Mohamed M. Elwakil, PhD

Assistant Professor of Computer Science
Department of Math, Physics, and Computer Science
University of Cincinnati Blue Ash College
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Teaching Interests

- Programming Languages
- Database Management Systems
- Software Engineering
- Web development and mobile development

Research Interests

- Automated debugging of message-passing programs
- Educational research
- SMT-based security analysis

Technical Skills

- Programming: Java, Python, C/C++, Visual Basic, HTML, CSS, JavaScript, PHP, T-SQL, Yices, Eiffel, PowerBuilder, and Android
- Design: Relational databases and object-oriented modeling (ER/UML)

Education

Ph. D.	Computer Science, Western Michigan University, Kalamazoo, MI, USA Dissertation: Debugging Support for Message-passing Based Concurrent Software	June 2011
M. Sc.	Information Systems, Cairo University Thesis: XMI Data Management: Design-Metrics Extraction and Analysis	Jan. 2005
B. Sc.	Information Systems, Cairo University. Appreciation: Excellent with 1st Class Honor Degree. Rank: 4th of 40 GPA: 3.46	May 2000

Full-time Employment

Assistant Professor of Computer Science	01/2020
Math, Physics & Computer Science Department, University of Cincinnati Blue Ash College, Blue Ash, OH, USA	– Present
Lecturer	08/2016
School of Informatics, Computing, and Cyber Systems, Northern Arizona University, Flagstaff, AZ, USA	– 12/2019
Postdoc Researcher	08/2015
Lab of Software and Service Engineering, Innopolis University, Innopolis, Tatarstan, Russia	– 07/2016
Visiting Scholar	December 2014
Department of Computer Science, Maynooth University, Maynooth, Kildare, Ireland	
Lecturer (Assistant Professor)	08/2011
Information Systems Department, Faculty of Computers, and Information, Cairo University, Giza, Egypt	– 08/2015
Research/Teaching Doctoral Assistant	08/2005
Department of Computer Science, Western Michigan University, Kalamazoo, MI, USA	– 06/2011
Teaching/Research Assistant	08/2000
Information Systems Department, Faculty of Computers, and Information, Cairo University, Giza, Egypt	– 08/2005

Part-time Employment

Part-Time Instructor	08/2022
Department of Computing and Mathematics, College of Arts, Culture, and Scientific Inquiry, University of West Georgia	- Present
Adjunct Lecturer	09/2012
Faculty of Computers and Information Technology, Egyptian E-learning University, Cairo, Egypt	– 08/2015
Adjunct Lecturer	02/2012
Arab Academy for Science, Technology and Maritime Transport, Cairo, Egypt	– 06/2012
Part-time Software Developer	10/2000
IBCOL, Cairo, Egypt	–
Project: Kingdom of Saudi Arabia Royal Guards Smart Cards System Tools: Power Builder 7, Power Designer 6.1	10/2001

Courses Taught

Assistant Professor, University of Cincinnati Blue Ash College
- IT 1050: Fundamentals of Information Technology
- IT 1090C: Computer Programming I
- IT 2045C: Computer Programming II
- IT 2060C: Database Management I
- IT 3046C: Client-Side Web Programming
- IT 1081C: Systems Administration

Part-Time Instructor, University of West Georgia
- CS 6241: Software Development I
- CS 6251: Web Technologies I

Lecturer, Northern Arizona University
- CS136: Computer Science II
- CS212: Web Programming
- CS345: Principles of Database Systems
- CS396: Principles of Languages
- CS399: Advanced Web Programming
- CS399: Mobile Applications Development

Post-doc Researcher, Innopolis University
- TOC: Theory of Computation
- OOP: Object-Oriented Programming

Lecturer (Assistant Professor), Cairo University
- IS312: Database Systems II
- IS345: Internet Applications
- IS351: Information Systems Analysis and Design
- IS352: Analysis and Design of Information Systems II
- IS612: Advanced Information Systems Engineering
- IS614: Advanced Topics in Information Systems
- IS714: Advanced Web based System Engineering

Adjunct Lecturer, Egyptian E-Learning University
- SWE101: Programming Techniques (1)
- SWE102: Programming Techniques (2)
- SWE203: Programming Techniques (3)

Adjunct Lecturer, Arab Academy for Science, Technology & Maritime Transport
- S226: Information Systems Analysis
- S316: Information Systems Design

Visiting Scholar, Maynooth University
- Testing mobile apps

- Hybrid app development using IBM Worklight Studio

Mentoring
- [Integrated Automated Testing for Enterprise Websites](#), BSc capstone project, Northern Arizona University, 2016-2017
- [Flagfriends international hosting support site](#), BSc capstone project, Northern Arizona University, 2016-2017
- Scalable Community Detection in Multidimensional Social Networks, MSc, Cairo University, Mustafa Mahmoud, 2014-2017
- Fusion of Inconsistent Integrated Data Using Source Qualifications, MSc, Cairo University, Reham Ibrahim, 2013-2017
- Quality assurance unit document management system, BSc project, Cairo University, 2013-2014
- e-Eye, BSc project, Cairo University, 2013-2014
- Airline Tickets Booking Website, BSc project, Cairo University, 2013-2014
- Presidential Elections Management System, BSc project, Cairo University, 2013-2014

Certificates
- Quality Matters Peer Reviewer, February 2022
- CITI Program Course (Basic & Students Research), August 2020
- Quality Matters *Applying the QM Rubric - 6th Edition*, February 2020
- Association of College and University Educators *Effective Teaching Practices*, May 2018
- Quality Matters *Applying the QM Rubric – 5th Edition*, March 2018
- NAU *Teaching in the Engineering Disciplines*, December 2017
- NAU *Persistence Scholars Blended Development Experience*, December 2017
- FranklinCovey *Leadership Foundations* & NAU *Emerging Leaders*, December 2016
- IBM *Mobile Application Developer Certificate – Academic*, November 2014

Curriculum Development
- Software Engineering in Mobile Computing, MSc level course to introduce students to mobile applications development and best practices of mobile software engineering, Part of EU-funded project to establish a joint master's in software engineering (www.jmse.ps)

Publications
- "**Smart Predictive Analysis for Testing Message-passing Applications**", M. Elwakil, Computational Intelligence Techniques and their Applications to Software Engineering Problems, Chapter 10, CRC Press, Taylor & Francis Group, 2020.
- "**Discrete Group Search Optimizer for Community Detection in Multidimensional Social Network**", M. Ahmed, M. Elwakil, A. E. Hassanien, and E. Hassanien, 12th International Computer Engineering Conference (ICENCO 2016), December 28-29, 2016. [DOI](#).

- "**Discrete Group Search Optimizer for Community Detection in Social Networks**", M. Ahmed, M. Elwakil, A. E. Hassanien, and E. Hassanien, International Joint Conference on Rough Sets 2016, IJCRS 2016, Santiago de Chile, Chile, October 7–11, 2016. DOI.
- "**DIRA: Data Integration to Return Ranked Alternatives**", Abdelmonem, R. I., A. H. El-Bastawissy, and M. M. Elwakil, Proceedings of the 11th International Workshop on Quality in Databases - VLDB2016, Delhi, India.
- "**DIRA : A Framework of Data Integration Using Data Quality**", Abdelmonem, R. I., A. H. El-Bastawissy, and M. M. Elwakil, International Journal of Data Mining & Knowledge Management Process, vol. 6, issue 2, pp. 37-58, 2016.
- "**Refinement Types in Jolie**", A. Tchitchigin, L. Safina, M. Elwakil, M. Mazzara, Fabrizio Montesi and Victor Rivera, SYRCoSE Software Engineering Colloquium 2016.
- "**A Multi-Objective Genetic Algorithm for Community Detection in Multidimensional Social Network**", M. Ahmed, A. Hafez, M. Elwakil, A. E. Hassanien, and E. Hassanien, the 1st International Conference on Advanced Intelligent Systems and Informatics (AISI'15), Springer, Beni Suef University, Beni Suef, Egypt , Nov. 28-30, 2015. DOI.
- "**Deterministic Replay for Message-passing Based Concurrent Programs**", M. Elwakil and Z. Yang, ACM Transactions on Design Automation of Electronic Systems, 17, 3, Article 22 (July 2012). DOI.
- "**Deterministic Replay for MCAPI Programs**", M. Elwakil and Z. Yang, Accepted, In Workshop on Parallel and Distributed Systems: Testing, Analysis, and Debugging (PADTAD - IX), 2011. DOI.
- "**CRI: Symbolic Debugger for MCAPI Applications**", M. Elwakil, Z. Yang, and L. Wang. In ATVA 2010: The 8th International Symposium on Automated Technology for Verification and Analysis (ATVA). Springer-Verlag, 2010, Singapore. DOI.
- "**Debugging Support Tool for MCAPI Applications**", M. Elwakil and Z. Yang. In Workshop on Parallel and Distributed Systems: Testing, Analysis, and Debugging (PADTAD - VIII). ACM, 2010, Trento, Italy. DOI.
- "**Message Race Detection for Web Services by an SMT-Based Analysis**", M. Elwakil, Z. Yang, L. Wang, and Q. Chen. In the 7th International Conference on Autonomic and Trusted Computing (ACT 2010). LNCS, Springer-Verlag, 2010, Xian, China. DOI.
- "**Network Layer Protocols**", M. Harim, M. Elwakil, A. Al-Fuqaha, The Handbook of Computer Networks, Volume III, Part 1, Chapter 4, John Wiley and Sons, Inc., 2007
- "**A novel approach to formalize and collect Object-Oriented Design-Metrics**", M. Elwakil, A. El Bastawissi, M. Boshra, and A. Fahmy, 9th International Conference on Empirical Assessment in Software Engineering (EASE 2005), April 2005, Staffordshire, UK
- "**Object-Oriented Design-Metrics - A taxonomy**", M. Elwakil, A. El Bastawissi, M. Boshra, and A. Fahmy , Third International Conference on Computer Science, Software Engineering, Information Technology, e-Business, and Applications (CSITeA'04) , Dec. 2004, Cairo, Egypt

- "**Object-Oriented Design Quality Models – A Survey and Comparison**", M. Elwakil, A. El Bastawissi, M. Boshra, and A. Fahmy, 2nd International Conference on Informatics and Systems, March 2004, Cairo, Egypt
- "**Introducing Text Mining**", M. Elwakil, in 9th Scientific Conference for Information Systems and Information Technology, Feb. 2002, Cairo, Egypt. [Poster]

Presentations

- "Interactive Video Lectures using ActivePresenter", M. Elwakil, 2022 Ohio Educational Technology Conference, Columbus, OH, February 2022.
- "Using Frequent & Simple Coding Exercises for Teaching Programming", M. Elwakil, ISETL's Conference on Innovative Pedagogy in Higher Education, October 2021.
- "Implementing the Preview-Learn-Review-Study Learning Cycle in an Introductory IT Course", M. Elwakil, Excellence Online at UC Teaching and Learning Showcase 2020, October 2020.
- "Introduction to Game Design", EducationUSA Saudi Arabia Hands-on Workshop Series, December 2020.

Grants

- UC Office of Research, Research Launch Award, 2020
- Google, EMEA AndroidEDU Program, 2011
- Western Michigan University, Travel Award, 2010

Honors and Awards

- Best Paper Award, Workshop on Parallel and Distributed Systems: Testing, Analysis, and Debugging (PADTAD – VIII), 2010
- Graduate Honor Roll Award, Western Michigan University, 2006-2011
- Teaching Effectiveness Award, Western Michigan University, 2005-2011
- Graduation Honor, Bachelor of Science with Honor Degree for overall undergraduate excellence, Cairo University, 2001
- Pioneers Programming Contest, 2nd place, Cairo University, 2000
- Undergraduate Excellence Scholarship, Cairo University, 1996 – 2000

Training and workshops

- 50+ hours of UC Faculty Professional Development Programs, 2020-2021
- 65+ hours of NAU Faculty Professional Development Programs, 2016-2019
- Proposal Writing – Post docs, German Academic Exchange Service (DAAD), Cairo, November 2013
- 40+ hours of Cairo University Faculty and Leadership Development Programs, AY 2011-2012
- Graduate Assistant Training Workshop, The Graduate College, Western Michigan University, August 2005

Service Activities

- Coordinator, Distance Learning Committee, UCBA Math, Physics & Computer Science Department, Spring 2022 - Present
- Facilitator, Small Teaching Online Book Club, UCBA Learning Community, AY 21/22
- Member, Visiting Assistant Professor in Statistics Search Committee, Spring 2021 - Summer 2021
- Judge, Capstone Competition, UC Undergraduate Scholarly Showcase, Spring 2021
- Reviewer, International Journal of Online Pedagogy and Course Design, Spring 2021 – Present
- Member of the Scientific Committee & Reviewer, International Conference on Emerging Technologies, and Intelligent Systems, (ICETIS 2021), Dubai, UAE, 25-26 June 2011
- Member, UC International Middle East + Northern Africa Strategy Group, Fall 2020 - Present
- Member, UCBA Technology Committee Meeting, Fall 2020 – Present
- Committee Member & Technical Reviewer, 1st international conference on Advanced Machine Learning Technologies and Applications, AMLTA 2012, Egypt, 2012
- Head, Student recruitment, admission and alumni affairs accreditation steering sub-committee, Faculty of Computers, and Information, Cairo University, 2013-2015
- Head, Student learning, effective teaching and physical assets and resources accreditation steering sub-committee, Faculty of Computers and Information, Cairo University, 2011-2015
- Member, Cairo University Joint Master in Software Engineering founding team, 2011-2015
- Board member, Information technology unit for visually and/or auditory impaired persons, Cairo University, 2011-2015