

Computer Science



The importance and pervasiveness of information technology in our society has increased the demand in virtually every kind of organization for those with an understanding of the foundations of computing, as well as those with specific technical training. Computer science students at Illinois Wesleyan gain a broad understanding of the capabilities and limitations of computing technologies, how to solve problems and assess end-user needs, and how to adapt to changes in hardware and software technologies, as well as applications.

Why Computer Science at Illinois Wesleyan?

- Illinois Wesleyan's computer science program differs from most other computer science programs in that its foundational approach to computing is set within the context of a liberal arts curriculum.
- The computer science program at Illinois Wesleyan focuses on the context in which computers and computing structures exist in today's rapidly changing technological environment.
- The department philosophy is to prepare graduates to more readily see relationships between computing and organizational/societal problems, needs and issues.
- Computer science at Illinois Wesleyan also involves the study of foundations that are constants in an ever-changing field, including data structures and algorithms, with respect to their formal properties, linguistic and hardware realizations, and multiple applications. With this approach, students acquire the ability to adapt when the computing environment changes.

Learning from a Quality Faculty

Computer science faculty teach general courses in computer science as well as courses within their area of specialty.

- **Dr. Susan Anderson-Freede**, *Professor of Computer Science, Ph.D. — Indiana University*
Specializes in database management systems and Web design and development.
- **Dr. Mark Liffiton**, *Assistant Professor of Mathematics and Computer Science, Ph.D. — University of Michigan*
Specializes in constraint satisfaction.
- **Dr. Hans-Joerg Tiede**, *Associate Professor of Computer Science, Director of the Cognitive Science Program, and Program Coordinator, Computer Science, Ph.D. — Indiana University*
Specializes in applied logic and mathematical linguistics.

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A Sampling of Courses Offered by Computer Science:

Introduction to Computer Science
Using the Web

Computational Discrete Mathematics
Algorithm Design and Analysis

Computer Organization and
Architecture

Fundamentals of 2-D and 3-D Graphics
Weaving Arachne's New Web

Programming Languages
Artificial Intelligence

Operating Systems
Models of Computing

Database Management Systems
Computer Vision

Computational Linguistics
Compiler Construction

Advanced Web Development



“Computer Science at Illinois Wesleyan offers a solid theoretical foundation as well as introductions to state-of-the-art computational applications.

Putting Learning into Practice

- Computer Science faculty provide students with opportunities to become engaged in collaborative research projects and independent study.
- Recent project topics have included work in computational linguistics, theoretical computer science and network security.
- Students can gain work experience as lab assistants or as tutors.
- Internships are available in a variety of corporate settings in Bloomington and Chicago.
- The department has student chapters of the Association for Computing Machinery (ACM) and YPIE, the Computer Science Honorary Society.
- Graduates of computer science can look forward to gaining admittance to top graduate and professional schools, many pursuing advanced degrees in computer science, computer engineering, robotics and other computer-related and technology graduate fields.
- Recent graduates have gone on to work in areas related to computer hardware and software, engineering, banking and financial services, healthcare, government, communications, computer consulting, electronics manufacturing, education, film, online services, data processing and more.

Research Honors Projects Recently Completed by Computer Science Students:

- “Rapid Face Detection Using Independent Component Analysis,” *Aditya Rajgarhia*
- “Limits of Diagonalization and the Polynomial Hierarchy,” *Kyle Barkmeier*
- “Unsupervised Learning to Improve Anomaly Detection,” *Daniel Garrette*
- “Using Binary Space Subdivision to Optimize Primary Ray Processing in Ray-Tracing Algorithms,” *Mark Portolese*
- “The Virtual Beta: An Interactive Fish Using Java Scripts and CSS,” *Lauren Carroll*
- “Automated Annotation of Heegaard Diagrams,” *Dmitry Mogilevsky*
- “P-FASTUS: Information Extraction System Implemented in a Constraint Programming Language-SICStus Prolog,” *Rajen Subba*
- “The Use of a Genetic Algorithm to Evolve Networks for a Natural Language Processing Task,” *Alexander Dimov*
- “Computer Vision: Object Recognition,” *Michael Zalokar*
- “Designing an Integrated Environment for Artificial Intelligence,” *Andrew Ritger*

We relish the opportunity to work closely with students and assist them in pursuing their educational and career goals. Our graduates have found that a computer science degree from Illinois Wesleyan translates very easily into not only financially rewarding employment, but also exciting career opportunities.”

Dr. Hans-Joerg Tiede

Program Coordinator, Computer Science



For Further Information, Write or Call:

Dr. Hans-Joerg Tiede

Program Coordinator,
Computer Science

Illinois Wesleyan University
P.O. Box 2900
Bloomington, Illinois 61702-2900
309/556-3666
htiede@iwu.edu

www.iwu.edu/cs