Americans, and African Americans (domestic people of color). As mentioned above, the representation of international students of color, particularly from Asia, and especially in our graduate programs and on our faculty, is well above the national percentage of these groups in the United States population.

The Department has tried to reach out to Native Americans in North Dakota through a variety of organizations. We have had little success. We will continue to try. With the help of the National Science Foundation, the Department has formulated a more comprehensive strategy for attracting disadvantaged students.

The NDSU CoCISE (Collaborative for Scholarships in Computer, Information Sciences and Engineering) is for students majoring in Computer Science, Computer Engineering, Management Information Systems or Pre-Management Information Systems. CoCISE is a scholarship program designed to provide scholarship support and academic mentoring to talented and financially disadvantaged computer engineering, computer science, and management information systems students at NDSU. The CoCISE program is funded by a four-year grant from the National Science Foundation. The state objectives of the program include: "Increasing the numbers of women and minority group students, particularly Native Americans,

in the computer engineering, computer science, management information systems, and pre-management information systems programs.

A complete list of CoCise awards can be located above, under "Speical Initiatives". This four year, \$500,000 program has just entered its second year.