

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

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**ANNUAL REPORT  
2006-2007**

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

## Faculty, Lecturer's and Special Appointments Profiles



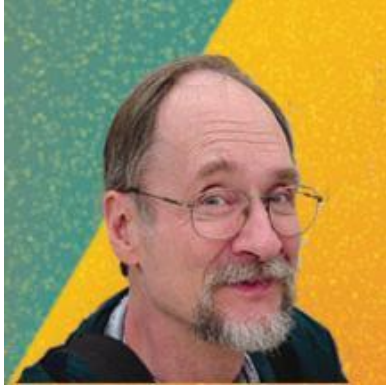
**Dr. Anne Denton, Assistant Professor  
PhD, University of Mainz, Germany 1996**

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

Dr. Juell is interested in Artificial Intelligence, Multimedia and distance education. He teaches courses in artificial intelligence, computer graphics, operating systems, and comparative languages. He is working with the use of video conferencing to facilitate partnerships with universities around the world, including synchronous delivery of courses over the internet. Paul served as Associate Department Chair in 2006-07.



**Dr. Sung Kim, Assistant Professor  
PhD, University of Texas at Dallas, 2004**

Dr. Sung Kim is interested in the development of software decomposition and composition methodologies to construct highly dependable software systems. He teaches courses in Distributed Systems and Computer organization.



**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 415, Capstone: Software Projects. Dr. Knudson has extensive experience working as a development executive for Microsoft and several other companies.



**Dr. Kenneth Magel, Professor and Interim Chair  
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 will be 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. 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 and graduate coordinator for the department. Starting in summer, 2006, he gave up the graduate coordinator position and become undergraduate coordinator.



**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 began 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 2005-06, he was Department Director of Research. He was on developmental leave in 2006-07.



**Dr. Akram Salah, Associate Professor  
PhD, University of Alabama at Birmingham 1985**

Dr. Salah is interested in software engineering and database management, and is teaching and developing courses in those areas. He has developed a partnership program with Cairo University under sponsorship of the bi-national Fulbright Commission. Dr. Salah left the University to take a position at Cairo University starting in Fall, 2007



**Dr. Brian M. Slator, Professor  
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. He is a recipient of the Meier sponsored professorship. Dr. Slator is a recipient of the Ernest L. Boyer International Award for Excellence in Teaching, Learning and Technology. Dr. Slator becomes Department Head on July 1, 2007.



**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.



## 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.



**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.



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

Mr. Kotala teaches courses in systems analysis and design and foundations of programming for MIS majors. He also teaches the summer governor's school for high school students, and has research interests in database management.



**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.

## STAFF



**Lynn Thorp, Systems Technician**

Ms. Thorp administers department systems, maintains the departmental web site, and handles 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.



**Mimi Monson, Part-time Administrative Secretary**

Ms. Monson carries out office support functions, including maintaining departmental data and student records and survey information, and assisting students and faculty.



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

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

**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.

<p>1. Knowledge in Scientific and Technical areas.</p> <p><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></p>
<p>2. Development of computer-based systems.</p> <p><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></p>
<p>3. Skills in project-oriented teamwork and communication.</p> <p><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></p>
<p>4. Understanding of ethical, cultural, societal, legal and global issues in computing.</p> <p><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></p>

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 planned for 2007-08.

Sixteen graduating seniors returned completed surveys in 2006-07. Selected results are given next. More complete results will appear in the Department's Assessment Report.

1. Question 3: What NDSU has done best: programming, working in groups, variety of programming assignments
2. Question 4: Need for improvement: communication, clarity of assignments; software testing, use of modern tools, design patterns
3. Question 5: Achievement of goals
  - a. Knowledge in Scientific and technical areas: 2 rated as 3; 5 rated as 4; and 9 rated as 5
  - b. Development: 1 rated as 2; 4 rated as 3; 7 rated as 4; and 4 rated as 5
  - c. Teamwork and communication: 5 rated as 3; 4 rated as 4; and 7 rated as 5
  - d. Ethical issues: 3 rated as 2; 6 rated as 3; 4 rated as 4; and 3 rated as 5.
4. Question 6: Missing, but desired: certifications, .NET, Eclipse, CASE tools, PHP
5. Question 8: We should do more: work on projects for industry; work in teams; UNIX; testing; student presentations
6. Question 10: We should do less: theory; group work

## **2. Capstone Projects:**

The 2006-07 academic year marked the fifth 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 2006 are as follows:

1. IBM
2. Thomson West
3. ATK
4. Polaris
5. Sundog
6. Infinity
7. Honeywell
8. DigiKey
9. Phoenix
10. Noridan
11. NorthStar

**Summary tabulation of the Project Sponsor Survey, Compiled May, 2006**

<b>PROJECT</b>	<b>OPINION OF CAPSTONE PROGRAM</b>	<b>WILLING TO SPONSOR NEXT YEAR</b>	<b>FINAL GRADE FROM SPONSOR</b>	<b>COMMENTS – SPONSOR/MENTOR</b>
IBM	Very Good	For Sure	A	"Very impressive. We are already hashing out ideas for next year's project...These projects stimulate our business"
Thomson West	Very Good	For Sure	A	"We will continue to use the Capstone program to work on projects and provide experience to students."
ATK	Very Good	For Sure	A	we "already have a great suggestion for next year"
Polaris	Very Good	For Sure	A	"Very positive experience!" "I think this is a terrific program and exactly what is needed to tie the academic world and the business world. The enthusiasm of the students is refreshing and contagious! I am very impressed with NDSU and your students!"
Sundog	Very Good	For Sure	B+	"I think this course is wonderful...I have many project ideas for next year. When I went to NDSU, I wish we had such a course in CompSci...I would have taken it a couple times just for the experience." (regarding sponsor/mentor luncheon - "I enjoy the interactions. This is great opportunity to network as well as just learning other perspectives on recruiting and mentorship in surrounding area.")
Infinity	Very Good	Likely	A	"... doing a great job with the class and the students will be better prepared for the 'real world'."
Honeywell	Very Good	Likely	A	"I think this is a great opportunity for both the students and companies to try each other out. I suspect that students that do good in this class would have a small network of contacts within a company, and the company would have seen what someone can do (interviews are not a good way to see what someone can do). This is a win-win."
DigiKey	Very Good	Marginal	B- or C+	"It is a great way for students to get real work experience while companies are able to evaluate possible future employees." "Projects that can be done offsite are difficult to find at Digi-Key. If they can be found, it would be considered for another year."
Phoenix	Good	Likely	B/F	"I think this is a valuable experience for students preparing to enter the real world. Even though we



				had a bad experience this year, I would be willing to give it another shot. "
Noridan	Good	Likely	A	"... you do a good job with the program! We have been involved with this the past 2 years. Last year things went ok and this year they went great. .. thank you for having Noridan be part of this program. Thank you for giving me such a great group to work with this year."
NorthStar	Good	Marginal	B+	"...I don't think we'd do an MIS project again. While the students did well with what they had and learned quite a bit I think, the return for NorthStar was definitely less than we had hoped. From what I can see, the CompSci areas ones work really well..."

### 3. Advising Efforts:

#### ADVISEES 2006-2007

Axvig	Aaron	SO	undecided	BS-Computer Science
Gange	Derek	SR	undecided	BS-Computer Science
Laney	Nicholas	FR	undecided	BS-Computer Science
Nagahawatte	Don	GR	undecided	CERT-Software Engineering
Addy	Noah	GR	undecided	MS-Computer Science
Balakrishnan	Prashanth	GR	undecided	MS-Computer Science
Emmadi	Praveen Kumar	GR	undecided	MS-Computer Science
Farheen	Swara	GR	undecided	MS-Computer Science
Joseph	Priya	GR	undecided	MS-Computer Science
Mamun	Abdullah	GR	undecided	MS-Computer Science
Mangipudi	Venkata	GR	undecided	MS-Computer Science
Mehto	Vikram	GR	undecided	MS-Computer Science
Moses	Joseph	GR	undecided	MS-Computer Science
Namboori	Praveen	GR	undecided	MS-Computer Science
Naznin	Mahmuda	GR	undecided	MS-Computer Science
Njos	Robby	GR	undecided	MS-Computer Science
Osmani	Md	GR	undecided	MS-Computer Science
Padmanabhan	Ganesh	GR	undecided	MS-Computer Science
Schlecht	Ryun	GR	undecided	MS-Computer Science
Syed	Naveed	GR	undecided	MS-Computer Science
Tirupathi	Ambika	GR	undecided	MS-Computer Science
Aceituna	Daniel	GR	undecided	MS-Software Engineering
Carlson	Ryan	GR	undecided	MS-Software Engineering
Gunderson	Karl	GR	undecided	MS-Software Engineering
Kazack	Jerilyn	GR	undecided	MS-Software Engineering

Manan	Megha	GR	undecided	MS-Software Engineering
Besemann	Christopher	GR	undecided	PHD-Computer Science
Lin	Fengjing	GR	undecided	PHD-Computer Science
Naznin	Mahmuda	GR	undecided	PHD-Computer Science
Shanmugasundaram	Vijayakumar	GR	undecided	PHD-Computer Science
Yang	Ying	GR	undecided	PHD-Computer Science
Kaliki	Srikanth	GR	undecided	PHD-Software Engineering
Myronovych	Oksana	GR	undecided	PHD-Software Engineering
Benavidez	Nestor	JR	Denton,Anne	BS-Computer Science
Hanson	Christopher	JR	Denton,Anne	BS-Computer Science
Hauschild	Nicholas	SR	Denton,Anne	BS-Computer Science
Helsene	Adam	SR	Denton,Anne	BS-Computer Science
Imholte	Randy	SR	Denton,Anne	BS-Computer Science
Johanneck	Charles	JR	Denton,Anne	BS-Computer Science
Parisian	Dane	SO	Denton,Anne	BS-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
Jain	Harsh	GR	Denton,Anne	MS-Computer Science
Jain	Jenender	GR	Denton,Anne	MS-Computer Science
Jinka	Vasuprakash	GR	Denton,Anne	MS-Computer Science
Kallam	Lakshmi Mrudula	GR	Denton,Anne	MS-Computer Science
Narayanan Kutty	Shyam	GR	Denton,Anne	MS-Computer Science
Dorr	Dietmar	GR	Denton,Anne	PHD-Computer Science
Blixt	Mark	SO	Du,Xiaojiang	BS-Computer Science
Brown	Ken	SR	Du,Xiaojiang	BS-Computer Science
Carr	Joel	SO	Du,Xiaojiang	BS-Computer Science
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
Johnson	Trevor	JR	Du,Xiaojiang	BS-Computer Science
Kube	Alexander	JR	Du,Xiaojiang	BS-Computer Science
Lee	Rikki	JR	Du,Xiaojiang	BS-Computer Science
Levi	Nathan	JR	Du,Xiaojiang	BS-Computer Science
Kondakindi	Swathi	GR	Du,Xiaojiang	MS-Computer Science
Kurapati	Venkata	GR	Du,Xiaojiang	MS-Computer Science
Natarajan	Ramesh	GR	Du,Xiaojiang	MS-Computer Science
Pullagurala	Praveen	GR	Du,Xiaojiang	MS-Computer Science
Kambhampaty	Krishna	GR	Du,Xiaojiang	PHD-Computer Science
Crockett III	Linzey	SR	Fu,Huirong	BS-Computer Science
Pratt	Alexander	SR	Fu,Huirong	BS-Computer Science
Byberg	Travis	SR	Juell,Paul	BS-Computer Science
Chadha	Apurav	SR	Juell,Paul	BS-Computer Science
Chowdhury	Amanul	SR	Juell,Paul	BS-Computer Science

Frohlich	Mark	JR	Juell,Paul	BS-Computer Science
Gupta	Dhruv	SR	Juell,Paul	BS-Computer Science
Helm	David	SR	Juell,Paul	BS-Computer Science
Hodgerson	Eric	SR	Juell,Paul	BS-Computer Science
Saran	Ripunjaya	SR	Juell,Paul	BS-Computer Science
Sheoran	Arun	SR	Juell,Paul	BS-Computer Science
Singh	Kunal	SR	Juell,Paul	BS-Computer Science
Stockton	Alexander	SO	Juell,Paul	BS-Computer Science
Alla	Kishore	GR	Juell,Paul	MS-Computer Science
Baddam	Shireesha	GR	Juell,Paul	MS-Computer Science
Huq	Shamima	GR	Juell,Paul	MS-Computer Science
Katib	Faraz	GR	Juell,Paul	MS-Computer Science
Kattakindi	Kiran	GR	Juell,Paul	MS-Computer Science
Lee	Michael	GR	Juell,Paul	MS-Computer Science
Lu	Tingda	GR	Juell,Paul	MS-Computer Science
Mannepalli	Vijaya	GR	Juell,Paul	MS-Computer Science
Oruganti	Ravi	GR	Juell,Paul	MS-Computer Science
Patil	Archana	GR	Juell,Paul	MS-Computer Science
Srichinta	Uday	GR	Juell,Paul	MS-Computer Science
Vasepalli	Srikanth	GR	Juell,Paul	MS-Computer Science
Anand	Surekha	SR	Kamel,Ahmed M	BS-Computer Science
Anderson	Jordan	SR	Kamel,Ahmed M	BS-Computer Science
Dalquist	Lisa	SR	Kamel,Ahmed M	BS-Computer Science
Holisky	Adam	JR	Kamel,Ahmed M	BS-Computer Science
Ward	Elizabeth	SR	Kamel,Ahmed M	BS-Computer Science
Huber	Patrick	SR	Kim,Sung	BA-Computer Science
Neu	Kenton	SO	Kim,Sung	BS-Computer Science
Schuler	Jonathan	JR	Kim,Sung	BS-Computer Science
Hoff	Garrett	GR	Kim,Sung	MS-Computer Science
Ramamurthy	Durga	GR	Kim,Sung	MS-Computer Science
Sivanandam	Dinesh	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
Beyer	Ronald	SR	Magel,Kenneth	BS-Computer Science
Conklin	Russell	SR	Magel,Kenneth	BS-Computer Science
Mbuba	Kenfrey	SR	Magel,Kenneth	BS-Computer Science
Paulus	Benjamin	JR	Magel,Kenneth	BS-Computer Science

Stone	Jason	SR	Magel,Kenneth	BS-Computer Science
Bhowmick	Dibakar	GR	Magel,Kenneth	CERT-Software Engineering
Ketcher	Kevin	GR	Magel,Kenneth	CERT-Software Engineering
Safi	Syed	GR	Magel,Kenneth	CERT-Software Engineering
Bukkapatnam	Sharath	GR	Magel,Kenneth	MS-Computer Science
Peterson	Jason	GR	Magel,Kenneth	MS-Computer Science
Pinagapani	Sathish	GR	Magel,Kenneth	MS-Computer Science
Sharma	Mayukh	GR	Magel,Kenneth	MS-Computer Science
Banga	Surjeet	GR	Magel,Kenneth	MS-Software Engineering
Boyko	Gregory	GR	Magel,Kenneth	MS-Software Engineering
Chauhan	Anuj	GR	Magel,Kenneth	MS-Software Engineering
Cimic	Senad	GR	Magel,Kenneth	MS-Software Engineering
Eda	Ravi	GR	Magel,Kenneth	MS-Software Engineering
Hedahl	Angela	GR	Magel,Kenneth	MS-Software Engineering
Herath	Shanaka	GR	Magel,Kenneth	MS-Software Engineering
Limke	Jed	GR	Magel,Kenneth	MS-Software Engineering
Maresca	Louis	GR	Magel,Kenneth	MS-Software Engineering
McGinnity	Steve	GR	Magel,Kenneth	MS-Software Engineering
Murugaiyan	Elangovan	GR	Magel,Kenneth	MS-Software Engineering
Oberoi	Inderjeet	GR	Magel,Kenneth	MS-Software Engineering
Rahman	Mohamed Saif Ur	GR	Magel,Kenneth	MS-Software Engineering
Saiyed	Rumana	GR	Magel,Kenneth	MS-Software Engineering
Srichinta	Pallavi	GR	Magel,Kenneth	MS-Software Engineering
Srivastava	Arun	GR	Magel,Kenneth	MS-Software Engineering
Thalhoji	Pramodh	GR	Magel,Kenneth	MS-Software Engineering
Upadhyay	Rajat	GR	Magel,Kenneth	MS-Software Engineering
Pikalek	Jonathan	GR	Magel,Kenneth	PHD-Computer Science
Abufardeh	Sameer	GR	Magel,Kenneth	PHD-Software Engineering
Ahmadi	Hamed	GR	Magel,Kenneth	PHD-Software Engineering
Asgar	Talukdar	GR	Magel,Kenneth	PHD-Software Engineering
Rummelt	Richard	GR	Magel,Kenneth	PHD-Software Engineering
Satter	Mehdi	GR	Magel,Kenneth	PHD-Software Engineering
Smadi	Mohammad	GR	Magel,Kenneth	PHD-Software Engineering
Konieska	Adam	SO	Martin III,John C	BA-Computer Science
Ahlf	Travis	SO	Martin III,John C	BS-Computer Science
Albee	Christopher	SO	Martin III,John C	BS-Computer Science
Alic	Selvedin	SR	Martin III,John C	BS-Computer Science
Barsness	Timothy	JR	Martin III,John C	BS-Computer Science
Barthelemy	Ryan	FR	Martin III,John C	BS-Computer Science
Baskerville	Patrick	SR	Martin III,John C	BS-Computer Science
Beck	Jase	FR	Martin III,John C	BS-Computer Science
Bettenhausen	Nathaniel	SO	Martin III,John C	BS-Computer Science
Blattner	David	JR	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
Bromeling	Hayley	FR	Martin III,John C	BS-Computer Science
Brown	Cody	FR	Martin III,John C	BS-Computer Science
Carlson	Saul	SO	Martin III,John C	BS-Computer Science
Carlsrud	Ryan	FR	Martin III,John C	BS-Computer Science

Christiansen	Zachariah	SR	Martin III,John C	BS-Computer Science
Deutsch	Raymond	FR	Martin III,John C	BS-Computer Science
Dockter	Travis	FR	Martin III,John C	BS-Computer Science
Dosso	Vamorris	SO	Martin III,John C	BS-Computer Science
Duppong	Alexander	SO	Martin III,John C	BS-Computer Science
Engleson	Kyle	SO	Martin III,John C	BS-Computer Science
Ewert	Shane	SO	Martin III,John C	BS-Computer Science
Feickert	Aaron	SO	Martin III,John C	BS-Computer Science
Feir	Benjamin	FR	Martin III,John C	BS-Computer Science
Fisher	Scott	SR	Martin III,John C	BS-Computer Science
Forseth	Christopher	SR	Martin III,John C	BS-Computer Science
Gedgaud	Philip	FR	Martin III,John C	BS-Computer Science
Gmyrek	Dylan	JR	Martin III,John C	BS-Computer Science
Goos	Gregory	FR	Martin III,John C	BS-Computer Science
Grueneich	Blake	FR	Martin III,John C	BS-Computer Science
Grueneich	Kent	SO	Martin III,John C	BS-Computer Science
Hansen	Justin	JR	Martin III,John C	BS-Computer Science
Hartleib	Joel	SR	Martin III,John C	BS-Computer Science
Hartmann	Steven	JR	Martin III,John C	BS-Computer Science
Hays	Avery	SR	Martin III,John C	BS-Computer Science
Hebl	Joseph	JR	Martin III,John C	BS-Computer Science
Heimbuch	Jordon	FR	Martin III,John C	BS-Computer Science
Helbling	Chad	FR	Martin III,John C	BS-Computer Science
Helmer	Brady	SO	Martin III,John C	BS-Computer Science
Honeyman	Matthew	SO	Martin III,John C	BS-Computer Science
Honl	Jeremy	SR	Martin III,John C	BS-Computer Science
Hueske	Erin	SO	Martin III,John C	BS-Computer Science
Jackson	Abram	FR	Martin III,John C	BS-Computer Science
Jechort	Alan	JR	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
Kariluoma	Matti	SO	Martin III,John C	BS-Computer Science
Kautzman	Michael	SO	Martin III,John C	BS-Computer Science
Kerber	Dustin	SO	Martin III,John C	BS-Computer Science
Klingbeil	Seth	FR	Martin III,John C	BS-Computer Science
Knecht	Philip	SO	Martin III,John C	BS-Computer Science
Konze	Michael	SR	Martin III,John C	BS-Computer Science
Kressin	Steven	FR	Martin III,John C	BS-Computer Science
Kwiecien	Stanley	SO	Martin III,John C	BS-Computer Science
Larson	Nicholas	FR	Martin III,John C	BS-Computer Science
Lee	Ryan	FR	Martin III,John C	BS-Computer Science
Lein	Nicholas	FR	Martin III,John C	BS-Computer Science
Lennington	Matthew	SO	Martin III,John C	BS-Computer Science
Lindstrom	Robert	SO	Martin III,John C	BS-Computer Science
Lorz	Julius	FR	Martin III,John C	BS-Computer Science
Lutz	Jared	SR	Martin III,John C	BS-Computer Science
Lynch	Anthony	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
McDaniel	Trevor	FR	Martin III,John C	BS-Computer Science

Mehinagic	Jasmin	FR	Martin III,John C	BS-Computer Science
Middleton	Nathan	SO	Martin III,John C	BS-Computer Science
Mueller	Benjamin	SR	Martin III,John C	BS-Computer Science
Nelson	Edith	SR	Martin III,John C	BS-Computer Science
Nordsven	Benjamin	SR	Martin III,John C	BS-Computer Science
Novotny	Steven	SR	Martin III,John C	BS-Computer Science
Olson	Nathan	SR	Martin III,John C	BS-Computer Science
Otto	Andrew	FR	Martin III,John C	BS-Computer Science
Parson	Scott	SO	Martin III,John C	BS-Computer Science
Parvathaneni	Rohit	SR	Martin III,John C	BS-Computer Science
Peabody	Matthew	JR	Martin III,John C	BS-Computer Science
Phelps	Bryan	FR	Martin III,John C	BS-Computer Science
Piehl	Matthew	FR	Martin III,John C	BS-Computer Science
Radermacher	Alex	SR	Martin III,John C	BS-Computer Science
Reindl	Phillip	SR	Martin III,John C	BS-Computer Science
Reinhardt	Lee	JR	Martin III,John C	BS-Computer Science
Samanta	Alex	SO	Martin III,John C	BS-Computer Science
Saroha	Jitender	SR	Martin III,John C	BS-Computer Science
Saxton	Robert	FR	Martin III,John C	BS-Computer Science
Schelkoph	Daniel	JR	Martin III,John C	BS-Computer Science
Schepers	John	SO	Martin III,John C	BS-Computer Science
Seelig	Celton	SO	Martin III,John C	BS-Computer Science
Smith	Andrew	SO	Martin III,John C	BS-Computer Science
Smith	Matthew	SO	Martin III,John C	BS-Computer Science
Smock	Adam	FR	Martin III,John C	BS-Computer Science
Stack	Jordan	SO	Martin III,John C	BS-Computer Science
Stenson	Joshua	SR	Martin III,John C	BS-Computer Science
Swenson	Darin	SR	Martin III,John C	BS-Computer Science
Thompson	Christopher	SO	Martin III,John C	BS-Computer Science
Torgerson	David	SO	Martin III,John C	BS-Computer Science
Triplett	Jeffrey	JR	Martin III,John C	BS-Computer Science
Troftgruben	Darby	SO	Martin III,John C	BS-Computer Science
Wahlund	Collin	SR	Martin III,John C	BS-Computer Science
Wegener	Deven	SO	Martin III,John C	BS-Computer Science
Westerholm	James	SO	Martin III,John C	BS-Computer Science
Wiesenborn	Jesse	SO	Martin III,John C	BS-Computer Science
Wuethrich	Johnathan	FR	Martin III,John C	BS-Computer Science
Zhang	Yu	FR	Martin III,John C	BS-Computer Science
Ziegelman	Luke	FR	Martin III,John C	BS-Computer Science
Choi	Meegeum	GR	Martin III,John C	MS-Computer Science
Dandey	Santosh Raj	GR	Martin III,John C	MS-Computer Science
Gooduru	Ramakrishnareddy	GR	Martin III,John C	MS-Computer Science
Lanke	Ramesh	GR	Martin III,John C	MS-Computer Science
Lin	Chen-Mi	GR	Martin III,John C	MS-Computer Science
Pushpala Vijay	Manoj	GR	Martin III,John C	MS-Computer Science
Debilt	Daniel	GR	Martin III,John C	MS-Software Engineering
Laschkewitsch	Charles	GR	Martin III,John C	MS-Software Engineering
Kar	Angshu	GR	Martin III,John C	PHD-Computer Science

Anantha Raman	Lakshmi	GR	Nygaard,Kendall E	MS-Computer Science
Arora	Barjesh	GR	Nygaard,Kendall E	MS-Computer Science
Balasubramanian	Arunkumar	GR	Nygaard,Kendall E	MS-Computer Science
Barabanov	Dmitri	GR	Nygaard,Kendall E	MS-Computer Science
Basu	Samidip	GR	Nygaard,Kendall E	MS-Computer Science
Brown	Jeremy	GR	Nygaard,Kendall E	MS-Computer Science
Buchfink	Derek	GR	Nygaard,Kendall E	MS-Computer Science
Ganapa	Sireesha	GR	Nygaard,Kendall E	MS-Computer Science
Gangannagari	Rajendar	GR	Nygaard,Kendall E	MS-Computer Science
Goli	Swathi	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
Kaur	Harvinder	GR	Nygaard,Kendall E	MS-Computer Science
Kheerwal	Anoop	GR	Nygaard,Kendall E	MS-Computer Science
Namasivayam	Karthik	GR	Nygaard,Kendall E	MS-Computer Science
Pandey	Shivendushital	GR	Nygaard,Kendall E	MS-Computer Science
Perubhotla	Sritej	GR	Nygaard,Kendall E	MS-Computer Science
Rajaraman	Thilak Kumar	GR	Nygaard,Kendall E	MS-Computer Science
Vinta	Naveen	GR	Nygaard,Kendall E	MS-Computer Science
Yamparala	Sri Harsha	GR	Nygaard,Kendall E	MS-Computer Science
Arora	Barjesh	GR	Nygaard,Kendall E	PHD-Computer Science
Kotala	Pratap	GR	Nygaard,Kendall E	PHD-Computer Science
Tang	Jingpeng	GR	Nygaard,Kendall E	PHD-Computer Science
Alsmadi	Izzat	GR	Nygaard,Kendall E	PHD-Software Engineering
Lua	Chin	GR	Nygaard,Kendall E	PHD-Software Engineering
Lundell	Martin	GR	Nygaard,Kendall E	PHD-Software Engineering
Kramer	Anthony	SR	Perrizo,William K	BS-Computer Science
Tadasina	Sumanth	GR	Perrizo,William K	MS-Computer Science
Thamizh Pandian	Elampiraii	GR	Perrizo,William K	MS-Computer Science
Vijayan	Dhinuraju	GR	Perrizo,William K	MS-Computer Science
Wu	Qipeng	GR	Perrizo,William K	MS-Computer Science
Canton	Maria	GR	Perrizo,William K	PHD-Computer Science
Jockheck	William	GR	Perrizo,William K	PHD-Computer Science
Perera	Amal	GR	Perrizo,William K	PHD-Computer Science
Sanchez	Julio	GR	Perrizo,William K	PHD-Computer Science
Carroll	Christopher	SR	Salah,Akram	BA-Computer Science
Harmon	Ryan	SR	Salah,Akram	BA-Computer Science
Brewer	Galen	SO	Salah,Akram	BS-Computer Science
Faught	David	SO	Salah,Akram	BS-Computer Science
Olson	Stefan	JR	Salah,Akram	BS-Computer Science
Schomer	Nathaniel	JR	Salah,Akram	BS-Computer Science
Serfling	Roger	SR	Salah,Akram	BS-Computer Science
Serfling	Roger	SR	Salah,Akram	BS-Computer Science
Singh	Satwant	SR	Salah,Akram	BS-Computer Science
Swan	Mark	JR	Salah,Akram	BS-Computer Science
Trana	Jesse	SR	Salah,Akram	BS-Computer Science
Verma	Sachin	SR	Salah,Akram	BS-Computer Science
Welch	Jacob	SR	Salah,Akram	BS-Computer Science

Christianson	Michael	SR	Slator,Brian	BS-Computer Science
Elmaraghy	Mohamed	JR	Slator,Brian	BS-Computer Science
Fangsrud	Charles	SR	Slator,Brian	BS-Computer Science
Groesbeck	Gabriel	SR	Slator,Brian	BS-Computer Science
Heltemes	Darin	SO	Slator,Brian	BS-Computer Science
Kuvaas	Douglas	SR	Slator,Brian	BS-Computer Science
Lemke	Todd	SR	Slator,Brian	BS-Computer Science
Schwan	Kyle	JR	Slator,Brian	BS-Computer Science
Schwan	Kyle	JR	Slator,Brian	BS-Computer Science
Cosmano	Robert	GR	Slator,Brian	MS-Computer Science
Dischinger	Benjamin	GR	Slator,Brian	MS-Computer Science
Erickson	Kellie	GR	Slator,Brian	MS-Computer Science
Hokanson	Guy	GR	Slator,Brian	MS-Computer Science
Li	Mei	GR	Slator,Brian	MS-Computer Science
Borchert	Otto	GR	Slator,Brian	PHD-Computer Science
Ferderer	Tyler	SR	Ubhaya,Vasant A	BS-Computer Science
Kumar	Pankaj	SR	Ubhaya,Vasant A	BS-Computer Science
Mehinagic	Damir	SO	Ubhaya,Vasant A	BS-Computer Science
Odegaard	Eric	SR	Ubhaya,Vasant A	BS-Computer Science
Olson	Michael	JR	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
Veit	Michael	SR	Ubhaya,Vasant A	BS-Computer Science
Chakravarthi	Satheesh	GR	Ubhaya,Vasant A	MS-Computer Science
Challagolla	Srinivas	GR	Ubhaya,Vasant A	MS-Computer Science
Chintapalli	Veera Venkata	GR	Ubhaya,Vasant A	MS-Computer Science
Dass	Pranav	GR	Ubhaya,Vasant A	MS-Computer Science
Devina	Laiphangbam	GR	Ubhaya,Vasant A	MS-Computer Science
Dimri	Dhananjay	GR	Ubhaya,Vasant A	MS-Computer Science
Anderson	Spencer	SR	Xu,Dianxiang	BS-Computer Science
Davidson	Christopher	SR	Xu,Dianxiang	BS-Computer Science
Gehrke	Bryan	SO	Xu,Dianxiang	BS-Computer Science
Hillius	Parker	SO	Xu,Dianxiang	BS-Computer Science
Rana	Pradhuman	SR	Xu,Dianxiang	BS-Computer Science
Schmalenberg	John	SR	Xu,Dianxiang	BS-Computer Science
Schmalenberg	John	SR	Xu,Dianxiang	BS-Computer Science
Swenson	Webster	SR	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
Vanga	Sundeep	GR	Xu,Dianxiang	MS-Computer Science

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

Curriculum review continued during 2006-07. The Department approved a plan for a new degree, the Bachelor of Science in Applied Computing. This degree program is intended to



be more attractive to incoming students than the existing B.S. by allowing students to specialize in subareas of Computer Science that most interest them and by reducing the theory requirements. The Department's Director of Undergraduate Studies, John Martin, was tasked with preparing the new program proposal for submission to the University. This proposal was not completed in 2006-07. When the new proposed program is approved, it would replace our existing B.A. program which has never been very popular..

We explored alternative ways of organizing our introductory B.S. course sequence to better retain qualified students. We decided to try new teaching approaches including using new technology.

2006-07 saw the first batch of students from India to come to NDSU under our twinning arrangements with the Ansal Institute of Technology in India. There were some adjustment problems both with the level of student preparation and with student expectations concerning independent work. These problems were addressed primarily by adjustments in course delivery and assignment grading at the Ansal Institute. An advisory placement examination was developed by Ken Magel and offered to twelve AIT students in India in June, 2007. Recommendations for improved preparation based on this examination have been sent to the students involved.

The Department is moving towards delivery of our graduate programs through distance education. The Graduate Certificate in Software Engineering is being offered already. Demand is growing slowly, but we have made no effort to advertise the program. A proposal for a Master of Software Engineering degree was developed by Ken Magel, but encountered substantial opposition from College of Science and Mathematics faculty. Prospects for this proposal to be approved by the College in the near future seem slim.

#### **4. Accreditation and reviews:**

The B.S. in Computer Science has been accredited since 1986, the first year that accreditation was available. During fall, 2005 the Department had a visit by a review committee from ABET. This review was successful in large part due to substantial revision to our assessment procedures and the change to release time for those doing the majority of the assessment. These changes were made in August and September 2005 just before the visit. Our B.S. in Computer Science continues to be accredited through June, 2009 by which time an extensive self-study and site visit will be completed.

Meanwhile, ABET requires a site visit in the fall of 2007 to assess the Department's new assessment procedures, especially their implementation. If this evaluation is passed, the accreditation through June, 2009 will continue. If this evaluation is not passed, accreditation may end in June, 2008.

This is the only degree in Computer Science eligible for accreditation. ABET is the only organization that accredits programs in Computer Science.

**5. 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 selection of graduate teaching assistants as a recruiting tool. We implemented a sorely needed new web site also.

At the undergraduate the Department recognizes that it has a retention problem. During 2006-07 we gathered information to identify and characterize the problems. Several alternative potential solutions were identified and discussed. Improvement of student retention will be a major activity during 2007-08 and subsequent years.

**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 26-48-66K. We believe these figures significantly underestimate the real employment rate since many graduating students do not go through the Career Center to procure employment.

**6. 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.

## **7. 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, 2006 and spring, 2007. Specific changes undertaken during 2006-07 as a result of these assessments include:

1. Repackaged our introductory course sequence to use more interesting problem assignments and to reduce the emphasis on concepts of software engineering (instead we concentrate on software engineering practices relevant to small projects);
2. Modified CSci 467 to provide more guidance on summarizing articles from the literature;
3. Clarified algorithm-based assignments for CSci 161;
4. Clarified problems assigned in CSci 160.

## **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 2006-07. 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, 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, 2006, AND CONTINUING INTO THE 2006- 2007 ACADEMIC YEAR**

<b>YEAR</b>	<b>GRANT #</b>	<b>PRINCIPAL INVESTIGATOR</b>	<b>TITLE</b>	<b>FUNDING SOURCE</b>	<b>AMOUNT</b>
4/05 to 4/07	10466	Denton	Tools and Applications of Gene-by Gene Sequencing in Common Bean	USDA/CSEES	61,955
7/05 to 6/08	10693	Denton	Data Mining in the Presence of Quantitatively Diverse Information	NSF	272,557

YEAR	GRANT #	PRINCIPAL INVESTIGATOR	TITLE	FUNDING SOURCE	AMOUNT
1/06 to 9/06		Denton	Semi-Global Computational Analysis of Gene Regulation	NDSU CSM/AES	9,926
1/05 to 7/05	10215	Du	Secure Communications for NASA Hybrid Satellite Networks	EPSCoR	16,733
11-20-01 to 11-19-06	4205	Nygaard	Virtual Archival Storage Terminal	US Dept. of Housing and Urban Dev.	249,450
12/03	5280	Nygaard	Microsoft Business	Microsoft Business Solutions	19,500
7/93 ----	5512	Perrizo	Residual Value Surrogates	Dakota Race Mgmt.	16,469
7/05 to 6/06	10793	Perrizo	EPSCoR State Doctoral Dissertation Award – Abidin	EPSCoR	6,560
7/05 to 6/06	10789	Perrizo	EPSCoR State Doctoral Dissertation Award – Abidin	EPSCoR	13,726
4/1/06 to 7/06	11759	Xu	NSA EPSCoR State Match	EPSCoR	11,000
<b>TOTAL</b>					<b>677,876</b>

**COMPUTER SCIENCE DEPARTMENT GRANTS AND CONTRACTS  
PROJECTS INITIATED DURING THE JULY 1, 2006 TO JUNE 30, 200 TIME PERIOD**

YEAR	GRANT #	PRINCIPAL INVESTIGATOR	TITLE	FUNDING SOURCE	AMOUNT
5/1/07 to 4/30/08	12263	Du	Dept of Army Heterogeneous Sensor Network Testbed Research	Department of Army	58,150
3/26/06 to 6/30/07	11983	Du	Graduate Research Assistant Support	NSF	1000
8/15/06 to 5/31/07	12645	Magel	Fellowship to Izzat Alsmadi	NDSU Development Foundation	15,000
8/15/06 to 8/14/07	12099	Nygaard/Du	Smart Sensing and Decision making for NASA Sensor Webs	NASA/UND	57,479
8/15/06 to 7/31/07	11337	Perrizo	Sixth Virtual Conference on Genomics and Bioinformatics	NSF	17,114
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	NSF	73,959

YEAR	GRANT #	PRINCIPAL INVESTIGATOR	TITLE	FUNDING SOURCE	AMOUNT
			Games fo Geoscience Education		
10/1/06 to 4/30/07	12372	Xu	ND EPSCoR 11P Seed Award	EPSCor	15,000
<b>Totals</b>					<b>237,702</b>

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

### Anne Denton

#### **Publications**

1. Christopher Besemann, Anne Denton, Nathan J. Carr and Birgit M. Pruess,
2. "BISON: bio-interface for the semi-global analysis of network patterns," Source Code for Biology and Medicine, 1:8, 2006.
3. Birgit M. Pruis, Christopher Besemann, Anne Denton, and Alan J. Wolfe, "A complex transcription network controls the early stages of biofilm formation," J. Bacteriol. 188:3731-3739, 2006.
4. Imad Rahal, Dongmei Ren, Weihua Wu, Anne Denton, Christopher Besemann, and William Perrizo, "Exploiting edge semantics in citation graphs using efficient, vertical ARM," Knowledge And Information Systems (KAIS) Journal, Vol.10, No.1, 57-91, Springer-Verlag London, 2006.
5. William Perrizo, Qin Ding, Maleq Kahn, Qiang Ding, and Anne Denton, "An Efficient Weighted Nearest Neighbor Classifier using Vertical Data Representation," International Journal of Business Intelligence and Data Mining 2(1), 2006.

#### **Pending publications**

1. Dietmar H Dorr and Anne M Denton, "Clustering Sequences by Overlap," submitted to Algorithms for Molecular Biology
2. Anne Denton, Christopher Besemann, and Dietmar Dorr, "Data-Set-Specific Time-Series Subsequence Clustering Using Radial Distribution Functions", submitted to Knowledge and Information Systems
3. Christopher Besemann and Anne Denton, "Frequent and Significant Itemsets in Graph-Relational Data," submitted to Knowledge and Information Systems
4. Anne Denton and Angshu Kar, "Detecting Non-Random Data in the Presence of Massive Noise," submitted to the SIAM Data Mining Conference

## [Xiaojiang Du](#)

### **Publications**

#### **Refereed Publications**

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

1. **X. Du**, Y. Xiao, M. Guizani, and H. H. Chen, "An Effective Key Management Scheme for Heterogeneous Sensor Networks," *Ad Hoc Networks, Elsevier*, Vol. 5, Issue 1, pp 24–34, Jan. 2007.
2. D. Mandala, F. Dai, **X. Du**, and C. You, "Load Balance and Energy Efficient Data Gathering in Wireless Sensor Networks," *Wireless Communications and Mobile Computing*, pp. 1-15, Issue 7, 2007.
3. **X. Du**, "Identifying Control and Management Plane Poison Message Failure by K-Nearest Neighbor Method," *Journal of Network and Systems Management*, Vol. 14, No. 2, pp. 243–259, June 2006.
4. **X. Du**, Y. Xiao, H. H. Chen, and Q. Wu, "Secure Cell Relay Routing Protocol for Sensor Networks," *Wireless Communications and Mobile Computing, Wiley*, Vol. 6, Issue 3, pp. 375–391, May 2006.
5. **X. Du** and D. Wu, "Adaptive Cell-Relay Routing Protocol for Mobile Ad Hoc Networks," *IEEE Transactions on Vehicular Technology*, Vol. 55, Issue 1, pp. 270–277, Jan. 2006.
6. **X. Du**, D. Wu, W. Liu, and Y. Fang, "Multi-Class Routing and Medium Access Control for Heterogeneous Mobile Ad Hoc Networks," *IEEE Transactions on Vehicular Technology*, Vol. 55, Issue 1, pp. 278–285, Jan. 2006.
7. **X. Du** and Y. Xiao, "Energy Efficient Chessboard Clustering and Routing in Heterogeneous Sensor Network," *International Journal of Wireless and Mobile Computing (IJWMC)*, Vol. 1, No. 2, pp. 121 –130, Jan. 2006.
8. **X. Du** and F. Lin, "Maintaining Differentiated Coverage in Heterogeneous Sensor Networks," *EURASIP Journal on Wireless Communications and Networking*, Vol. 5, Issue 4, pp 565–572, Sep. 2005.
9. Y. Xiao, K. K. Leung, Y. Pan, and **X. Du**, "Architecture, Mobility Management and Quality of Service for Integrated 3G and WLAN Networks," *Wireless Communications and Mobile Computing, Wiley*, Vol. 5, Issue 7, pp 805–823, Nov. 2005.

##### **• Accepted, Peer-Reviewed Journal Papers**

1. **X. Du**, M. Guizani, Y. Xiao, and H. H. Chen, "Two Tier Secure Routing Protocol for Heterogeneous Sensor Networks," *IEEE Transactions on Wireless Communications*, accepted, to appear.
2. **X. Du**, M. Zhang, K. Nygard, M. Guizani, and H. H. Chen, "Self-Healing Sensor Networks with Distributed Decision Making," *International Journal of Sensor Networks*, accepted, 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*, accepted, to appear.

4. Q. Wu, N. Rao, **X. Du**, S.S. Iyengar, and V. K. Vaishnavi, "On Efficient Deployment of Sensors on Planar Grid," *Computer Communications, Elsevier*, accepted, to appear.

5. **X. Du**, Y. Xiao, M. Guizani, and H. H. Chen, "Secure and Efficient Time Synchronization in Heterogeneous Sensor Networks," *IEEE Transactions on Vehicular Technology*, accepted, to appear.

6. **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.

7. 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*, accepted, to appear.

8. Y. Xiao, C. Bandela, **X. Du**, Y. Pan, and K. Dass, "Security Mechanisms, Attacks, and Security Enhancements for the IEEE 802.11 WLANs," *International Journal of Wireless and Mobile Computing (IJWMC)*, accepted, to appear.

• **Referred, Peer-Reviewed Conference Papers**

1. D. Mandala, F. Dai, **X. Du**, and C. You, "Load Balance and Energy Efficient Data Gathering in Wireless Sensor Networks," in *Proc. of the First IEEE International Workshop on Intelligent Systems Techniques for Wireless Sensor Networks, in conjunction with IEEE MASS'06*, Vancouver, Canada, Oct., 2006. **Best Paper Award!**

2. **X. Du**, M. Guizani, Y. Xiao, and H. H. Chen, "A Routing-Driven Key Management Scheme for Heterogeneous Sensor Networks," to appear in *Proc. of IEEE International Conference on Communications (ICC 2007)*, Glasgow, Scotland, June 2007. (Acceptance rate: 30 %)

3. Y. Xiao, M. Nolen, **X. Du**, and J. Zhang, "Simulating MPEG-4 over the IEEE 802.11 Wireless Local Area Networks," to appear in *Proc. of IEEE Wireless Communications and Networking Conference (WCNC)*, Hong Kong, March, 2007. (Acceptance rate: 30 %)

4. **X. Du**, Y. Xiao, S. Guizani, and H. H. Chen, "An Efficient Key Management Scheme for Heterogeneous Sensor Networks," in *Proc. of IEEE GLOBECOM 2006*, Nov. 2006, San Francisco, CA. (Acceptance rate: 30 %)

5. **X. Du**, Y. Xiao, S. Guizani, and H. H. Chen, "A Secure Routing Protocol for Heterogeneous Sensor Networks," in *Proc. of IEEE GLOBECOM 2006*, Nov. 2006, San Francisco, CA. (Acceptance rate: 30 %)

6. Y. Xiao, X. Zhang, **X. Du**, and J. Zhang, "Channel Allocation Algorithms for Three-tier Wireless Local Loop," to appear in *Proc. of IEEE GLOBECOM 2006*, Nov. 2006, San Francisco, CA. (Acceptance rate: 30 %)

7. M. Naznin, **X. Du**, and K. Nygard, "Scheduling Duty Cycles in Differentiated Sensor Networks," in *Proc. of IASTED International Conference on Knowledge Sharing and Collaborative Engineering (KSCE)*, St. Thomas, Virgin Islands, USA, Nov. 2006.

8. **X. Du**, M. Zhang, K. Nygard, M. Guizani, and H. H. Chen, "Distributed Decision Making Algorithm for Self-Healing Sensor Networks," in *Proc. of IEEE ICC 2006*, Istanbul, Turkey, June 2006. (Acceptance rate: 30 %)

9. H. H. Chen, J. Li, Y. Yang, **X. Du**, H. Liu and M. Guizani, "Challenges and Futuristic Perspective of CDMA Technologies: OCC-CDMA/OS for 4G Wireless Networks," in *Proc. of IEEE ICC 2006*, Istanbul, Turkey, June 2006. (Acceptance rate: 30 %)

10. M. Zhang, **X. Du**, and K. Nygard, "Improving Coverage Performance in Sensor Networks by Using Mobile Sensors," in *Proc. of IEEE Military Communication (MILCOM) 2005*, Atlantic City, NJ, Oct. 2005. (Acceptance rate: 30 %)

11. **X. Du** and D. Wu, "Efficient Multi-Class Routing Protocol for Heterogeneous Mobile Ad Hoc Networks," in *Proc. of The Second IEEE International Conference on Broadband Networks(BroadNets 2005)*, pp. 698–705, Boston, MA, Oct. 2005. (Acceptance rate: 30 %)

12. **X. Du** and F. Lin, "Efficient Energy Management Protocol for Target Tracking Sensor Network," in *Proc. of The Ninth IFIP/IEEE International Symposium on Integrated Network Management (IM 2005)*, pp. 45–58, Nice, France, May 2005. (Acceptance rate: 23.5 %)

13. **X. Du**, "Improving Routing in Sensor Networks with Heterogeneous Sensor Nodes," in *Proc. of IEEE VTC Spring 2005*, Stockholm, Sweden, May 2005. (Acceptance rate: 40.0 %)

14. **X. Du** and F. Lin, "Designing Efficient Routing Protocol for Heterogeneous Sensor Networks," in *Proc. of The 24th IEEE International Performance, Computing, and Communications Conference (IPCCC)*, April 2005, Phoenix, AZ. (Acceptance rate: 32.2 %)

15. **X. Du**, and F. Lin, "Improving Sensor Network Performance by Deploying Mobile Sensors," in *Proc. of The 24th IEEE International Performance, Computing, and Communications Conference (IPCCC)*, Apr. 2005, Phoenix, AZ. (Acceptance rate: 32.2 %)

16. **X. Du**, "Secure Cell Relay Routing Protocol for Sensor Networks," in *Proc. of First IEEE Workshop on Information Assurance in Wireless Sensor Networks (WSNIA 2005), in conjunction with IPCCC 2005*, Apr. 2005, Phoenix, AZ.

## Other Publications

### • Peer-Reviewed Book Chapters

1. **X. Du**, "Backbone Quality-of-Service Routing Protocol for Heterogeneous Mobile Ad Hoc Networks," *Advances in Wireless Networks and Mobile Computing*, D.-Z. Du and G. Xue (Eds.), Springer, to appear.
2. V. K. Rayi, Y. Xiao, **X. Du**, B. Sun and F. Hu, "Key Management Schemes in Sensor Networks," *Wireless/Mobile Network Security*, Y. Xiao, X. Shen, and D.-Z. Du (Eds.), Springer, 2006.

## Paul Juell

### Publications

1. Foster, J., and Juell, P. A Visualization of the Frame Representation Language. OOPSLA-06 October 22-26, 2006, Portland, Oregon.
2. Shanmugasundaram, V., Juell, P., and Hill, Curtis. Knowledge Building Using Visualizations. The 11th Annual Conference on Innovation and Technology in Computer Science Education, ITICSE-06, June 26- 28, 2006, Bologna, Italy.



3. Shanmugasundaram, V., Juell, P., Groesbeck, G., and Makosky, M. Evaluation of Alice World as an Introductory Programming Language. ED-MEDIA 2006-World Conference on Educational Multimedia, Hypermedia & Telecommunications, Association for the Advancement of Computing in Education (AACE), Orlando, USA. June 26- June 30, 2006.
4. Shanmugasundaram, V., Juell, P., and Hill, Curtis. Visualizations to Address Known Problems in Teaching Java. IED-MEDIA 2006-World Conference on Educational Multimedia, Hypermedia & Telecommunications, Association for the Advancement of Computing in Education (AACE), Orlando, USA. June 26- June 30, 2006.
5. Juell, Paul and Priya Joseph, Fading Presentation Scaffolding to General Ontologies, ED-MEDIA 2006 - World Conference on Educational Multimedia, Hypermedia & Telecommunications, Orlando, FL, USA, June 26-30, 2006.
6. Rahman, Syed M. and Paul L. Juell, Testing Before Coding: ED-MEDIA 2006 - World Conference on Educational Multimedia, Hypermedia & Telecommunications, Orlando, FL, USA, June 26-30, 2006.

## Sung Kim

### **Publications**

1. **Sung Kim** and Garrett Hoff, "Realization of Systematic Reliability Analysis of Decomposable Systems," *IEEE 30<sup>th</sup> Annual International Computer Software and Application Conference (COMPSAC 2006)*, Chicago, IL, USA, September 17 – 21, 2006.
2. **Sung Kim**, "Application of AI Planning Technique in Software Engineering," *15<sup>th</sup> International Conference on Software Engineering and Data Engineering (SEDE-2006)*, Los Angeles, CA, USA, July 6 – 8, 2006.

### **Pending Publications:**

1. **Sung Kim** and Farokh Bastani, "Towards Automated Synthesis of Dependable Application-Oriented Frameworks," submitted to *ACM Transactions on Software Engineering and Methodology*.

## Kenneth Magel

### **Publications**

1. "Automated GUI Testing", with I. Alsmadi (graduate student), IEEE International Conference on Software Engineering Advances, Tahiti French Polynesia, October 29 – November 3, 2006.
2. "Open Source Evolution Analysis", with I. Alsmadi, 22<sup>nd</sup> IEEE International Conference on Software Maintenance, Philadelphia, September 24 – 27, 2006.
3. "Generating Test Cases from the GUI Model", with I. Alsmadi, IASTED International Conference on Human Computer Interaction, Chamonix, France, March 14 – 16, 2007.
4. "GUI Path Oriented Test Generation Algorithms", with I. Alsmadi, 2007 International Conference on Software Engineering Theory and Practice, Orlando, Florida, July 9 – 12, 2007.

## Other Publications

1. "An Object Oriented Framework for User Interface Test Automation", with I. Alsmadi, Midwest Instruction and Computing Symposium, Grand Forks, April 20 – 21, 2007.

## Kendall Nygard

### Publications

#### Fully Refereed Journal Articles

1. Du, Xiaojiang, M. Zhang, K. Nygard, M. Guizani, and H. H. Cen, "Self-Healing Sensor Networks with Distributed Decision Making," Int. Journal of Sensor Networks, accepted in 2006, to appear, 2007
2. 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," accepted in 2006, to appear, 2007
3. Xu, Dianxiang and Kendall E. Nygard, "Threat-Driven Modeling and Verification of Secure Software Using Aspect-Oriented Petri Nets," IEEE Transactions on Software Engineering, 32(4), pp. 265-278, 2006
4. Martin Lundell, Jingpeng Tang, Thaddeus Hogan, and Kendall E. Nygard, Agent-oriented Simulation of Cooperative UAV Missions, WSEAS Transactions on Systems, 5(4), April, 2006
5. Dianxiang Xu, Priti Borse, Karl Altenburg, and Kendall E. Nygard, Distributed Control of Self-organizing Systems with Petri Nets, WSEAS Transactions on Systems, 5 (4), April, 2006

#### Fully Refereed Book Chapters

1. Patterson, Jared W. and Kendall E. Nygard, Market Based Adaptive Task Allocation for Autonomous Agents, in Cooperative Networks: Control and Optimization Don Grundel, Oleg Prokopyev, Robert Murphy, and Panos M. Pardalos, Eds, Edward Elgar Publishing, accepted in 2006, forthcoming in 2007
2. Nygard, Kendall E., K. Altenburg, J. Tang, D. Schesvold, J. Pikalek and M. Hennebry, Alternative Control Methodologies For Patrolling Assets With Unmanned Air Vehicles, in Cooperative Systems: Control and Optimization, Oleg Prokopyev, Don Grundel, Robert Murphy, and Panos M. Pardalos, Eds, Springer, 2006

#### Fully Refereed Proceedings

1. Knudson, D., A. Braaten, K. Magel and K. Nygard, Software Engineering in Computer Science Capstone Projects, Int. Conf. on Software Engr. Theory and Practice (SETP-07), accepted in 2006, to appear, 2007

2. Naznin, M., X. Du and K. Nygard, Scheduling Duty Cycles In Differentiated Sensor Networks, Int. Conference on Knowledge Sharing and Collaborative Engineering (KSCE), ACTA Press, 2006
3. Naznin, M. and K. Nygard, "Adaptive Coverage in Heterogeneous Sensor Networks", International Conference on Computer Applications in Industry and Engineering (CAINE), Las Vegas, NV, USA, 2006.
4. Naznin, Mahmuda, and Kendall E. Nygard, Coverage in Heterogeneous Sensor Networks, Int. Conference on Communications, Internet and Information Technology (CIIT), ACTA Press, November, 2006
5. Dianxiang Xu, Vivek Goel, and Kendall Nygard. An Aspect-Oriented Approach to Security Requirements Analysis. Proc. of the 30th IEEE International Computer Software and Applications Conference (COMPSAC'06). Chicago, Sept. 2006
6. Martin Lundell, Jingpeng Tang, Thaddeus Hogan, and Kendall E. Nygard, An Agent-based Heterogeneous UAV Simulator Design, The 5<sup>th</sup> International Conference on Artificial Intelligence, Knowledge Engineering, and Databases (AIKED), February, 2006
7. Ming Zhang, Xiaojiang Du, Hsiao-Hwa Chen and Kendall Nygard, Distributed Decision Making Algorithm for Self-Healing Sensor Networks, IEEE International Conference on Communications, 2006
8. Dianxiang Xu, Priti Borse, Karl Altenburg, and Kendall E. Nygard, A Petri Net Simulator for Self-organizing Systems, 5<sup>th</sup> Int. Conf. on Art. Intell., Knowledge Engineering, and Databases (AIKED), 2006

#### **Papers with Refereed Abstracts**

1. Naznin, M., P. Juell, K. Nygard and K. Altenburg, "A Clustering Heuristic by Effective Neighbor Selection", Midwest Instructional and Computing Symposium (MICS), accepted in 2006, to appear in 2007
2. Naznin, M. and Kendall E. Nygard, "Handling Multiplicities in Dynamic Programming", Midwest Instructional and Computing Symposium (MICS), accepted in 2006, to appear in 2007

### [William Perrizo](#)

#### **Publications**

**1** "Role of Data Mining in Turning Bio-data into Bio-info.", International Journal of Bioinformatics, W. Perrizo, Accepted and copyrighted, 2006.

**2** "CARIBIAM: Constrained Association Rules using Interactive Biological Increment AI Mining.", International Journal of Bioinformatics Research and Applications (IJBRA), I. Rahal, W. Perrizo, accepted and copyrighted, 2006.

**3** “An Efficient Weighted Nearest Neighbor Classifier using Vertical Data Representation”, International Journal of Business Intelligence and Data Mining, Q. Ding, M. Khan, A. Denton, W. Perrizo, accepted and copyrighted 2006.

**4** “Efficiency Considerations for k-Nearest Neighbor Text Categorization”, Journal of Information & Knowledge Management, Vol.5, No.3, 211-222. iKMS & World Scientific Publishing Co., I. Rahal, H. Najadat, W. Perrizo, 2006.

**6** “A Vertical Approach to Computing Set Squared Distance” The International Journal of Computers and Their Applications, ISSN 1076-5204, Vol. 13, No. 22, pp. 94-102, T. Abidin, A. Perera, M. Serazi, W. Perrizo, 2006.

**7** “Exploiting Edge Semantics in Citation Graph Data Using an Efficient Vertical Association Rule Mining Model”, Knowledge and Info Systems Journal , V.10, N1, 57-91. Springer-Verlag, ISSN 0219-1377, I. Rahal, D. Ren, W. Wu, A. Denton, C. Besemann, W. Perrizo, 2006.

**8** “Parameter Optimized, Vertical, Nearest Neighbor Vote and Boundary-Based Classification”, 2007 International Conference on Computers and Their Applications, A. Perera, W. Perrizo, Accepted and copyrighted 2006.

**9** “Visualization of Hi-Dim Space”, 2007 International Conference on Computers and Their Applications, M. Canton, W. Perrizo, accepted 2006.

**10** “Spatial Proximity of Structural Attributes in Analysing Remotely Sensed Imagery”, 2007 International Conference on Computers and Their Applications, M. Canton, W. Perrizo, accepted and copyrighted 2006.

**11** “Biological, Intelligent Text-Based Ranking of Genes”, Int’l Conference on Software Engineering and Data Eng., Los Angeles, I. Rahal, W. Saeed, A. Srivastava, P. Kotala, R. Syamala, C. Carvalho, W. Perrizo, July, 2006.

**12** “A Predicate-based Incremental Refresh Method for a Data Warehouse”, Proceedings of the International Conference on Software Engineering and Data Engineering, Los Angeles, D. Ren, G. Zhang, W. Perrizo, July, 2006.

**13** “Hierarchical Approach for Clusters in Diff. Densities”, Int’l Conf on SW Eng. & Data Eng., Los Angeles, B. Wang, W. Perrizo, July, 2006.

#### **Other Publications:**

**1** “VD Design for Scalable DM”, Chapter in Encyclopedia of DBTA, Idea Group, Ed. L. R. J. Doorn, V. Ferraggine, ISBN 1-59140-560-2006.

**2** “Vertical Data Mining”, Chapter in Enc. of DW, Idea Group , Edited J. Wang, ISBN 1-59140-557-2, 2006;

**3** US Patent and Trademark Office Patent Number **6,941,303**, issued September 6, 2005, “System and Method for Organizing, Compressing and Structuring Data for Data Mining Readiness”, Inventor: William K. Perrizo;

**4** US Patent and Trademark Office Patent Number **7,051,028**, issued August 8, 2006, "Multiversion read-commit order concurrency control", Inventors: Victor T. Shi and William K. Perrizo.

**5** 2002 Assoc. of Computing Machinery Knowledge Discovery & Data Mining (KDD) Cup **Winner** Broad Class Task 2 Yeast Gene Regulation Prediction:  
<http://www.acm.org/sigs/sigkdd/kddcup/index.php?section=2002&method=res;>

**6** 2006 Association of Computing Machinery KD & DM Cup **Winner** Task 3, Negative Prediction of Pulmonary Embolism,  
[http://www.cs.unm.edu/kdd\\_cup\\_2006;](http://www.cs.unm.edu/kdd_cup_2006;)

**7** four other patents published and pending

#### **Funded Research Projects Active during 2006-2007:**

**1** 2006-2007. NSF BIO DBI, 6<sup>th</sup> Virtual Genomics and Bioinformatics Conference, sole P.I.:

**2** 2005-2007. NSF EPSCoR, Dissertation Fellowship Grant, #FAR0010789, P.I. faculty advisor:

**3** 2004-2006. NSF BIO DBI-0417190, 4<sup>th</sup> Virtual Genomics and Bioinformatics Conference, sole P.I.:

**4** 2004-2006. NSF EPSCoR, Dissertation Fellowship Grant, #FAR0010793, P.I. faculty advisor:

**5** 2003-2008. NSF 0321462, Diploid Wheat Deletion Lines for Reverse Genetics, Co-P.I. (P.I. Shahryar Kianian):

**6** 2001-2006. GSA Virtual Archive Storage Terminal II (VAST): ACT#K96130308, sole P.I.:

**7** 2002-2009. IBM-RSI, Residual Value Surrogates-II, #3341-5512, sole P.I.

#### **Submitted but not funded**

**1** Center of Excellence in Data Mining (CEDM), submitted to ND Centers of Excellence Program, P.I., (\$1,200,000.00):

**2** Upper Great Plains Land Use and Management Center, submitted to USGS, CoP.I. (P.I. Mario Biondini), (\$2,000,000.00):

**3** PUBLIC (Public Unified BioLogical InformatiCs Data Management System, submitted to NSF BIO, P.I., (6/1/06-12/31/08) (\$606,503.00):

**4** Devel. Of Modes for Info Assurance and Rec. from Info Attacks in Highly Net. and Dis. Sys., P.I., DEPSCoR05, (6/1/05-5/30-08)(\$700,043):

**5** Toward a Unified Theory of Parallel DM, NSF CISE/CCF, (7/1/06-6/30/08)(P.I. on \$253,017.00 NDSU sub with UARK P.I. P. Tang):

6 Trucking Database, submitted to Dept. of Homeland Security, Co.P.I., (P.I. J. Mitchell of Trucking DB Inc.) (6/1/07-5/30/10) (\$15,000,000.00):

7 Acquisition of Computing Research Infrastructure, NSF/OCI, CoP.I. (P.I. B. Neas), (7/1/06-6/30/08) (\$1,582,862.00)

### **Submitted and Pending:**

Toward Solving the Scalability Problem in Classification and Prediction, NSF IIS, P.I., submitted Oct, 2006, pending (\$368,976.00);

Center for Protease Research II, NIH/NCRR, (P.I. is M. Sibi), submitted 2006 pending, (Perrizo's is internal mentor).

## **Brian Slator**

### **Publications**

Brandt, Lisa, Otto Borchert, Kimberly Addicott, Bob Cosmano, Justin Hawley, Guy Hokanson, Dan Reetz, Bernhardt Saini-Eidukat, Donald P. Schwert, Brian M. Slator, Shannon Tomac (2006). Roles, Culture, and Computer Supported Collaborative Work on Planet Oit. *Journal of Advanced Technology for Learning*. 3(2), pp. 89-98. (Expanded Revision of CATE-05, below)

Slator, Brian M., Harold Chaput, Robert Cosmano, Ben Dischinger, Christopher Imdieke and Bradley Vender (2006). A Multi-User Desktop Virtual Environment for Teaching Shop-Keeping to Children. *Virtual Reality Journal*, 9, pp. 49-56. Springer-Verlag.

McClellan, Phil E, Christina Johnson, Roxanne Rogers, Lisa M. Daniels, John Reber, Brian M. Slator, Jeff Terpstra, and Alan R. White (2005). Molecular and cellular biology animations: development and impact on student learning. *Cell Biology Education*. 4(2) pp. 169-179.

### **Books Published**

Slator, Brian M., Richard Beckwith, Lisa Brandt, Harold Chaput, Jeffrey T. Clark, Lisa M. Daniels, Curt Hill, Phil McClellan, John Opgrande, Bernhardt Saini-Eidukat, Donald P. Schwert, Bradley Vender, Alan R. White. (2006). *Electric Worlds in the Classroom: Teaching and Learning with Role-Based Computer Games*. New York: Teachers College Press. Columbia University. 192 pages.

### **Other Refereed Publications (same information as for high quality above):**

### **Conference Papers**

Hill, Curt, Brian M. Slator, Vijayakumar Shanmugasundaram. (In Press). Measuring the Effectiveness of ProgrammingLand. IASTED International Conference on Web Based Education (WBE-07), Chamonix, France, February 14-16.

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**

Slator, Brian M., Otto Borchert, Lisa Brandt, Harold Chaput, Kellie Erickson, Gabriel Groesbeck, Jacob Halvorson, Justin Hawley, Guy Hokanson, Dan Reetz, Brad Vender (In Press). From Dungeons to Classrooms: the evolution of MUDs as learning environments. Edited by L.C. Jain, Evolution of Technology and Pedagogy. Springer-Verlag, Germany.

### **Published Abstracts**

Clark, Jeffrey T., Slator, Brian M., Bergstrom, Aaron, Snider, Douglas, Frovarp, Richard, Landrum, James E. III, Reetz, Dan, White, Ryan J., Johnson, Christina (2006). On-A-Slant Village, A Virtual Immersive Experience. Presentation in 3D Virtual Reality Session, Computer Applications and Quantitative Methods in Archaeology Conference, Fargo, ND, USA, April 18-21.

### **Presentations (list date, group presented to, title of presentation)**

1. Slator, Brian M. (2006). Electric Worlds in the Classroom. Symposium on Technology in Undergraduate Education. Harvard University, June 15-16. Podcast online at <http://www.lifescience.fas.harvard.edu/tech/media.htm#podcasts>
2. Clark, Jeffrey T., Slator, Brian M., Bergstrom, Aaron, Snider, Douglas, Frovarp, Richard, Landrum, James E. III, Reetz, Dan, White, Ryan J., Johnson, Christina. (2006). On-A-Slant Village, A Virtual Immersive Experience. Presentation in 3D Virtual Reality Session, Computer Applications and Quantitative Methods in Archaeology Conference, Fargo, ND, USA, April 18-21, 2006.

## **Vasant Ubhaya**

### **Publications**

### **Research and other proposals Funded:**

1. "Collaborative for Scholarships in Science, Information Systems, and Engineering", NSF Scholarships in Science, Technology, Engineering, and Mathematics (S-STEM), \$463,200, 10/1/2006 – 9/30/2010, PI: Kendall Nygard, Other Participants: Charles (Bud) Bowlin, Xiaojiang Du, Rajendra Katti, Dean Knudson, Joseph Latimer, Pratap Kotala, Brian Slator, Vasant Ubhaya.

### Submitted but not funded:

1. "Computer Science Graduate Assistantships in Bioinformatics and Software Engineering", Department of Education, GAANN Program, \$501,864, 7/1/2006 – 6/30/2009, PI: Kendall Nygard, Co-PIs: Anne Denton, Xiaojiang Du, Kenneth Magel, Sung Kim, Vasant Ubhaya and Dianxiang Xu.

### Pending proposals:

1. "Discovering Computational Structures in Architecture", National Science Foundation, CNS – Science of Design, \$363,005, 6/15/2005 – 8/14/2007, PI: Ganapathy Mahalingam, Co-PI: Vasant Ubhaya.
2. "Computer Science Graduate Assistantships in Bioinformatics and Software Engineering", Department of Education, GAANN Program, \$506,688, 7/1/2007 – 6/30/2010, PI: Kendall Nygard, Co-PIs: Anne Denton, Xiaojiang Du, Kenneth Magel, Jun Kong, Vasant Ubhaya and Dianxiang Xu.

## Dianxiang Xu

### Publications

#### Referred Publications:

1. **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*. Accepted.
2. **Dianxiang Xu** and Kendall E. Nygard. Threat-Driven Modeling and Verification of Secure Software Using Aspect-Oriented Petri Nets. *IEEE Transactions on Software Engineering*. Vol. 32, No. 4, pp. 265-278, April 2006.
3. Junhua Ding, Peter J. Clarke, **Dianxiang Xu**, Yi Deng, Xudong He. A Formal Model-Based Approach for Developing an Interoperable Mobile Agent System. *Multi-Agent and Grid Systems: An International Journal*. Special Issue on Agent-oriented Software Development Methodologies, Volume 2, Number 4, pp. 401-412, 2006.
4. **Dianxiang Xu** and Josh Pauli. Threat-Driven Design and Analysis of Secure Software Architectures. *Journal of Information Assurance and Security*, Vol.1, No. 3, pp. 171-180, 2006.
5. **Dianxiang Xu**, Vivek Goel, and Kendall Nygard. An Aspect-Oriented Approach to Security Requirements Analysis. *Proc. of the 30th IEEE International Computer Software and Applications Conference (COMPSAC'06)*, pp. 79-82, Chicago, Sept. 2006.
6. Josh Pauli and **Dianxiang Xu**. Integrating Functional and Security Requirements with Use Case Decomposition. *Proc. of the 11th IEEE International Conference on Engineering of Complex Computer Systems (ICECCS'06)*, pp. 57-66, USA, August



2006.

7. Weifeng Xu and **Dianxiang Xu**. State-Based Testing of Integration Aspects. Proc. of the *Second Workshop on Testing of Aspect-Oriented Programs (WTAOP'06)*. In conjunction with ISSTA'06, pp.7-14, July 2006, USA.
8. Josh Pauli and **Dianxiang Xu**. Ensuring Consistent Use/Misuse Case Decomposition for Secure Systems. *Proc. of the 18th International Conference on Software Engineering and Knowledge Engineering (SEKE'06)*, CA., USA, July 2006.

#### **Pending Publications:**

1. **Dianxiang Xu**, Weifeng Xu, W. Eric Wong, Testing Aspect-Oriented Programs with UML Design Models, Submitted to *International Journal of Software Engineering and Knowledge Engineering*.
2. **Dianxiang Xu**, Weifeng Xu, W. Eric Wong, Automated Test Code Generation from UML Protocol State Machines, Submitted to *SEKE'07*.
3. **Dianxiang Xu**, Izzat Alsmadi, and Weifeng Xu, Model Checking Aspect-Oriented Design Specification, Submitted to *COMPSAC'07*.

#### **Funded Proposals**

1. "Testing for Software Safety", NASA OSMA/SARP Grant, \$407,500 (Funds for NDSU are about \$105,000), PI: Ken Chen (Johnson Space Center), Co-PIs: Yann-Hang Lee (Arizona State University), Eric Wong (University of Texas at Dallas), **Dianxiang Xu** (North Dakota State University). 1/01/2007-12/31/2009. The PI from NASA Johnson Space Center is the project manager. The three Co-PIs have equal responsibilities for research and development. I contributed the technical part of the proposal - "Methods and Procedures".
2. "Model-Checking Aspect-Oriented Design Specifications", **PI: Dianxiang Xu**, ND EPSCoR IIP-SG through NSF Grant EPS-047679, \$15,000, October 2006 – April 2007.
3. "Model-Based Testing of Aspect-Oriented Software", **PI: Dianxiang Xu**, ND NASA EPSCoR, \$10,625, 4/01/2006-7/15/2006.

#### **Proposals Submitted but not Funded**

1. "Collaborative Research: Test Generation from Aspect-Oriented Requirements Specification", NSF CISE Foundations of Computing Processes and Artifacts (CPA), PI: **Dianxiang Xu**, Co-PI: Xudong He, \$ 198,418. Submitted in October 2006.
2. "CAREER: Model-Based Assurance of Aspect-Oriented Software", NSF CAREER, PI: **Dianxiang Xu**, \$459,933, Submitted in July 2006.
3. "Computer Science Graduate Assistantships in Bioinformatics and Software

Engineering.”, PI: Kendall Nygard, Co-PIs: Anne Denton, James Du, Kenneth Magel, Sung Kim, Vasant Ubhaya, and **Dianxiang Xu**, Department of Education, GAANN Program, \$501,864, 7/01/2006-6/30/2009.

4. “Planning on a Cyber Security Infrastructure for Integrated Research and Education”, NSF Computer Research Infrastructure, PI: Xiaojiang Du, Co-PIs: **Dianxiang Xu**, and Kendall Nygard, \$49,875, 9/01/2006-8/31/2007.
5. “Integral Modeling of Security and Performance of Collaboratory Software”, DOE Early Career, PI: **Dianxiang Xu**, \$298,794.
6. “CAREER: Engineering Software Security: Integrated Research and Education”, NSF CISE Cyber Trust, PI: **Dianxiang Xu**, \$500,036.
7. “Building Security into Software Engineering Programs”, Microsoft Research, Trustworthy Computing Program, PI: **Dianxiang Xu**, Co-PI: Kenneth Magel, \$50,000.
8. CT-ISG: Building Software Security into Software Engineering Education. NSF CISE Cyber Trust, PI: **Dianxiang Xu**, Co-PIs: Kenneth Magel and Akram Salah. \$296,610.

#### **Pending Proposals**

1. “CRI:CRD Collaborative Research: Developing a Mutant Repository of Aspect-Oriented Systems”, NSF Computer Research Infrastructure, PI: Dianxiang Xu, \$189,753, Submitted in Nov. 2006.
2. “Computer Science Graduate Assistantships in Bioinformatics and Software Engineering.”, PI: Kendall Nygard,, Co-PIs: Drs. Anne Denton, James Du, Jun Kong, Kenneth Magel, Vasant Ubhaya and Dianxiang Xu, Submitted in Nov. 2006.

Publishing rates for graduate students,  
compiled May, 2007

<b>Name of Student</b>	<b>Degree Program</b>
Abidin, T	PhD
Addicott, Kimberly	BS
Alsmadi, Izzat	PhD in progress
Besemann, Christopher	PhD in progress
Borchert, Otto	MS in progress
Borse, Priti	MS in progress
Cosmono, Robert	MS in progress
Ding, Qiang	Ph.D.
Dischinger, Benjamin	MS in progress
Dorr, Deitmar	PhD in progress
Fovarp, Richard	BS

Goel, Vivek	MS
Hill, Curt	Ph.D.
Hoff, Garrett	MS in progress
Hokanson, Guy	MS in progress
Indieke, Christopher	BS
Joseph, Priya	MS
Kar, Angshu	PhD in progress
Khan, Maleq	MS
Kotala, Pratap	PhD in progress
Lundell, Martin	Ph.D. in progress
Myronovych, Oksana	MS in progress
Najadat, Hassan	Ph.D.
Naznin, Mahmuda	PhD in progress
Opgrande, John	MS
Pauli, Joshua	PhD in progress
Perera, Amal	Ph.D. in progress
Pikalek, Jonathan	PhD in progress
Rahal, Imad	Ph.D.
Rahman, Syed	PhD
Ren, Dongmei	Ph.D.
Scott, Kirk	Ph.D. in progress
Serazi, M	PhD
Shanmugasundaram, Vijay	MS
Tang, Jingping	Ph.D. in progress
Tomac, Shannon	BS
Vender, Bradley	MS
Wu, Weihua	MS in progress
Xiao, Y	MS
Wu, Weihua	MS
Xu, Wiefeng	PhD in progress
Zhang, Ming	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 needs to rethink our approach to this area. 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.

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

We received a little over \$3,100 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 2006**

<b>Student</b>	<b>Employer</b>	<b>Job Type</b>
Asgar, Talukdar	MAXIMUS INC Rancho Cordova, CA	Full-time Coop
Chauhan, Anuj	Bobcat Company Gwinner, ND	Full-time Coop
Osmani, Morshed	Ecliptic Technologies Inc Fargo, ND	Full-time Coop

**Placement Summary Spring 2007**

<b>Student</b>	<b>Employer</b>	<b>Job Type</b>
Asgar, Talukdar	MAXIMUS INC Rancho Cordova, CA	Full-time Coop
Barjesh, Arora	Peri Software Solutions Jersey City, NJ	Full-time Coop
Challagolla, Srinivas	GSS American Inc. Arlington Heights, IL	Full-time Coop
Chauhan, Anuj	Bobcat Company Gwinner, ND	Full-time Coop
Ganesan, Arjun	Eagle Creek Software Ser. Valley City, ND	Part-time Coop
Gurram, Kiran	Minecode LLC Bellevue, WA	Full-time Coop
Hays, Avery	Publication Services of America Fargo, ND	Full-time Coop
Katib, Faraz	Bobcat Company Ingersoll Rand Gwinner, ND	Full-time Coop
Mamum, Abdullah	West Fargo Public Schools West Fargo, ND	Full-time Coop
Namasivayam, Kartnik	Otter Tail Power Co. Fergus Falls, MN	Full-time Coop
Osmani, Morshed	Ecliptic Technologies Inc Fargo, ND	Full-time Coop

Pinagapani, Sathish	ObjectWin Technology	Full-time Coop
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## **D. SPECIAL INITIATIVES**

### **1. Diversity:**

The Department has started to offer twinning programs (start in India and spend the last year 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 a year. During 2006-07, three faculty traveled to China to make initial contacts with a variety of Chinese universities.

### **2. 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.

### **3. International activities:**

Dr. Ken Magel spent two weeks in India during March, 2006 helping to establish several programs with Indian institutes. These programs started fall, 2006 including:

1. twinning programs at the undergraduate and graduate levels involving only the last year of a degree being spent at NDSU;
2. distance offering of our Graduate Certificate in Software Engineering to students at several Indian institutes;
3. offering of one of our undergraduate/graduate courses through distance by Indian faculty at the Ansal Institute of Technology;
4. potential faculty exchanges.

Our existing program of faculty exchange with Cairo University in Egypt continues.

### **4. 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 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 competitive anywhere in the country.

The department fully participates and supports the quest of the university to become a Carnegie research extensive university. During 2006-07, the Department awarded three Ph.D. and nineteen 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.

### **5. Economic Development Efforts:**

The Department faculty met with several companies during 2006-07. Dean McCaul facilitated discussions with Microsoft that lead to a Microsoft scholarship for a graduate student and five scholarships for undergraduates.

### **6. Assessment:**

We revamped our assessment procedures during fall, 2005. Assessment of learning objectives for service, undergraduate, and graduate programs was formalized and greatly expanded. Faculty with primary roles in assessment were given release time to perform these roles.

The assessment procedures have been implemented fully for the undergraduate programs. We still need to extend them to the graduate programs and service courses. Unfortunately, the present faculty involved in assessment are unable to take on these additional responsibilities. We may have to wait until some of our present assistant professors achieve tenure (starting in two years) to spread the service load among more faculty.

## **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**

	2002-2003		2003-2004		2004-2005		2006-2006		2006-2007	
	Credit hours	FTE	Credit hours	FTE	Credit hours	FTE	Credit hours	FTE	Credit hours	FTE
100-200	8159	10.20	7999	10.0	7098	8.87	7769	9.71	8468	10.59
300-400	3279	6.03	2467	4.53	2307	4.24	1806	3.32	2172	3.99
600-700	1502	5.22	1795	6.23	2095	7.27	1791	6.22	1743	6.05
TOTAL	12940	21.44	12261	20.76	11500	20.39	11366	19.25	12383	20.63

**SUMMER II SCHEDULE  
2006**

<b>COURSE HOURS</b>	<b>CLASS TITLE</b>	<b>INSTRUCTOR</b>	<b>STUDENT ENROLL</b>	<b>CREDIT</b>
122	Programming in Basic	P. Kotala	14	3
159	Computer Science Prob. Solv	K. Nygard	12	4
235	Theoretical Computer Sc. 1	J. Martin	0	3
760	Dynamic Programming	V. Ubhaya	21	3
797	Master Paper	Staff	16	1-3
797R	Master Paper – <i>cont registration</i>	Staff	5	R
798	Master Thesis	Staff	3	1-10
798R	Master Thesis – <i>cont registration</i>	Staff	0	R
799	Doctoral Dissertation	Staff	8	1-15
799R	Doctoral Dissertation – <i>cont registration</i>	Staff	3	R

**FALL SEMESTER SCHEDULE  
2007**

<b>COURSE HOURS</b>	<b>CLASS TITLE</b>	<b>INSTRUCTOR</b>	<b>STUDENT ENROLL</b>	<b>CREDIT</b>
114	Microcomputer Packages	L. Raman	56	3
114	Microcomputer Packages	M. Pushpala	49	3
114	Microcomputer Packages	D. Ramamurthy	51	3
114	Microcomputer Packages	I. Alsmadi	53	3
114	Microcomputer Packages	R. Eda	53	3
114	Microcomputer Packages	R. Eda	54	3
114	Microcomputer Packages	D. Johnson ( <b>Cont Edu</b> )	87	3
116	Business Use of Computers	R. Natarajan	53	4
116	Business Use of Computers	N. Addy	54	4
116	Business Use of Computers	G. Hoff	52	4
116	Business Use of Computers	S. Herath	48	4
116	Business Use of Computers	L. Kallam	55	4
116	Business Use of Computers	L. Kallam	39	4
116	Business Use of Computres	P. Kotala ( <b>Cont. Edu</b> )	44	4
122	Program in BASIC	O. Myronovych	44	3
155	Immigration (JAVA)	M. Naznin	1	3
159	CS Problem Solving	J. Moses	17	2
159	CS Problem Solving	J. Moses ( <b>Cont Edu</b> )	7	3
160	Computer Science I	R. Rummelt	35	4
160	Computer Science I	V. Shanmugasadaram	34	4

160	Computer Science I	R. Rummelt	35	4
161	Computer Science II	S. Abufardeh	20	4
161	Computer Science II	S. Abufardeh	14	4
172	Intermediate Basic/Visual	S. Cimic	29	3
214	Self-Paced C	M. Naznin	11	1
222	Discrete Mathematics	V. Ubhaya	42	3
227	Computing Fund. I	P. Kotala	30	3
235	Theoretical CS I	J. Martin	47	3
277	Introduction to UNIX	J. Latimer	10	3
315	System Anal & Design	D. Dorr	14	3
315	System Anal & Design	P. Kotala	31	3
366	Files/Database System	A. Denton	29	3
372	Comparative Languages	V. Shanmugasundaram	40	3
373	Assembly Programming	S. Kaliki	37	3
426	Intro/Artificial Intelligence	B. Slator	29	3
453	Linear Program Network	K. Nygard	5	3
458	Microcomputer Graphics	P. Juell	14	3
469	Network Security	J. Du	15	3
474	Operating Systems Conc.	H. Li	45	3
474	Operating Systems Conc.	S. Abufardeh	36	3
477	Object-Oriented Systems	A. Salah	9	3
488	Human-Computer Interaction	J. Kong	18	3
653	Linear Program Network	K. Nygard	1	3
658	Microcomputer Graphics	P. Juell	1	3
669	Network Security	J. Du	16	3
677	Object-Oriented Systems	A. Salah	2	3
708	Foundations of Programming	J. Martin	29	3
713	Software Engineering I	K. Magel	36	3
713	Software Engineering I- <i>cont ed</i>	K. Magel	1	3
715	Software Req/Definition/Analys	A. Salah	11	3
717	Software Construction	D. Xu	18	3
747	Software Complexity Metrics	S. Kim	5	3
759	Comp Methods/Bioinformatics	V. ubhaya	7	3
762	Network Flows	K. Nygard	3	2
765	Intro to Database Systems	A. Denton	35	3
778	Computer Networks	J. Du	7	3
783	Topics/Dist. Auto Systems	K. Nygard	1	3
790	Sem/Artificial Intelligence	P. Juell	3	1
790	Sem/Computer Forensics	D. Xu	6	1
790	Sem/Data Mining in Science	A. Denton	13	1
790	Sem/Educational Media	B. Slator	1	1
790	Sem/Formal Met/Software Engr	A. Salah	9	1
790	Sem/XML.	K. Magel	8	1
793	IS/Software Projects	K. Magel	1	R-3
797	Masters Paper	Staff	5	1-10
797R	Masters Paper	Staff	40	R



798	Master Thesis	Staff	8	1-10
798R	Master Thesis	Staff	8	R
799	Doctoral Dissertation	Staff	6	1-15
799R	Doctoral Dissertation	Staff	9	R

**SPRING SEMESTER SCHEDULE**  
**2007**

<b>COURSE HOURS</b>	<b>CLASS TITLE</b>	<b>INSTRUCTOR</b>	<b>STUDENT ENROLL</b>	<b>CREDIT</b>
114	Microcomputer Packages	D. Ramamurthy	58	3
114	Microcomputer Packages	R. Kadam	50	3
114	Microcomputer Packages	P. Thalloji	57	3
114	Microcomputer Packages	I. Alsmadi	54	3
114	Microcomputer Packages	V. Natarajan	57	3
114	Microcomputer Packages	V. Natarajan	53	3
114	Microcomputer Packages	D. Johnson (Cont Edu)	89	3
116	Business Use of Computers	D. Akimov	55	4
116	Business Use of Computers	B. Shrestha	52	4
116	Business Use of Computers	N. Addy	66	4
116	Business Use of Computers	S. Pandey	52	4
116	Business Use of Computers	G. Hoff	54	4
116	Business Use of Computers	G. Hoff	51	4
116	Business Use of Computers	P. Kotala (Cont Edu)	69	4
122	Beginning BASIC/Visual BASIC	S. Cimic	44	3
125	Beginning COBOL	S. Kaliki	30	3
159	Computer Sc. Problem Solving	J. Moses	11	3
159	Computer Sc. Problem Solving	J. Moses (Cont Edu)	7	3
160	Computer Science I	R. Rummelt	49	4
160	Computer Science I	R. Rummelt	38	4
161	Computer Science II	S. Abufardeh	38	4
161	Computer Science II	S. Abufardeh	36	4
212	Self-Paced C++	M. Naznin	9	1
222	Discrete Mathematics	V. Ubhaya	37	3
228	Computing Fundamentals II	P. Kotala	21	3
236	Theoretical CS II	J. Martin	39	3
299	St/Sys/Server Admin	J. Latimer	7	3
316	System Testing & Maintenance	P. Kotala	39	3
345	Topics on Personal Computers	B. Slator	16	3
345	Topics on Scripting Language	O. Myronvych	19	3
372	Comparative Prog Languages	V. Shanmugasaradam	58	3
373	Assembly Programming	C. Jones	16	3
374	Computer Organization	S. Kim	41	3
445	Software Projects Capstone	D. Knudson	12	3
459	Found/Computer Networks	J. Du	28	3
467	Algorithm Analysis	J. Martin	59	3

468	Database Systems Design	A. Salah	19	3
475	Operating Systems Design	J. Kong	12	3
476	Computer Forensics	D. Xu	19	3
489	Social Implications of Comp	V. Shanmugasundarm	76	3
659	Found/Computer Networks	J. Du	16	3
668	Database Systems Design	A. Salah	21	3
676	Computer Forensics	D. Xu	23	3
713	Software Devel. Proc – <i>Dist Ed</i>	K. Magel	1	3
716	Software Design	K. Magel	20	3
716	Software Design – <i>Dist. Ed</i>	K. Magel	4	3
718	Software Testing/Debugging	D. Xu	27	3
718	Software Test/Debugging <i>Dist Ed</i>	D. Xu	9	3
724	Survey/Artificial Intelligence	B. Slator	42	3
732	Intro to Bioinformatics	A. Denton	11	3
746	Districuted Systems Implement	S. Kim	20	3
783	Topics/Adv. Tech. Logistics	K. Magel	2	3
790	Sem/Educational Media	B. Slator	11	1
790	Sem/Formal Methods in Software Engr.	A. Salah	13	1
790	Sem/Software Engineering	K. Magel	8	1
790	Sem/Artificial Intelligence	P. Juell	9	1
790	Sem/Building Secure Softwre	D. Xu	13	1
793	IS/Software Projects	K. Magel	1	3
797	Masters Paper	Staff	11	1-10
797R	Masters Paper	Staff	34	R
798	Master Thesis	Staff	11	1-10
798R	Master Thesis	Staff	11	R
799	Doctoral Dissertation	Staff	13	1-15
799R	Doctoral Dissertation	Staff	7	R

**SUMMER I SCHEDULE**  
**2007**

<b>COURSE HOURS</b>	<b>CLASS TITLE</b>	<b>INSTRUCTOR</b>	<b>STUDENT ENROLL</b>	<b>CREDIT</b>
114	Microcomputer Packages	P. Kotala	27	3
114	Microcomputer Packages	D. Johnson (Cont Edu)	25	4
116	Business Use of Computers	P. Kotala	35	4
122	Programing in Basic VB.NET	P. Kotala	30	3
469/669	Network Security	X. Du	7/24	3
473	Foundations of Digital Enter	P. Kotala	19	3
713	Software Engineering	K. Magel	2	3
716	Software Design	K. Magel	3	3
773	Foundations of Digial Enter	K. Nygard	15	3

797	Masters Paper	Staff	11	1-10
797R	Masters Paper	Staff	4	R
798	Master Thesis	Staff	0	1-10
798R	Master Thesis	Staff	0	R
799	Doctoral Dissertation	Staff	4	1-15
799R	Doctoral Dissertation	Staff	2	R

## STUDENT RATING OF INSTRUCTION RESULTS 2006-2007

### FALL, 2006 and SPRING 2007

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	4.029	0.938	1733
2. The instructor as a teacher.	33.6	43.1	16.6	4.5	1.9	0.3	4.074	0.945	1736
3. The ability of the instructor to communicate effectively	24.7	42.4	22.1	7.4	2.9	0.5	3.906	0.985	1732
4. The quality of this course	23.8	46.2	22.3	5.7	1.6	0.5	3.875	0.945	1733
5. The fairness of procedures for grading this course.	46.5	41.6	9.4	1.5	0.6	0.5	4.286	0.824	1731
6. Your understanding of the course content.	24.7	50.3	20.7	3.2	0.6	0.6	3.959	0.847	1732
<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	4.029	0.938	1733
2. The instructor as a teacher.	38.8	37.1	14.6	5.1	4.1	0.2	4.074	0.945	1736
3. The ability of the instructor to communicate effectively	32.9	40.3	16.3	7.6	2.7	0.0	3.906	0.985	1732
4. The quality of this course	24.9	41.0	21.5	6.3	5.9	0.5	3.875	0.945	1733
5. The fairness of procedures for grading this course.	42.2	39.3	11.5	4.1	2.9	0.0	4.286	0.824	1731
6. Your understanding of the course content.	25.9	45.6	20.0	4.4	3.7	0.5	3.959	0.847	1732
<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	4.029	0.938	1733
2. The instructor as a teacher.	50.8	38.7	7.0	1.6	0.8	1.2	4.074	0.945	1736
3. The ability of the instructor to communicate effectively	47.7	39.1	9.4	1.2	0.4	2.3	3.906	0.985	1732
4. The quality of this course	38.7	44.9	12.9	1.2	1.2	1.2	3.875	0.945	1733
5. The fairness of procedures for grading this course.	51.6	32.8	9.8	2.3	0.8	2.7	4.286	0.824	1731
6. Your understanding of the course content.	32.4	50.4	12.5	2.0	1.6	1.2	3.959	0.847	1732

### **Department Employment of graduates:**

Fall 2006

Graduate Teaching Assistants - 20

Graduate Assistants (Graders) - 24

Spring 2007

Graduate Teaching Assistants - 20

Graduate Assistants (Graders) – 24

## **GRADUATE STUDENTS 2006-2007**

### **Masters Students:**

Aakula, Srikanth

Addy, Noah

Alla, Kishore

Anantha Raman, Lakshmi

Arora, Barjesh

Balakrishnan, Prashanth

Balasubramanian, Arunkumar

Bapanpally, Pavan

Barabanov, Dmitri

Basu, Samdip

Brown, Jeremy

Bukkapatnam, Sharath

Chakravarthi, Satheesh

Challagolla, Srinivas

Chintapalli, Veera Venkata

Choi, Meegeum

Cosmano, Robert

Dandey, Santosh

Dass, Pranav

Devina, Laiphangbam

Dhalli, Vamsikrishna

Dischinger, Benjamin

Fazal, Nazeer

Feist, Matthew

Ganapa, Sireesha

Ganesan, Arjun

Gangannagari, Rajendar

Ganti, Annaji Sharma

Garimedi, Rajani

Goli, Swathi

Gooduru, Ramkrishnareddy

Guduru, Vasumathi

Gurram, Kiran

Gurram, Samyuktha

Halvorson, Guy

Hoff, Garrett

Hokanson, Guy Eric

Huff, nathan

Huq, Shamima

Ireddy Naga, Krishnakanth

Jian, Harsh

Jain, Jenender

Jinka, Vasuprakash

Jonnalagadda, Vindhya

Kadam, Ramchandra

Kallam, Lakshmi Mrudula

Katib, Faraz

Kattakindi, Kiran

Kaur, Harvinder

Kheerwal, Anoop

Kondakindi, Swathi

Kondamarri, Samuel

Kurapati, Venkata

Lanke, Ramesh

Lee, Michael

Li, Mei

Lin, Chen-Mi

Lu, Tingda

Mamun, Abdullah

Mannepalli, Aditya

Mattaparthi, Harika

Moses, Joseph

Mukka, Hari Krishna

Namasivayam, Karthik

Namboori, Praveen  
Narayanan, Vasanth  
Nanam-Kumar, Sunil  
Narayanan Kutty, Shyam Kumar  
Natarajan, Ramesh  
Njos, Robby  
Oruganti, Ravi  
Osmani, MD  
Padmanabhan, Ganesh  
Pandey, Shivendushital  
Perubhotla, Sritej  
Peterson, Jason  
Pinagapani, Sathish  
Pool, Max  
Potla, Yaswanth  
Pushpala, Manoj  
Raavi Sandeep  
Raidu, Venkata  
Rajaraman, Thilak  
Ramaurthy, Durga  
Sachdev, Rajeev  
Sambaraju, Sharath  
Schlecht, Ryun

Sehgal, Ankita  
Sharma, Mayukh  
Shin, Chun  
Shoeb, Julien  
Sivanandam, Dinesh  
Somavarapu, Murali  
Sundaram, Anita  
Suravarapu, Vijay  
Syed, Naveed  
Tadasina, Sumanth  
Thamizh Pandian, Elampiraii  
Tirupathi, Ambika  
Vanga, Sundeep  
Vellaswamy Chelaiah, Ashok Kumar  
Vellaswamy Chelaiah, Ganesh Kumar  
Vijayan, Dhinuruju  
Vinta, Naveen  
Wang, Yan  
Wu, Jianfei  
Wu, Qipeng  
Yamparala, Sri Harsha

### **SOFTWARE ENGINEERING MASTERS**

Aceituna, Daniel  
Annapureddy, Anupama  
Banga, Surjeet  
Bhowmick, Dibakar  
Boyko, Gregory  
Chauhan, Anuj  
Cimic, Senad  
Debilt, Daniel  
Eda, Ravi  
Gunderson, Karl  
Herath, Shanaka  
Kazeck, Jerilyn  
Limke, Jed  
Johnson, Bryce

Kazeck, Jerilyn  
Manan, Megha  
McGinnity, Steve  
Murugaiyan, Elangovan  
Oberoi, Inderjeet  
Rahman, Mohamed Saif Ur  
Sarker, Mridula  
Shrestha, Bickrant  
Simonson, Peter  
Srivastava, Arun  
Thalloji, Pramodh  
Upadhyay, Rajat

### **PHD STUDENTS:**

Akimov, Dmitriy  
Al-Nimer. Loai  
Arora, Baresh  
Besemann, Christopher

Borchert. Otto  
Canton, Maria  
Dorr, Deitmar  
ElAriss, Omar

Jockheck, William  
 Kambhampaty, Krishnan  
 Kar, Angshu  
 Kotala, Pratap  
 Lin, Fengjing

Naznin, Mahmuda  
 Perera, Amal  
 Pikalek, Jonathan  
 Sanchez, Julio  
 Tang, Jingpeng

**SOFTWARE ENGINEERING PHD**

Abufardeh, Sameer  
 Ahmadi, Hamed  
 Alsmadi, Izzat  
 Kaliki, Srikanth  
 Lua, Chin  
 Lundell, Martin

Myronovych, Oksana  
 Rummelt, Richard  
 Satter, Medhi  
 Smadi, Mohammad  
 Xu, Weifeng

**Computer Science Department Enrollment Data**

AY	Enrollment Fall 2006					Total UG	Total Grad	Total Degrees		
	1st FR	2nd SO	3rd JR	4th SR	Fall 06/Spring 2007					
					BS/BA			MS/cs Software	PhD/ cs Software	
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
2001-2002	127	92	63	106		388	104	113	19	3

## Graduate Degrees Awarded, 2006-07

<b>Summer Semester, 2006</b>	<b>Degree</b>
Taufik Abidin	PHD, CS
Izzat Alsmadi	MS, CS
Priti Borse	MS, CS
Tofayel Forhad	MS, CS
George Hamer	PHD, CS
Joshua Pauli	PHD, SE
Susmit Sarker	MS, CS
<b>Fall Semester, 2006</b>	<b>Degree</b>
Narendra Banduru	MS, CS
Eric Erhardt	MS, CS
Aijuan Dong	PHD, CS
Kellie Erickson	MS, CS
James Foster	MS, CS
Vivek Goel	MS, CS
Tanjina Helaly	MS, CS
Tanzeem (Tony) Iqbal	MS, CS
Sunil Naman-Kumar	MS, CS
Mahmuda Naznin	MS, CS
Suqin Ren	MS, CS
Sampath Velupula	MS, CS
<b>Spring Semester, 2007</b>	<b>Degree</b>
Rina Abraham	MS, CS
John Dixon	MS, CS
Zhifeng Kou	MS, CS
Venkata Mangipudi	MS, CS
Syed Rahman	PHD/SE