Max Fowler
https://mfwlr.github.io/
mfowler5@illinois.edu

EDUCATION

PhD. Computer Science - 4.0 GPA 2019 - expected 2024

University of Illinois Urbana-Champaign

Computer Science PhD with a research focus in Computers and Education, with the inclusion of applied machine learning, data science, and human-computer interaction principles.

MSc. Applied Computer Science - 4.0 GPA 2015-2017

Indiana University Purdue University Fort Wayne

A Purdue Master's of Science degree focusing on Software Engineering principles and the application of techniques on projects and research to help students advance their professional career goals.

BSc. Computer Science - 4.0 GPA 2011-2015

Indiana University Purdue University Fort Wayne

A Purdue Bachelor's of Science degree aimed to prepare students for employment or future education. A particular focus is given on problem solving with programming and software engineering principles.

WORK EXPERIENCE

Research Assistant August 2022 - Present

University of Illinois Urbana-Champaign Computer Science Department, Part-Time

Ongoing RA with a focus on research for Computer Science education.

Broadening Participation in Computing Fellow Summer 2021- August 2022

University of Illinois Urbana-Champaign Computer Science Department, Part-Time

Fellowship focused on supporting and implementing broadening participation in computing focused activities. Work includes running summer camps, assisting with the CS STARS research program, running course assistant training, and other related outreach work.

Graduate Teaching Assistant/Co-Instructor Fall 2021

University of Illinois Urbana-Champaign Curriculum & Instruction Department, Part-Time

Graduate Teaching Assistantship in the UIUC CI Department. Developed and co-taught CI480, a Java course for in-service high school teachers to learn Java (and in the future, teach it).

Head Graduate Teaching Assistant/Co-Instructor August 2019- Fall 2021, Fall 2022

University of Illinois Urbana-Champaign Computer Science Department, Part-Time

Graduate Teaching Assistantship in the UIUC CS Department. Responsibilities include being the head TA and co-lecturer for UIUC's CS105 introductory Python course in regular

semesters. I also taught CS105 as the instructor of record in Summer 2020 and co-instructed from Fall 2020 onward.

Continuing Lecturer 2017-August 2019

Purdue University Fort Wayne Computer Science Department, Full-Time

A lecturing position in the Computer Science department at PFW(formerely IPFW). Responsibilities included research lab management, teaching, curriculum development, community outreach, and committee membership. I taught language courses (Java, C/C++, Python), topics courses (Data Structures, Human Computer Interaction), and our general education survey course. Further, I was the staff head of the Computer Science Scholars' Chat tutoring and mentoring program which provided tutoring and peer mentorship to our students.

Graduate Teaching Assistant/Limited Term Lecturer 2015-2017

Indiana University Purdue University Fort Wayne Computer Science Department, Part-Time

A lecturing position in the Computer Science department at IPFW, as a Master's student GTA position. I designed course content, taught, and graded as a regular faculty member. I taught intro Java and C/C++ courses during my time as a lecturer.

Datascience Intern May 2013-July 2013

Aunalytics, Internship

Aunalytics is a data science company based out of South Bend. For the internship, I developed public data collecting web-scraping scripts in Python. I also worked with JavaScript and D3 to interface my Python scripts with Aunalytic's data science platform.

CONTRACTS/OTHER FUNDED PROJECTS

Computer Science Teaching Endorsement Curricula Development April 2020 - May 2022

University of Illinois at Urbana Champaign College of Education

Development of the course content for Curriculum&Instruction 480 - Introduction to computer science for CS teachers, one of a number of courses for a course sequence for in-service teachers to learn necessary skills for CS teaching endorsements.

TEACHING EXPERIENCE

CS199 CA Training

University of Illinois Urbana-Champaign, Lead Instructor

This course is designed for students working as or interested in becoming a Course Assistant (CAs) in the computer science department. The goal of the course is to help students learn the skills and knowledge they need to be awesome Course Assistants (i.e., encouraging and impactful). Topics include: (a) principles of learning, (b) motivating students, (c) tutoring practices, (d) encouraging effective collaboration, (e) grading practices, (f) developing a positive classroom community, and (g) ethical considerations. Current Course Assistants who have not completed the course are encouraged to enroll. Students can participate entirely asynchronously.

CI480 Intro to CS for CS Teachers

University of Illinois Urbana-Champaign, Co-Instructor

This course introduces the core concepts of computer science and computer programming and gain experience creating programs using text-based programming languages. It also provides opportunities for students to reflect on how they experience learning those concepts and how this might impact how they will teach them to high school students in the future. Students will learn about the fundamentals of how programs are executed and how to store and process data using computers. They will be introduced to the concepts of algorithms and algorithm execution time. They will learn the core concepts of object-oriented programming.

CS105 Intro Computing: Non-Tech

University of Illinois Urbana-Champaign, Head TA/Summer Instructor

Computing as an essential tool of academic and professional activities. Functions and interrelationships of computer system components: hardware, systems and applications software, and networks. Widely used application packages such as spreadsheets and databases. Concepts and practice of programming for the solution of simple problems in different application areas. Intended for non-science and non-engineering majors.

CS 112 Survey of Computer Science/Computer Science for Everyone

Purdue Fort Wayne

A basic general education intro to computing and computer science. This course is designed to provide a broad and realistic idea of what computer professionals do and how they do it. Earlier versions of the course used HTML and JavaScript as a focus language, but alternative tools like AppInventor have been used some semesters.

CS 160 Intro to Computer Science I

Purdue Fort Wayne

Introduction to programming from the basics of programming through basic objects, array usage, and file usage in Java.

CS 161 Intro to Computer Science II

Purdue Fort Wayne

More advanced programming in Java, covering advanced array usage, inheritance and polymorphism, recursion, and GUI programming in Swing. I also covered basic design patterns such as decorator and singleton.

CS 229 C/C++ Programming

Purdue Fort Wayne

A C and C++ course for engineering majors. Introduced programming in C and fundamentals of object-oriented programming in C++ to solve engineering problems.

CS 232 Intro to C and Unix

Purdue Fort Wayne

This course is an introduction to the C language and the Unix operating system. The course focuses on standard C and Unix tools, rather than a proprietary version of either.

CS 260 Data Structures

Purdue Fort Wayne

This course is an introduction to the common data structures (ADT's) of computer science and the algorithms which maintain and operate on them.

CS 292 Python Programming for Data Analytics

Purdue Fort Wayne

A non-major focused Python programming course that I designed. The first third is basic programming on Python up through simple objects. The back two-thirds focus on key data science modules and some basic plug-and-play machine learning. The Anaconda distribution of Python is used as a basis.

CS 368 Human Computer Interaction

Purdue Fort Wayne

Introduction to general issues surrounding human-computer interaction (HCI). The course presents principles, design methodologies, tools, and evaluation techniques with an emphasis on human-centered interface design and implementation.

CS 460/465 Senior Capstone Project I/II

Purdue Fort Wayne

A two semester long capstone course. Student teams participate in the development of a substantial application-oriented or research-oriented software project utilizing a formal software process model. I have advised four capstone teams

HONORS & APPOINTMENTS

Illinois Computer Science Outstanding Teaching Assistant Award, Lifetime May 2023

University of Illinois Computer Science

A lifetime achievement award for one outstanding teaching assistant from the Department of Computer Science, awarded yearly. The selection process considers both student evaluations and faculty recommendations.

Co-Chair Broadening Participation in Computing Policy Committee August 2022 - Present

University of Illinois Computer Science

Co-chair of the BPC policy committee in the Illinois CS department. Our committee focuses on policy evaluation and recommendation crafting for how the CS department can improve diversity, equity, and inclusion outcomes.

Third Best Paper in SIGCSE's Education Track March 2021

SIGCSE 2021

"Superficial Code-Guise," was awarded third best paper in the CS Education track at SIGCSE 2021.

Graduate Faculty Appointment 2019

Purdue Fort Wayne

Appointed graduate faculty, in order to teach graduate courses. Primarily these are either research focused or focused on educating prospective dual-credit high school teachers.

Chair of Computer Science Dual Credit and Outreach Committee 2018-2019

Purdue Fort Wayne

As chair of the Dual Credit and Outreach Committee, I am in charge of helping the department's dual credit coordinator with departmental tasks and managing outreach efforts. These efforts include visits to research labs, lab demos during campus visit days, and coordination with IRSC events.

Faculty Advisor of ACM Chapter 2017-2019

Purdue Fort Wayne

As ACM faculty advisor, I help coordinate campus and department student outreach activities. These include hosting a Global Game Jam site and forming/co-coaching a Cyber Security competition team, the Purdue Fort Wayne Computer Security Division (PFW CSD).

MAICS 2016 Best Student Paper Award 2016

Modern Artificial Intelligence and Cognitive Science 2016

My paper, "Exploring Web-based Visual Interfaces for Searching Research Articles on Digital Library Systems," was awarded best student paper status during the MAICS 2016 conference at the University of Dayton.

Institute for Research, Scholarship, and Creative Endeavors Board Member 2015-2019

Purdue University Fort Wayne

The IRSC serves the university of PFW by steering efforts to increase faculty engagement in research and with the community through their and research. Activities include assisting in the establishment of the Science Central Sponsorship Day, a partnered day at Science Central, and the Science and Society At PFW (SASI) poster symposium.

Chapman Scholarship 2011-2015

Indiana University Purdue University Fort Wayne

The Chapman Scholarship is a four year full ride scholarship provided at IPFW. The scholarship is competitively selected from high achieving new applicants before their freshmen year and contains civic engagement and leadership building opportunities.

PUBLICATIONS

Max Fowler, David H. Smith IV, and Craig Zilles. "Quickly Producing "Isomorphic" Exercises: Quantifying the Impact of Programming Question Permutations." Accepted to Innovation and Technology in Computer Science Education, 2024.

Denny, Paul, David H. Smith IV, **Max Fowler**, James Prather, Brett A. Becker, and Juho Leinonen. "Explaining Code with a Purpose: An Integrated Approach for Developing Code Comprehension and Prompting Skills." Accepted to Innovation and Technology in Computer Science Education, 2024.

Isenegger, Kathleen, **Max Fowler**, Yael Gertner, Raya Hegeman-Davis, and Leonard Pitt. "Designing and Piloting a High School CS+ X Topics Course." In Proceedings of the 55th ACM Technical Symposium on Computer Science Education V. 1, pp. 562-568. 2024.

Smith, IV, David H., Seth Poulsen, **Max Fowler**, and Craig Zilles. "Comparing the Impacts of Visually Grouped and Jumbled Distractors on Parsons Problems in CS1 Assessments." In Proceedings of the ACM Conference on Global Computing Education Vol 1, pp. 154-160. 2023.

Tiffany Wenting Li, Silas Hsu, **Max Fowler**, Zhilin Zhang, Craig Zilles, and Karrie Karahalios. "Am I Wrong, or Is the Autograder Wrong? Effects of AI Grading Mistakes on Learning." In Proceedings of the 2023 ACM Conference on International Computing Education Research-Volume 1, pp. 159-176. 2023.

Max Fowler, David H. Smith IV, Binglin Chen, and Craig Zilles. ""I Don't Gamble To Make My Livelihood": Understanding the Incentives For,Needs Of,and Motivations Surrounding Open Educational Resources in Computing". In Proceedings of the 2023 ACM Conference on International Computing Education Research-Volume 1, pp. 430-443. 2023.

David H Smith IV, **Max Fowler**, Craig Zilles, "Investigating the Role and Impact of Distractors on Programming Performance." In the ACM Special Interest Group on Computer Science Education (SIGCSE), 2023-03.

David H Smith IV, Chinedu Emeka, **Max Fowler**, Matthew West, Craig Zilles, "Investigating the Effects of Testing Frequency on Programming Performance and Students' Behavior." In the ACM Special Interest Group on Computer Science Education (SIGCSE), 2023-03.

Max Fowler, David H Smith IV, Mohammed Hassan, Seth Poulsen, Matthew West, Craig Zilles, "Reevaluating the Relationship between Explaining, Tracing, and Writing Skills in CS1." Computer Science Education 32.3 (2022): 355-383.

Max Fowler, David H Smith IV, Chinedu Emeka, Matthew West, Craig Zilles,"Are We Fair? Quantifying Score Impacts of Computer Science Exams with Randomized Question Pools." In the ACM Special Interest Group on Computer Science Education (SIGCSE), 2022-02.

Max Fowler, Binglin Chen, Craig Zilles,"How should we 'Explain in plain English'? Voices from the Community" In the ACM Conference on International Computing Education Research (ICER), 2021-08

Max Fowler, Binglin Chen, Matthew West, Craig Zilles,"How productive are homework and elective practice? Applying a post hoc modeling of student knowledge in a large, introductory computing course." In the Computer Science Educational Data Mining Workshop, 2021-06.

Silas Hsu, Tiffany Wenting Li, Zhilin Zhang, **Max Fowler**, Craig Zilles, Karrie Karahalios, "Attitudes Surrounding an Imperfect AI Autograder." CHI Conference on Human Factors in Computing Systems, May 2021.

Max Fowler and Craig Zilles, "Superficial Code-guise: Investigating the Impact of Surface Feature Changes on Students' Programming Question Scores." In the ACM Special Interest Group on Computer Science Education (SIGCSE), 2021-03-15

Max Fowler, Binglin Chen, Sushmita Azad, Matthew West, and Craig Zilles, "Autograding "Explain in plain English" questions using NLP." In the ACM Special Interest Group on Computer Science Education (SIGCSE), 2021-03-15

Binglin Chen, Sushmita Azad, **Max Fowler**, Matthew West, and Craig Zilles, "Learning to Cheat: Quantifying Changes in Score Advantage of Unproctored Assessments Over Time." In the Seventh ACM conference on*Learning @ Scale*, 2020-08-12

Sushmita Azad,Binglin Chen, **Max Fowler**, Matthew West, and Craig Zilles, "Strategies for Deploying Unreliable AI Graders in High-Transparency High-Stakes Exams." In *Artificial Intelligence in Education*, 2020-06-30

Maxwell Fowler, Aleshia Hayes, and Kanika Binzani, "The Social Net of Sentiment: Improving the Base Sentiment Analysis of High Impact Events with Lexical Category Exploration." Proceedings of the 6th *Intelligent Systems Conference*, 2019-08-05.

Maxwell Fowler, Mikah Sunderman, Megi Shtika, Brett Galloway, Austin Kuhn, Nivetha Pandian, Katrina Eby, Tammy Toscos, Beomjin Kim, "WoundView: Prototype Telemedicine System for Real-time, Off-site Diagnosis." Proceedings of the 9th *International Conference on Internet*, 2017-12-19.

Max Fowler, Aaron Thieme, and John Licato, "Robotic Misdirection, For Good Causes: Strategically Deceptive Reasoning in Artificial Generally Intelligent Agents." Proceedings of the 28th *Modern Artificial Intelligence and Cognitive Science* Conference, 2017-04-28.

John Licato and **Maxwell Fowler**, "Embracing Inference as Action: A Step Toward Human-Level Reasoning." Proceedings of the 9th *Artificial General Intelligence* Conference, 2016-07-20.

John Licato and **Max Fowler**, "Formalizing Confidence Propagation in Analogico-Inductive Reasoning." Presented at *International Association for Computing and Philosophy*, 2016-06-15.

Maxwell Fowler, Chris Bellis, Chris Perry, and Beomjin Kim, "Exploring Web-based Visual Interfaces for Searching Research Articles on Digital Library Systems." Proceedings of the 27th *Modern Artificial Intelligence and Cognitive Science* Conference, 2016-04-22.

WORKSHOPS

Colleen Lewis, Morgan Fong, **Max Fowler**, Kathleen Isenegger, Vidushi Ojha, Christopher Perdriau, Mariam Saffar Perez "Using Physical Models of Java to Make Abstract Concepts Concrete" In the ACM Special Interest Group on Computer Science Education (SIGCSE), 2023-03.

POSTERS

George, Kari L., **Max Fowler**, Vidushi Ojha, Morgan M. Fong, Kathleen Isenegger, Christopher Perdriau, Mariam Saffar Perez, Yael Gertner, and Colleen M. Lewis. "Leveraging Kotter's 8 Stage Model of Organizational Change to Understand Broadening Participation in Computing." In Proceedings of the 55th ACM Technical Symposium on Computer Science Education V. 2, pp. 1652-1653. 2024.

Dylan Caldwell, **Maxwell Fowler**, Aleshia Hayes, "User-Conscious Interfaces with the VR Percussion Lab." Poster presented at the *22nd Studdent Research and Creative Endeavor Symposium* at Purdue Fort Wayne, 2019-04-12.

Gabriel Quinones-Sanchez, Isaiah Fisher, and **Maxwell Fowler**, "Digital Smoking Guns: An Analysis of the Changing Gun Violence Sentiment in America with Empath and Machine Learning." Poster presented at the *22nd Student Research and Creative Endeavor Symposium* at Purdue Fort Wayne, 2019-04-12.

Brad Lewis, Isaac Smith, **Max Fowler**, and John Licato, "The Robot Mafia: A Test Environment for Deceptive Robots." Proceedings of the 28th *Modern Artificial Intelligence and Cognitive Science* Conference, 2017-04-28

Christopher Bellis, Chris Perry, **Max Fowler**, and Beomjin Kim, "Web-based Visual Interfaces Designed for Searching on Collections of Research Papers." Poster presented at the 19th *Student Research and Creative Endeavor Symposium* at Indiana University Purdue University Fort Wayne, 2016-03-30. Available: `http://mdon.library.pfw.edu/cdm/ref/collection/p16776coll9/id/201`

Aaron Thieme, Tyler Cameron, **Max Fowler**, and John Licato, "Exploring Belief Revision in Cognitive Event Calculi." Poster presented at the 19th *Student Research and Creative Endeavor Symposium* at Indiana University Purdue University Fort Wayne, 2016-03-30. Available: `http://mdon.library.pfw.edu/cdm/ref/collection/p16776coll9/id/161`

Max Fowler, Rachel Abraham, Braxton Marton, David Bohan, and Shannon Bischoff, "Director-Matcher Task Project." Poster presented at the 17th *Student Research and Creative Endeavor Symposium* at Indiana University Purdue University Fort Wayne. 2014-03-28. Available: `http://mdon.library.pfw.edu/cdm/ref/collection/p16776coll9/id/345`

SERVICE

UIUC CS Graduate Student Ambassador 2021-Present

Serve as a point of contact for prospective graduate students and assist with incoming student visit days.

TRIO Upward Bound Instructor Summer 2022

Worked with a team of colleagues to deliver a Python learning experience to a small group of students from groups historically underrepresented in computing. The Python content was based on material from Northwestern University's TunePad.

Worldwide Youth in Science and Engineering (WYSE) Summer Camps Coordinator 2021-2022

Served as the coordinator and developer for multiple computer science focused camp programs hosted through WYSE at the University of Illinois. These camps were focused on getting students from varied backgrounds exposure to programming. In Summer 2021, they were all digital.

Sponsorship Day at Science Central 2016-2019

A sponsorship day hosted by Purdue Fort Wayne (formerly IPFW) at the local Science Central. Faculty and students show off their research and pay for free admission for the community. I have been a part of this event since inception, demonstrating work from the the Robotics lab, formerly ACoRL, and SURGE VR.

First Lego League Judge 2015-2019

First Lego League is an international Lego robotics competition organized by FIRST. I have served as a judge for the regional championship held in Fort Wayne since 2016. The first year was as a Core Values judge, focusing on judging team spirit, cohesion, and cooperation. The other years, I have served as a robot design judge, judging the fitness of Lego robot construction and robustness of code.

SKILLS

Programming Languages	Java C, C++ C# for basic Xamarin and form development C# with Unity 3D Python JavaScript, with D3 and JQuery HTML, CSS MIT AppInventor, as a Teaching Tool PHP, for database integration with web
Teaching Experience	Data Science Programming Courses General Programming Language Courses Data Structures Courses Human Computer Interaction Courses
Software	R, LaTeX
Logical Formalization	Cognitive Event Calculus ($\mathcal{CEC}$), First Order Logic