

Benjamin M. Harki, M.S.

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<https://github.com/chimson>

EDUCATION

- DePaul University**, Chicago, IL 2021 - Present
- Master of Science, Computer Science
 - August 2023 (Expected Graduation)
- West Virginia University**, Morgantown, WV 2004 - 2011
- Master of Science in Mathematics (2011)
 - Bachelor of Science in Mathematics, Minor in History (2008)
- Additional Coursework as a Non-Degree Seeking Student 2015 - 2021
- University of Illinois at Chicago (2021): Differential Equations PhD level course
 - West Virginia University (2015-2019): PhD level courses focused in Mathematical Analysis and Partial Differential Equations

EMPLOYMENT

- DePaul University** 2022 - 2023
Teaching Assistant in Python Computer Science Lab
Chicago, IL
- Collaborate with multiple professors to administer their course's Python Lab
 - Review lab content, field questions from approximately 30 students, and grade assignments
- Harold Washington College of City Colleges of Chicago** 2019 – 2021
Adjunct Instructor in Mathematics
Chicago, IL
- Instructor for College Algebra and Trigonometry, both face-to-face and remote, synchronous and asynchronous
 - Attend training sessions for collaboration with DePaul/Harold Washington Faculty on how to best serve the DePaul Harold Washington Academy's academic needs
- Pierpont Community and Technical College** 2015 – 2019
Coordinator and Assistant Professor in Mathematics
Fairmont, WV
- Instructor for mathematics courses including Applied Mathematics for Industry, Technical Mathematics, College Algebra, Mathematics for Business, and Fundamental Concepts in Mathematics
 - Promoted to Coordinator and Assistant Professor in Mathematics in Fall 2017
- Southern New Hampshire University** 2015 - 2017
Adjunct Instructor in Mathematics
Remote
- Instructor for online asynchronous 8-Week Differential Equations Courses
- East West University** 2013 - 2015
Adjunct Instructor in Mathematics
Loop, Chicago, IL
- Instructor for General Education Math, Intermediate Algebra, and College Algebra
 - Worked closely with the Mathematics Coordinator and faculty for course consistency

Northwestern College
Adjunct Instructor in Mathematics

2012 - 2015

Jefferson Park, Chicago, IL

- Instructor for General Education Mathematics synchronously online or face-to-face
- Attended meetings with general education faculty
- Observed every quarter by the general education coordinator

Prairie State College
Adjunct Instructor in Mathematics

2012 - 2014

Chicago Heights, IL

- Instructor for face-to-face undergraduate mathematics courses, including Differential Equations, Statistics, 1st Semester Calculus, Finite Mathematics, and Geometry

West Virginia High Tech Foundation Consortium
Mathematician Intern/Researcher

2011

Fairmont, WV

- Analyzed, programmed, and presented findings as a member of a research team testing a genetic algorithm that governed the machine vision of an unmanned vehicle for a military project

West Virginia University
Research Assistant and Master's Research Project

2010 - 2011

Morgantown, WV

- Assisted with development of a flight path coordination algorithm and modified a neural network trained on survey data

EXPERIENCE IN EDUCATION

Coordinator of Mathematics Courses

- Collaborated with mathematics assistant professors, adjunct faculty, Deans, and Provost to ensure quality of all face-to-face and online mathematics courses
- Developed and adjusted curriculum to meet the needs of Pierpont degree programs and accreditation body
- Oversaw all mathematics courses/instructors and resolved student-instructor conflicts
- Very experienced in creating courses, assigning instructors, and adding student registration overrides for approximately 30+ sections of math courses at Pierpont through BANNER
- Collaborated with 15+ math faculty to ensure proper course objective coverage, organization, consistency, and quality of all math courses across all sections
- Translated a section of Fundamental Concepts in Mathematics from a face-to-face course to an online course, to be used as a master online course in Blackboard
- Attended faculty senate and participated in committees in order to work closely with Pierpont program coordinators and faculty
- Attended a Higher Learning Commission workshop on general education assessment and helped develop a quantitative literacy assessment for Pierpont C&TC

Instructor of Mathematics Courses

- Instructor for asynchronous or synchronous online, face to face, or hybrid courses
- Created syllabi, homeworks, quizzes, and tests using Pearson's MyMathLab, Knewton Alta, Hawkes Learning System, LaTeX programming, and Microsoft Office 365
- 10+ years experience with technology for both online and web-enhanced classrooms, including Moodle, Desire2Learn, WebAdvisor, Blackboard, Brightspace, and Zoom
- Designed and administered assignments using Pearson's MyMathLab, Knewton Alta, and Hawkes Learning System

EXPERIENCE IN RESEARCH

- Independent Study at DePaul University 2023
- Supervised by Dr. Zhen Huang
 - Collect results on the feasibility of instrumenting the AFL fuzzer so that its mutation input is driven by a program's invariants instead of code coverage
 - Based on the work related to InvsCov, in which AFL fuzzes based on "likely invariants" but adapted to use the Senx invariant detector instead of Daikon
- Intern at West Virginia High Technology Foundation Consortium 2011
- Tested a genetic algorithm on image data that calculated the machine vision of an aircraft in relation to a IR camera for a military project
 - Presented results to the research team and attended a collaboration with multiple aerospace engineering companies from across the country
- Research Assistant at West Virginia University 2010 - 2011
- Graduate Research Assistant for Marjorie Darrah, Ph.D.
 - Created a Genetic Algorithm to calculate the fitness of a flight path for an unmanned vehicle in a surveillance operation for a military project
 - Presented results to our research team and a team of engineers
- Master's Degree Project 2010 - 2011
- Mined survey data by modifying a Neural Network

COMPUTER SCIENCE SKILLS

- Python, Java, C#, F#
- C, C++, Rust
- Powershell in Windows, Bash in Linux
- Quality Assurance and Software Testing using JUnit, C# NUnit, Python unittest
- Software Coverage Testing and Mutation Testing
- MATLAB numerical programming
- HTML and CSS
- .NET, .NET MAUI, and XAML
- Software Engineering Team methodologies of DevOps, Agile, CI/CD
- Unity and Mono C#
- Visual Studio Tools
- Program Analysis and Control Flow Analysis
- Tooling of LLVM Fuzzing, LLVM KLEE, AFL Fuzzing, and Valgrind
- Git and Perforce
- Algorithm theory, Numerical Analysis, and Theory of Computation
- Differential Equations, Finite Element and Finite Difference Methods
- Genetic Algorithm, Neural Network Machine Learning AI algorithms
- SQL databases, programming, queries, and Database Theory
- Distributed Systems Web Communication