

Michael C. Robbeloth, Ph.D.

Curriculum vitae

August 20, 2024

Institutional Address:

College of Natural and Social Sciences
Department of Computer Science
800 Martinsburg Road
Mount Vernon, OH 43050
(740) 392-6868, x3225
michael.robbeloth@mvnu.edu

Home Address:

365 Valleybrook Circle
Howard, OH 43028
(937) 770-9046
michael@robbeloth.com

EDUCATION

Ph.D., Department of Computer Science & Engineering, Wright State University, 2019
Dissertation: Recognition of Incomplete Objects based on Synthesis of Views Using a Geometric Based Local-Global Graphs
http://rave.ohiolink.edu/etdc/view?acc_num=wright1557509373174391

Chair: Dr. Nikolaos Bourbakis, Ohio Board of Regents & Distinguished Professor of Information Technology

M.B.A. (Finance Concentration), School of Business Administration, University of Dayton, 2011

M.S., Department of Computer Science, Bowling Green State University, 2002

B.S. (Dual Major Computer Science & Mathematics),

Department of Computer Science & Mathematics, Wilmington College, 2000

TEACHING EXPERIENCE

Mathematics & Computer Science (MCS), Mount Vernon Nazarene University (MVNU)

Associate Professor of Computer Science and Program Coordinator for CS

5/2024 to Present

- Submitted revisions to the CS program reviews and responsible for new program reviews
- Primary person for the creation of Action History Forms (AHFs) to change CS programs (add, remove, or update CS courses/programs). Submitted seven last year to eliminate redundancies, strengthen programming, and increase competitiveness for those seeking internships or full-time employment.
- Assisted with the transition of students from Eastern Nazarene College (ENC) after it announced its closure by developing curriculum maps, teach-out plans, and assisting CS majors in transferring into MVNU
- Served as a judge for the Symposium for Undergraduate Research (sURC) 2024

See Assistant Professor for older and other ongoing duties

Mathematics & Computer Science (MCS), Mount Vernon Nazarene University (MVNU)

Assistant Professor

8/2017 to 5/2024

Courses taught:

- Database Management Systems (CSC-3032) with a focus on designing and implementing relational databases and programmatic access via back-end PHP, Java JDBC, and/or other mechanisms. We used PostgreSQL to ensure the widest compatibility with a variety of Sequel (SQL) topics, students completed a major term project and labs using PostgreSQL and PHP.
- Practicum in Networking (CSC-4062) where I have supervised the senior practicums of Computer Systems and Networking Engineering major students, as needed. Students complete a comprehensive networking project that involves planning, designing, creating, testing, and documenting a complete networking infrastructure.
- Computer Networking (CSC-4093) with a focus on the Internet protocol stack, use of networking tools like Wireshark, and occasional hands-on programming assignments in C, Python, Java, etc.
- Special Topics: Mobile Application Development (CSC-4089) Android Focus
- Software and Systems Engineering (CSC-3024) where I have supervised team projects on custom software systems built to support the efforts of MVNU's Center for Innovative Education (CIE)'s Summer Learn program, MVNU's cafeteria point of sale (P.O.S.) system CMAP, MVNU's Emergency Management and Homeland Security program (SERC), the Nursing department's Electronic Medical Records (EMR) simulator, FaithLink (SaaS small group Bible study digital platform), a Water Leak detection system using Arduino boards and sensors, and a caretaker app for loved ones with chronic medical conditions (Medicerus).
- Computer and Information Security (CSC-4003) – Utilize the Stallings & Brown Computer Security Text to provide a survey of cybersecurity issues. In-class exercises and projects utilizing Wireshark, Linux OS VMs, Hak5 equipment, GPG, and more.
- Computer Science II & Laboratory (CSC-2024) – a CS2 course where topics covered range from object-oriented programming using Java 17.0 and JavaFX to an introduction to data structures and recursion. Students complete hands-on weekly laboratory assignments utilizing IntelliJ IDE. Innovative programming assignments have included the use of a VestaBoard display and multimedia programs.
- Computer Networks & Telecommunications (CSC-3013) with an emphasis on exploring the Internet protocol stack, network design, security considerations, and hands-on exercises using network traffic capture, network mapping, network configuration, and additional networking tools.
- Computer Organization & Architecture (CSC-3054) with one focus in this course being on the RISC-V architecture. Students conduct a series of initial labs where they benchmark and write Python, cross-compiled C, and cross-assembled code for StarFive RISC-V boards, learn to use the Spike simulator, and complete a series of labs building a simple, simulated Central Processing Unit (CPU) using Logisim Evolution, custom microcode, and Assembly programming.
- Computer Networking Fundamentals (CSC-2011/2041) with a focus on preparing students to take the CISCO CCNA certification exam, as needed

- Information Tech Security (CSC-2031) with a focus on preparing students to take the CompTIA Security+ certification exam, as needed
- Operating Systems & Systems Programming (CSC-3044) with a focus on studying Linux and other UNIX-related operating systems. Students complete weekly laboratory exercises on the various abstractions of UNIX-based operating systems using C, C++, or Python.
- Technology & Society (CSC-3083) flipped classroom environment where students learn various workable ethical frameworks such as Kantianism, Utilitarianism, Virtue Ethics, and Social Contract Theory and how to apply those frameworks to various situations technologists like engineers, developers, and IT personnel are likely to face
- Introduction to Computing (CSC-1013) a CS0 course with a focus on learning Python programming and general Computer Science topics
- Impact of Technology on Society (CSCI-2083) is an online, general education course for Graduate and Professional Students (GPS) students which helps them to appreciate the feedback loop created by technology and society influencing and being influenced by the other.
- Computer Applications Practicum I & II (CSC-4081 and CSC-4082). Work with students on independent software development projects. This set of courses serves as the student's practicum experience in the CS B.S. and B.A. programs.
- Discipleship of the Christian Mind (HUM-1012) is a general education course where students learn about how the Christian liberal arts education system works at MVNU along with developing and practicing the Christian habits of mind needed in their studies and daily life. 20% of the course is dedicated to practicing intellectual virtues and analyzing secular liturgies where I developed a set of modules on digital privacy practices, a day in the life of CS alumni and their virtuous practices, sub-culture explorations via *Love Notes to Newton*, a review of Donald Knuth's *Things a Computer Scientist Rarely Talks About*, elements of religious practice in popular engineering projects and communities, and the impact of geek culture movies like *WarGames* on representation in CS programs.

Standing Committee Assignments:

- Online and Technology: Fall 2021-2024
- Traditional Academic Coun (TAC): Fall 2024 - 2027

Special/Ad-hoc Committee/Board Assignments:

- Computer Science & Computer Engineering (CE) Building Exploration Committee (Ongoing). This ad-hoc committee developed proposals for the utilization of a 10,000 sq. ft., space being donated to MVNU for use by the CS & Engineering programs. It will be known as the [HW Hub](#) and will reside on the bottom floor of the former Mount Vernon News Building. The building donation was supplemented by a 1.4 million dollar equipment donation to fully supply the new facility. It will feature a general-purpose programming lab, a cybersecurity lab, a Virtual/Mixed Reality (VR/MR) lab, an embedded computing lab, a sensors lab, a darkroom, a wind tunnel, a mechanical engineering workspace, meeting spaces, offices, classrooms, and more.
- MVNU CS Advisory Board (Ongoing). Serving as primary faculty liaison. This is an advisory board to solicit feedback from alumni on the current state of CS programs at MVNU, propose changes to CS programs and related curricula, and provide input on the best practices being utilized among professionally active software development and information technology groups. It also serves to strengthen ties among CS faculty, current CS students, and MVNC/MVNU alumni. This board is to serve as a model for other alumni program advisory boards throughout MVNU.
- CS Faculty Search Committee (2021-2022)

- CS Education Endorsement and CIS Licensure Program Due-Diligence Study Committee (2021-2022). Investigated the possibility of either adding a new CS Endorsement program to MVNU's Graduate and Professional Studies (GPS) Education department offerings or a Computer Information Systems (CIS) licensure to traditional Education program undergraduate offerings.
- Computer Engineering Program Development Committee (2021-2022). Assisted with the development of an ABET-accredited Computer Engineering concentration within MVNU's Engineering department. Worked with the marketing department to develop promotional materials for this program. Today I provide assessment data for CS courses within the CE curriculum.

Other Duties:

- Maintain/supervise the advanced computer lab, the connected data center, and its student workers, which is the focal point for advanced third- and fourth-year computer science courses (particularly networking-related), senior practicums, and research efforts on my part and my students. Servers are built and rebuilt, networking equipment maintained, etc.
- Maintain the MCS department Discord server
- Advise IT personnel on educational software needed in the primary CS lab storage image
- Maintain CS and CSNE program software licensing needs (Testout.com, VMWare, etc.)
- Meet with prospective students either in-person or virtually on a semi-regular basis to discuss MVNU's Computer Science programs
- Advise between one and two dozen advisees who are Computer Science or Computer Systems and Networking Engineering majors
- Sent off multiple academic alerts through the Pharos system for at-risk students in my courses and participated in the following discussions.
- Participated in internal meetings and external meetings with the Knox County Area Development Foundation on positing MVNU to support the Silicon Heartland corridor in New Albany, Ohio (Columbus, OH area) where Intel is building a new processor fabrication facility.
- Assisted with the department's Computer Science and Computer System and Network Engineering program self-study
- Participated in the New Student Institute program break-out for incoming CS/CSNE major declared students and New Student Orientation (NSO) advising sessions.
- Partnered with the Engineering Department faculty in 2023 and 2024 on hosting a Computer Engineering/Embedded-focused track for MVNU Academic Summer Camps. Provided an introductory C++ programming clinic along with an Arduino programming clinic focused on programming WS2812 LED Strip with the FastLED library for an infinity mirror.
- Participated with leadership and other faculty on a 2+2 articulation agreement with African Nazarene University (ANU) by providing extensive feedback on the CS Curriculum Alignment Matrix and participated in meetings related to this effort.
- Served as Honor's program reviewer and primary mentor for CS Honors projects, which have included an IRB review in one case.
- Served as the faculty advisor for the academic CS Club

Computer Science, Wilmington College

- Introduction to Programming (C language), Fall 2002
- Artificial Intelligence; Summer 2003, Spring 2004
- Software Engineering, Spring 2004

Mathematics, Sinclair Community College

- Algebra I; Fall 2005, Summer 2011
- College Algebra, Spring 2008
- Mathematics for Business Analysis, Summer 2006
- Statistics I, Winter 2007
- Calculus II, Summer 2007

REVIEWER

- ACM Student Research Competition (SRC) for SIGCSE 2022
- ACM Technical Symposium (TS) on Computer Science Education for SIGCSE 2022-2025
- ACM Committee on Special Projects, Travel Grants, and Speaker's Fund (ongoing)

PRESENTATIONS & POSTERS

Riffle, S., & Robbeloth, M. (2023). Code Optimization and Integration of Hardware Accelerator in Matching of Incomplete Objects. To be presented.

Latham, D., & Robbeloth, M. (2022). Investigations and Improvements into an Incomplete Object Characterization Algorithm. Presented at the SPUR Breakfast in November, 2022.

Riffle, S., & Robbeloth, M. (2022). Machine Learning Investigations and Improvements for Matching of Incomplete Objects. Presented at the SPUR Breakfast in November, 2022.

PUBLICATIONS

Robbeloth, M. (TBD) "Progressive recognition of incomplete objects." In-progress, current work.

Robbeloth, M., & Bourbakis, N. (2022). L-G Graphs and Voronoi Diagrams Based Recognition of Incomplete Objects Using the Standard Six-Views: A First Study. *International Journal on Artificial Intelligence Tools*. <https://doi.org/10.1142/S0218213022500361>

Robbeloth, M., & Bourbakis, N. (June 2015). **An LG Graph Monitoring Scheme for Representing Incomplete Objects**, IEEE National Aerospace & Electronics Conference & Ohio Innovation Summit (NAECON-OIS) DOI: [10.1109/NAECON.2015.7443078](https://doi.org/10.1109/NAECON.2015.7443078)

Robbeloth, M. & Bourbakis N., **Recognizing Objects from their Incomplete Representation: A Survey**, Int. IEEE Conference on IISA, Chalkidiki, Greece, July 2016
[10.1109/IISA.2016.7785370](https://doi.org/10.1109/IISA.2016.7785370)

RELATED PROFESSIONAL SKILLS

Platforms	Android Open Source Project (AOSP), Linux/BSD/Other Unix derivatives, Windows Embedded Standard, Microsoft Windows, Macintosh OS, VxWorks
Languages	Java including Java Native Interface (JNI), Java Unit Testing Framework (JUnit), Java Native Access (JNA), Android SDK/NDK, Java Swing/FX GUIs,

Platforms Software Development Kits (SDK)	Apache River (Jini), Service-Oriented Computing Environment (SORCER), Apache Commons, Apache log4j, Apache POI, Apache Xerces, etc.], C (including some Win32 API, K&R/ANSI C/C99, etc.), C++ (including some STL, Xerces), Scripting (Bash, Gnu Make, Apache Ant, Apache XML Commons, etc.), Visual Basic 6/.Net (introductory), VHDL (introductory), Verilog (introductory), HTML, Extensible Markup Language (XML), Structured Query Language (SQL), Fortran, Delphi (Pascal), Assembly (X86, 68k/PPC, ARM), Matlab (introductory), Denx Uboot, PostgreSQL/MySQL DBMS, Python, PHP, etc.
Hardware	BCM Advanced Research Single/Quad-core Freescale i.MX6 (Cortex ARM), Intel Atom (X86), Altera II FPGA, Analog Devices A/D 9822*, AMD Opteron (X86), Motorola PPC/68k, Raspberry Pi, Arduino
Tools:	ArgoUML, PlantUML, Draw.io, Eclipse, Visual Studio, NetBeans, IntelliJ, Apache HTTP, Internet Information Server (IIS), Clonezilla, vi, Windows Installer XML Toolset (WiX), Design Optimization Tool (DOT) from Vanderplaats Research & Development, GNU Plot, Plplot, Android Studio, Wireshark, Logisim, etc.
Other/Generic Skills:	Software Engineering, Testing, UML, Databases, Algorithms, Visualization, User Interface/User Experience Design, Installation, etc.

* Used Altera DE0-Nano and Arduino Uno in Embedded Systems Course at Wright State

NON-ACADEMIC WORK

PDi Communication Systems, Inc., DevOps Consultant, 5/2023 - Present
 PDi Communication Systems, Inc., Supervisor Embedded Software Engineering, 6/2015-5/2017
 PDi Communication Systems, Inc., Embedded Software Engineer, 5/2012-6/2015
 Data Science Automation (DSA), Senior Consultant and Computer Scientist (Client W.P.A.F.B, AFRL/RBSD), 2/2009-5/2012
 Valco Melton (Valco Cincinnati, Inc.), Software Engineer, 4/2008-12/2008
 Eastman Kodak Company, System Software Engineer, 8/2002-4/2008
 Dana Corporation, Coop, 5/2001-5/2002
 Bowling Green State University, Computer Science Department, Graduate Assistant, 5/2000-5/2002
 Southwestern Ohio Council for Higher Education, Student Research Program Contractor, 5/1999-8/1999

PROFESSIONAL MEMBERSHIPS/AFFILIATIONS

Association of Computing Machinery (ACM), 1998
 Special Interest Group of Computer Science Educators (SIGCSE), 2018
 IEEE, 2015

GRANTS & SPECIAL FUNDING

- Technology Innovation in Education (TIE) Grant (2022) -- \$3,000 for a VestaBoard to explore the use of alternative output devices in programming assignments in CS1 and CS2 courses.
- Summer program in undergraduate research (SPUR) research (2022) -- \$9,000 for a new server and Graphical Processing Unit (GPU) Accelerator
- Summer program in undergraduate research (SPUR) research (2023) -- \$7,000 for server upgrades that include 8 TB high-speed storage, NVidia-based GPU accelerators, and 1 TB of RAM expansion

SERVICE WORK AFFILIATIONS

- Board Member & Board President, Pathways of Central Ohio, Three-year term starting April 2021 (previously Board Secretary 2021-2022)
- Advisory Board Member for the Knox County's Knox Technical Center's adult-based Information Technology Program
- ACM SIGCSE Virtual 2024 Registration Team