

Omar El Ariss

Texas A&M University-Commerce (TAMUC)
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Education

Ph.D., Computer Science, 2007 - 2011

North Dakota State University, Fargo, ND

Dissertation Title: Towards Enhanced System Dependability: Integrating Safety-Threat Analysis with Functional Modeling

M.S., Computer Science, 2001 - 2005

Lebanese American University, Beirut, Lebanon

Thesis Title: CASRA - Colloquial Arabic Speech Recognition Application

B.S., Computer Science, 1998 - 2001

Lebanese American University, Beirut, Lebanon

Professional Experience

August 2021 - Present

Associate Professor, Department of Computer Science & Information Systems, Texas A&M University-Commerce.

August 2017 – August 2021

Assistant Professor, Department of Computer Science & Information Systems, Texas A&M University-Commerce.

August 2011- August 2017

Assistant Professor, Department of Computer Science and Mathematical Sciences, Penn State Harrisburg.

2009 – July 2011

Teaching Assistant, North Dakota State University, Fargo, ND

2007 - 2009

Research Assistant, North Dakota State University, Fargo, ND

- Done research on model checking for aspect oriented programs.
- Done research on GUI based testing for the NDSU VCell educational game.

2005 - 2006

Assistant Researcher, Lebanese American University, Beirut, Lebanon

2003 - 2004

Analyst-Programmer, Unilog Liban, Mkalles, Lebanon

2001 - 2003

Graduate Assistant, Lebanese American University, Beirut, Lebanon

Teaching Experience

Taught the following courses at Texas A&M - Commerce:

- COSC 1436 (Introduction to Computer Science & Programming)
- COSC 1437 (Programming Fundamentals II)
- COSC 2336 (Data Structures and Algorithms)
- CSCI 303 (Technical Communication for Computer Professionals)
- CSCI 352 (Digital Forensics)
- CSCI 359 (Systems Analysis & Design)
- CSCI 440 (Applied Software Project Development)
- CSCI 527 (Advance Databases)
- CSCI 530 (Operating Systems)
- CSCI 538 (Artificial Intelligence)
- CSCI 548 (Software Testing)
- CSCI 554 (Digital Forensics)
- CSCI 595 (Research Literature & Techniques)

Taught the following courses at Penn State Harrisburg:

- CMPSC 121 (Introduction to Programming Techniques)
- CMPSC 122 (Intermediate Programming)
- CMPSC 221 (Object Oriented Programming with Web-Based Applications)
- CMPSC 460 (Principles of Programming Languages)
- CMPSC 470 (Compiler Construction)
- CMPSC 497 (Software Testing)
- CMPSC 497 (Natural Language Processing)
- COMP 511 (Design and Analysis of Algorithms)
- COMP 516 (Advanced Programming Languages)
- COMP 594 (Master's Studies class)
- COMP 597 (Digital Forensics)
- COMP 597 (Software Testing)
- COMP 597 (Natural Language Processing)

Publications

Journal Articles

1. Omar El Ariss, Kaoning Hu. ResNet-based Parkinson's Disease Classification, IEEE Transactions on AI, accepted.
2. Weifeng Xu, Dianxiang Xu, Abdulrahman Alatawi, Omar El Ariss, and Yunkai Liu. Statistical Unigram Analysis for Source Code Repository. *International Journal of Semantic Computing*, vol. 12, no. 2, pp. 237–260, 2018.
3. Issam Abu-Mahfouz, Omar El Ariss, A. H. M. Esfakur Rahman, & Amit Banerjee. Surface Roughness Prediction as a Classification Problem Using Support Vector Machine. *International Journal of Advanced Manufacturing Technology (JAMT)*, Springer, vol. 92, no. 1, pp. 803–815, Sep. 2017.
4. Omar El Ariss, Steve Bou ghosn, & Weifeng Xu. Testing Software Using Swarm Intelligence: A Bee Colony Optimization Approach. *EAI Endorsed Transactions on Collaborative Computing*, 2 (8), 2016.
5. Weifeng Xu, Tao Ding, Dianxiang Xu, & Omar El Ariss. Mining Decision Trees as Test Oracles for Java Bytecode. *International Journal of Computers and Their Applications (ISCA)*, 23(3), 141-159, 2016.

6. Dianxiang Xu, Omar El Ariss, Weifeng Xu, & Linzhang Wang, Testing Aspect-Oriented Programs with Finite State Machines, *Journal of Software Testing, Verification and Reliability*, 22, 267-293, 2012.
7. Bouchaib Falah, Kenneth Magel, & Omar El Ariss, A Complexity Based Regression Test Selection Strategy, *Computer Science & Engineering: An International Journal (CSEIJ)*, 2012.
8. Omar El Ariss, Dianxiang Xu, Secure System Modeling: Integrating Security Attacks with Statecharts, *International Journal of Software and Informatics, Special issue on Software Modeling and Meta-Modeling*. 6(2): 271-306, 2012.
9. Omar El Ariss, Dianxiang Xu, W. Eric Wong, Integrating Safety Analysis with Functional Modeling, *IEEE Transactions on Systems, Man, and Cybernetics*, *IEEE Transactions on Systems, Man, and Cybernetics - Part A: Systems and Humans*, vol. 41, no. 4, pp. 610-624, July 2011.
10. Dianxiang Xu, Omar El Ariss, Weifeng Xu, Linzhang Wang, Aspect-Oriented Modeling and Verification with Finite State Machines, *Journal of Computer Science and Technology*, 24(5): 949-961, Sept. 2009.
11. Ramzi Haraty and Omar El Ariss, CASRA+: A Colloquial Arabic Speech Recognition Application. *American Journal of Applied Sciences*. ISSN: 1546-9239. 2006.

Book Chapters

- Omar El Ariss, Dianxiang Xu, System Modeling with UML State Machines, *Handbook of Finite State Based Models and Applications*, Jiacun Wang (Editor), (pp. 371-386). Boca Raton, FL: Chapman & Hall, 2013.

Conference Papers

1. Dongeun Lee, Kaoning Hu, Omar El Ariss. Multiple Programming Languages for Improving Computational Thinking in CS1, *ACM SIGCSE Technical Symposium 2023* (accepte, 1 page peer-reviewed poster).
2. Loai Alnemer, Bayan Alammouri, Jamal Alsakran, Omar El Ariss, Enhanced Classification of Sentiment Analysis of Arabic Reviews, *Lecture Notes in Computer Science: Advances in Internet, Data and Web Technologies*, Cham, 2019, pp. 210–220.
3. Eduardo Luna, Omar El Ariss, Edroid: A Mutation tool for Android Apps. *Proc. of the IEEE 6th International Conference on Software Engineering Research and Innovation (CONISOFT)*, 2018, pp. 99–108.
4. Omar El Ariss, Loai Alnemer, Morphology based Arabic Sentiment Analysis of Book Reviews. *Lecture Notes in Computer Science (Proc. of the 18th International Conference on Intelligent Text Processing and Computational Linguistics)*, 2017, Budapest, Hungary, pp. 115–128.
5. Weifeng Xu, Dianxiang Xu, Omar El Ariss, Yunkai Liu & Abdulrahman Alatawi, Statistical Unigram Analysis for Source Code Repository, *Proc. of the Third IEEE International Conference on Multimedia Big Data (BigMM'2017)*. April 2017, Laguna Hills, California, USA.
6. Weifeng Xu, Omar El Ariss & Yunkai Liu, An Empirical Study of Control Flow Graphs for Unit Testing. *Proc. of the 14th International Conference on Information Technology: New Generations (ITNG 2017)*. April 2017, Las Vegas, Nevada.
7. Sathyanarayanan Subramanian, Thomas Singleton, & Omar El Ariss, Class Coverage GUI Testing for Android Applications. *Proc. of the 2016 International Conference on System Reliability and Science*, November 2016, Paris, France.
8. Saket Kumar, Omar El Ariss, Word Sense Disambiguation Using Swarm Intelligence: A Bee Colony Optimization Approach. *Lecture Notes in Computer Science (Computational Linguistics and Intelligent Text Processing. CICLing)* 2016, vol 9623, pp 479-495.

9. Omar El Ariss, Steve Bou ghosn, Weifeng Xu, Testing Software Using Swarm Intelligence: A Bee Colony Optimization Approach, *Proc. of the 9th EAI International Conference on Bio-inspired Information and Communications Technologies*, Dec. 3–5, 2015, New York City, USA.
10. Weifeng Xu, Omar El Ariss, A JVM-based Testing Harness for Improving Component Testability. *Proc. of the 27th International Conference on Software Engineering and Knowledge Engineering (SEKE 2015)*: June 2015, Pittsburgh, USA.
11. Omar El Ariss, Dianxiang Xu, Jianfei Wu, Towards an Enhanced Design Level Security: Integrating Attack Trees with Statecharts, *Proc. of the 5th International Conference on Secure Software Integration and Reliability Improvement (SSIRI 2011)*, June 27-29, 2011, Korea.
12. Omar El Ariss and Dianxiang Xu, Modeling Security Attacks with Statecharts, *Proc. of the 2nd International ACM Sigsoft Symposium on Architecting Critical Systems (ISARCS 2011)*, June 20-24, 2011, Boulder, USA.
13. Omar El Ariss, Dianxiang Xu, Santosh Dandey, Brad Vender, Phil McClean, and Brian Slator, A Systematic Capture and Replay Strategy for Testing Complex GUI based Java Applications, *Proc. of the 7th International Conference on Information Technology: New Generations (ITNG'10)*, April 2010, Las Vegas, USA.
14. Jianfei Wu, Anne Denton, Omar El Ariss, and Dianxiang Xu, Mining for Core Patterns in Stock Market Data, *Proc. of the 3rd International Workshop Mining Multiple Information Sources (MMIS'09)*, In conjunction with ICDM 2009, December 2009, Miami, USA.
15. Omar El Ariss, Dianxiang Xu, W. Eric Wong, Yuting Chen, Yann-Hang Lee: A Systematic Approach for Integrating Fault Trees into System Statecharts. *Proc. of the 32nd IEEE International Computers, Software, and Applications Conference (COMPSAC)*. 120-123, 2008.
16. Ramzi Haraty and Omar El Ariss, Lebanese Colloquial Arabic Speech Recognition. *Proc. of the ISCA 18th International Conference on Computer Applications in Industry and Engineering (CAINE-2005)*. November 2005, Hawaii, USA.
17. Ramzi Haraty, Omar El Ariss and Peter Atallah, MLS/ERD: A Tool for Building Multilevel Secure Entity Relationship Diagrams. *Proc. of the International Conference on Research Trends in Science and Technology*. March 2002, Beirut, Lebanon.

Grants & Awards

- National Science Foundation (NSF) - Scholarships in Science, Technology, Engineering, and Mathematics (SSTEM: EHR), “Computer Science as a Career (CSAC) Scholarship Program”, (co- Principal Investigator), \$4,939,545, August 2022 - July 2027.
- National Science Foundation (NSF) - Improving Undergraduate STEM Education: Education and Human Resources (IUSE: EHR), “Multilingual Computational Thinking: Teaching Introductory Programming Classes Through Low-Level and High-Level Programming Languages”, (Principal Investigator), \$300,000, September 2020 - August 2023.
- TAMUC Presidential GAR Initiative, "Creating a Fine-grained Hate Speech corpora on Religious and Race-related Hate Speech", (Principal Investigator), August 2021 - May 2022.
- TAMUC Presidential GAR Initiative, "Introducing Software Testing to Novice Programmers Through the Use of an Educational Game", (Principal Investigator), \$22,340, August 2019 - August 2020.
- Penn State Research Council Grant, "Model Checking for Functional and Threat Behavior of Software", (Principal Investigator), \$7,320, June 2012 - May 2013.
- ND NASA EPSCoR Graduate Student Research award, “Automated Generation of Safety Tests”, (Advisor: Dianxiang Xu) \$9,160, Nov. 2007 - August 2008.

Professional Activities & Services

Co-Editor:

- Guest co-editor for the special topic issue on "Advances in Petri Nets for Software Engineering & Knowledge Engineering", International Journal of Software Engineering and Knowledge Engineering (IJSEKE), 2012.

Referee

- IEEE Transactions on Systems, Man, and Cybernetics - Part A: Systems and Humans
- IEEE Transactions on Systems, Man, and Cybernetics - Part C (Applications and Reviews)
- Journal of Software Engineering and Applications
- International Conference on Software Engineering and Knowledge Engineering (SEKE): '13, '14, '15, '16, '17, '18
- IEEE International Computers, Software, and Applications Conference (COMPSAC): '14, '15, '16, '18
- International Conference on Bio-inspired Information and Communications Technologies (BICT): '14, '15
- International Conference on System Reliability and Safety (ICSRS): '16, '17
- CRC Press Forensic book review.