Computer Science and Informatics

Indiana University South Bend
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Phone: 574.520.5521
The Department

The department began offering degrees in computer science in 1983. Currently the department has nine full-time faculty members and a number of part-time instructors. It offers a full range of undergraduate and graduate courses in computer science and information technology. Today we have over 210 undergraduate students and over 30 graduate students. We offer a Bachelor of Science degrees in Computer Science, a Bachelor of Science in Informatics, an Associate of Science degree in computer sciences, four certificate programs, a minor in computer science, a minor in cognitive science, and a minor in informatics. In addition, our department offers a Master of Science degree in Applied Mathematics and Computer Science jointly with the Department of Mathematical Sciences. We also provide key computing courses for the Master of Science degree in Management of Information Technology (MS-MIT), offered by the School of Business and Economics.
Mission

Our mission is to provide the highest quality education in the most enjoyable and friendly atmosphere possible. In pursuing this mission we work hard to attract the most highly qualified faculty to our program. Our faculty play an essential role in our ability to develop and maintain a high quality computer science program at IUSB. Accordingly, we seek to attract faculty with strong applied research potential, instructional ability and communication skills necessary for the mutual benefit of the university, business, scientific and engineering communities. Our goal is to bridge the gap between theories and concepts presented in the classroom and real life business and industry needs and practices.

We have charted a course to develop many exciting and challenging projects over the next five years. Some of these are given below:

- Develop a masters program in Software Engineering.
- Prepare for accreditation of our B.S. in Computer Science by the Computer Science Accreditation Board (CSAB). Accreditation will externally validate the quality that already exists in our programs.
- Continue to refine our informatics program, develop new cognates, and attract more students.

In addition to the above, we will continue to

- improve our teaching and research environment for our students and faculty, and aggressively recruit the best and brightest faculty to our department.
- improve our laboratories.
- expand our community outreach program.
- mentor our students, and support their learning, research and creative activities.
- Continue to work on our long term goal of offering a Ph.D. in computer science.
EMERITUS FACULTY


Russo, John, Associate Professor, Emeritus. Ph.D. in Mathematics (Florida State University, 1965). Research interests: program efficiency; software engineering.

FULL-TIME FACULTY

Adaikkalavan, Raman, Ph.D. in Computer Science (University of Texas and Arlington, 2006). Research interests: information security, active databases.

Hakimzadeh, Hossein, Ph.D. in Computer Science (North Dakota State University, 1993). Research interests: database management systems; operating systems; distributed systems, object-oriented software engineering.

Nair, Murlidharan, Ph.D. in Bioinformatics (University of Poona, India, 1996). Research interest: Computational analysis of genetic macromolecules, application of statistical learning methods to biology, alternative splicing and splicing arrays.

Scheessele, Mike, Ph.D. in Quantitative and Mathematical Psychology (Purdue University, 2001). Research interests: Cognitive science and artificial intelligence, especially psychologically plausible artificial vision and problem-solving systems.

Surma, Dave, Ph.D. in Computer Science and Engineering (University of Notre Dame 1998). Research interests: Parallel and Distributed Computing, Multimedia applications, Computer Architectures, High-Performance Networks, and Software tools for parallel and distributed computing systems.

Yu, Liguo, Assistant Prof., Ph.D. in Computer Science (Vanderbilt University, 2004). Research interest: software engineering in general with emphasis on software dependency, software reuse, software maintenance, and open-source development.

Vrajitoru, Dana, D.Sci. in Computer Science (University of Neuchâtel, 1997). Research interests: genetic algorithms; scientific visualization; parallel computation; information retrieval; artificial intelligence.

Wolfer, James, Ph.D. in Computer Science (Illinois Institute of Technology, 1993). Research interests: harnessing the power of naturally inspired computation to solve real-world problems, visualization in science and medicine, cognitive science and computer science education.

Zhang, Liqiang, Assis. Prof., Ph.D. in Computer Science (Wayne State University, 2005). Research interests: wireless networking and mobile computing, Quality of Service, real-time computing, sensor networks, and network security.
Department of Computer and Information Sciences
Organizational Chart (Functions)
Sept 5, 2005

Functional Areas

External Affairs Assessment Laboratory Library Holding Strategic Planning Academic Advising Undergrad Curriculum Ad hoc Activities

Assessment Committee Library Committee Strategic Planning Committee (5 year plan) Advising Committee Undergrad Curriculum Committee Ad hoc Committees

External Affairs Committee Lab Committee

Inter-departmental AMCS Committee Inter-departmental MS-MIT Committee Inter-departmental Informatics Committee

Interdisciplinary Programs

AMCS Graduate Director MS-MIT Graduate Liaison Informatics Director

Departmental Graduate Affairs Committee Departmental MS-MIT Committee Departmental Informatics Committee
Organization Chart (Personnel)

Department of Computer and Information Sciences
Organizational Chart (Personnel)
September 30, 2006

Chancellor

Vice Chancellor for Academic Affairs

Dean of the College of Liberal Arts & Sciences

Dept Chair

Dept. Secretary

Associate Chair & Scheduling Officer

Full Time Faculty

Informatics Director

Computer Science Lab Supervisors

Hourly Tutors & Assistants

Associate Faculty

Informatics Lab Supervisors

- Committee Chairs
- Program Directors
- Departmental Liaisons
## Current Degree Programs

### Undergraduate:

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<th>Degree Program</th>
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<tbody>
<tr>
<td>B.S. in Computer Science</td>
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<tr>
<td>B.S. in Informatics</td>
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<tr>
<td>A.S. in Computer Science (2 year degree)</td>
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<tr>
<td>Certificate in Computer Programming</td>
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<tr>
<td>Certificate in Advanced Computer Programming</td>
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<tr>
<td>Certificate in Computer Applications</td>
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### Graduate:

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<th>Degree Program</th>
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<tr>
<td>M.S. in Applied Mathematics and Computer Science (Joint program with the Department of Mathematical Sciences)</td>
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<tr>
<td>M.S. in Management of Information Technology (Joint program with the School of Business and Economics)</td>
</tr>
<tr>
<td>Certificate in Technology for Administration (Joint certificate with the School of Business and Economics)</td>
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<tr>
<td>Certificate in Applied Informatics</td>
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## Future Programs

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<tr>
<th>Graduate:</th>
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<tr>
<td>Certificate in Software Engineering</td>
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<tr>
<td>MS. in Computer Science</td>
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Faculty Portfolio

Raman Adaikkalavan
- Assistant Professor of Computer Science
- Faculty advisor for the IUSB Student Chapter of the ACM

Degree:
- Ph.D. Computer Science and Engineering (University of Texas, Arlington, 2006)

Teaching Interests:
- Information Security
- Database Management Systems
- Data/Text Mining
- Operating Systems
- Programming Languages

Research interests:
- Information security
- Complex event processing
- Event stream processing
- Data/text mining

Contact:
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Hossein Hakimzadeh

- Associate Professor of Computer Science
- Director, Informatics Program
- Associate Chair, Department of Computer and Information Sciences
- Departmental Internship Director

Degree:
- Ph.D. Computer Science (North Dakota State University, 1993)

Teaching Interests:
- Database Management Systems
- Systems Analysis and Design
- Operating Systems
- Programming Languages
- Information Organization and Retrieval

Research interests:
- Fine Grained and Object Centered Concurrency Control Algorithms for Object Oriented Database Systems
- Application of Parallel Processing to real world problems
- Client/Server and web enabled applications
- Quality Control and Industrial Applications

Study of computer science and its applications to human problems, life and culture continue to be of great interest to me. Barely 50 years old, our discipline, has made significant progress in developing advanced software systems rivaling many of human kinds scientific and engineering marvels. Today’s operating systems, databases and computer networks are only a few examples. Perhaps, the most progress however, has been realized as the result of contribution of computer science to furthering knowledge and understanding in other disciplines.

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Faculty Portfolio

William Knight

- Associate Professor Emeritus of Computer Science
- Former Associate Chair, Department of Computer and Information Sciences
- Founding member of the Department of Computer and Information Sciences

Degree:


Teaching Interests:

- Data Structures
- Analysis of Algorithms
- Logical Foundation of Computing
- Digital Design of Computer Hardware
- Concepts of Programming Languages

Research interests:

- Analysis of algorithms
- Data structures

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Matthew D. Holloway

- Visiting Lecturer in Informatics and Computer Science

Degree:
- M.S. in Systems Engineering (Oakland University, 1989), BS degree in Electrical Engineering (University of Notre Dame, 1987)

Teaching Interests:
- Programming Languages
- Computer Structures

Research interests:
- Software Engineering

Contact:
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Murli Nair
• Assistant Professor of Bioinformatics / Biology / Computer Science

Degree:
• Ph.D. Bioinformatics

Teaching Interests:
• Bioinformatics
• Biostatistics

Research interests:
• My research is directed towards the computational analysis of biological macromolecules. Basically trying to understand signals encoded in biological macromolecules by using computational approaches I focus my research on using neural nets, support vector machines and other learning machines to extract signals and develop methods to understand how the learned information is stored. The other focus of my research is on protein structure analysis. This basically involves understanding structural perturbations as a result of mutation and its propagation.

Contact:
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Faculty Portfolio

John P. Russo

• Associate Professor Emeritus of Computer Science
• Founding member of the Department of Computer and Information Sciences
• Recipient of numerous campus-wide and university-wide teaching awards
• Former Chair of the Department of Mathematics and Computer Science

Degree:
• Ph.D. in Mathematics (Florida State University, 1965)

Teaching Interests:
• Programming Languages
• Computer Structures
• Operating Systems

Research interests:
• Program efficiency
• Software engineering
• Computer science pedagogy
• User interfaces

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Department of Computer and Information Sciences, IU South Bend
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Mike Scheessele

- Associate Professor of Computer Science and Psychology

Degree:
- Ph.D. in Quantitative and Mathematical Psychology (Purdue University, 2001)

Teaching Interests:
- Programming Languages
- Artificial Intelligence
- Foundations of Digital Computing

Research interests:
- Artificial intelligence, especially psychologically plausible artificial vision and problem-solving systems.
- Cognitive science

Contact:
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Nicolae Santean

- Assistant Professor of Computer Science / Informatics
- Chair, CS Library Committee and Departmental Liaison to the IUSB Library

Degree:
- Ph.D. in Computer Science (University of Western Ontario, 2006)

Teaching Interests:
- Object Oriented Programming Languages
- Analysis of Algorithms
- Foundation of Computing and Informatics

Research interests:
- Natural Languages
- Computer Architectures
- Algorithm complexity
- Automata and their integration in software applications, web service design, etc.

_Broadly speaking, I am interested in different models of computation, descriptional and computational aspects of programming and natural languages, and algorithm complexity. From the practical point of view, I investigate efficient methods of implementing automata, and their integration in software applications, such as editors, compilers and interpreters. Recently, I have studied automata models for computer-assisted web service design._

Contact:
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Dave R. Surma

- Associate Professor of Computer Science
- Chair, Department of Computer and Information Sciences

Degree:
- Ph.D. in Computer Science and Engineering (University of Notre Dame 1998)

Teaching Interests:
- Programming Languages
- Computer Networks
- Parallel Computing
- Computer Applications

Research interests:
- Parallel and Distributed Computing
- Multimedia applications
- Computer Architectures
- High-Performance Networks and Software tools for parallel and distributed computing systems

The computer has pervaded many aspects of modern day-to-day life. Checking email, browsing news items, and playing games are but a few of the ways people utilize their computers each day. Being able to use computers has become important for everyone and the ability to develop new software, new architectures, and to improve existing systems is important for graduates in the field. I am interested in teaching both existing applications as well as leading students who want to understand and possibly produce leading-edge hardware and software systems.

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Dana Vrajitoru

- Associate Professor of Computer Science
- Chair, CS Laboratory Committee

Degree:
- D.Sc. in Computer Science (University of Neuchâtel, 1997)

Teaching Interests:
- Programming Languages
- Computer Graphics
- Parallel and distributed programming
- Artificial intelligence
- Theory of computer science
- Data structures
- Foundations of digital computing

Research interests:
- Genetic and evolutionary algorithms
- Scientific visualization
- Parallel computation
- Information retrieval
- Artificial intelligence and artificial life

Contact:
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Faculty Portfolio

Liguo Yu
- Assistant Professor of Computer Science / Informatics

Degree:
- Ph.D. Computer Science (Vanderbilt University, 2004)

Teaching Interests:
- Software Engineering
- Systems Analysis and Design

Research interests:
- Software Engineering (Software dependency, software maintenance, software reuse, software testing, software management, empirical software engineering and open-source development.

Contact:
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Faculty Portfolio

James Wolfer
- Professor of Computer Science / Informatics
- Chair, CS Graduate Curriculum Committee
- Chair, Graduate Advising Committee

Degree:
- Ph.D. Computer Science (Illinois Institute of Technology, 1993)

Teaching Interests:
- Artificial Intelligence
- Computer Graphics & Visualization
- Operating Systems
- Computer Structures
- Software Engineering

Research interests:
- Naturally inspired computing for real-world problem solving, visualization in science and medicine, and computer science education.
- Cognitive science and computer science education.

Contact:
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Faculty Portfolio

Liquang Zhang

- Assistant Professor of Computer Science / Informatics

Degree:
- Ph.D. Computer Science (Wayne State University, 2005)

Teaching Interests:
- Programming languages
- Computer Networks
- Distributed Systems
- Computer Structures

Research interests:
- Wireless networks and mobile computing
- Quality of Service and real-time computing
- Wireless sensor networks
- Network security

Contact:
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