Amin Milani Fard

CONTACT INFORMATION	*Address*: Suite 450, 2955 Virtual Way, Vancouver, BC Canada V5M 4X6 *email*: amilanif@nyit.edu | *web*: http://www.ece.ubc.ca/∼aminmf

RESEARCH INTERESTS

Software Analysis, Security, Testing, and Maintenance

Data Analytics, Data Mining, and Information Retrieval

Blockchain, Distributed Applications, and Smart Contracts

Empirical Software Engineering, and Mining Software Repositories

Privacy-Preserving Data Publishing

EDUCATION

The University of British Columbia (UBC), Vancouver, Canada

> **Ph.D., Electrical and Computer Engineering**, May 2012 - Jan 2017
>
> *Thesis*: Directed Test Generation and Analysis for Web Applications

Simon Fraser University (SFU), Burnaby, Canada

> **M.Sc., Computer Science**, Jan 2009 - Dec 2010
>
> *Thesis*: Clustering-based Web Query Log Anonymization

Ferdowsi University of Mashhad (FUM), Mashhad, Iran

> **B.Sc., Computer Engineering (Software)**, Sep 2003 - Jul 2008
>
> *Project*: Agent-based Data Mining using Game Theory and Soft Computing

TEACHING AND RESEARCH EXPERIENCE

Associate Professor and Program Coordinator, *College of Engineering and Computing Sciences, New York Institute of Technology*, Vancouver, Canada, Sep 2023 - Now

Assistant Professor, *College of Engineering and Computing Sciences, New York Institute of Technology*, Vancouver, Canada, Sep 2018 - Aug 2023

- Supervising graduate students and teaching courses for the professional Masters program in Cybersecurity (Secure Software Engineering, Algorithm Concepts, Data Centre Security, Data Mining, Topics in Computer Security, Intrusion Detection and Hacker Exploit, Data Structures, Programming II, Project I, and Project II).

- Helping with program and curriculum development, student admissions, orientations, course map, prerequisites assessments and course waivers, faculty hiring, text analysis taskforce, students advising, industry connection, and course planning/adaptation for the new MS in Data Science and MS in Computer Science programs.

- Conducting research on topics in software engineering, cybersecurity, and data science.

Adjunct Faculty, *College of Engineering and Computing Sciences, New York Institute of Technology*, Vancouver, Canada, Jan 2018 - Aug 2018

- Teaching prerequisite courses Data Structures and Algorithm, Programming I, and Programming II, for Master students in Cybersecurity.

Visiting Faculty, *MIS at Beedie School of Business*, SFU, Burnaby, Canada, May 2017 - Now

- Teaching (not on a regular basis) Business Systems Development and Business Analytics.

- Helped with the development of the Business Technology Management (BTM) program at SFU by creating the course outline and content for a new course, called Business Systems Development, for senior undergrads in BBA with MIS concentration.

Postdoctoral Researcher, *Toronto Metropolitan University (Ryerson University)*, Toronto, Canada, Mar 2017 - March 2018

- Conducting research on social media/network analysis with the focus on future links prediction at the Laboratory for Systems, Software and Semantics.

Research Assistant, *Software Analysis and Testing lab.*, UBC, Canada, 2012 - 2017

- Conducting research on automated techniques for web applications analysis and testing.

- Writing research grant proposal for my NSERC scholarship.

- Mentoring and supervising master students.

Research Associate, *Algorithms and Complexity Group*, SFU, Canada, 2011 - 2012

- Design and implementation of a courier scheduling system.

- Attending business sessions to discuss a MITACS project with the client.

Research Assistant, *Beedie School of Business*, SFU, Burnaby, Canada, March 2012

- Mining LinkedIn data for the project Mining Data on Open Source Software Community.

Instructor, *Columbia College*, Vancouver, Canada, Summer 2011

- Teaching Introduction to Computer Science and Programming I (Python).

Research Assistant, *Database and Data Mining Lab.*, SFU, Burnaby, Canada, 2009 - 2011

- Researching on protecting link privacy in social networks, clustering-based web query log anonymization, economical search modelling for P2P systems, and group discovery.

Teaching Assistant, SFU, Burnaby, Canada, Spring 2009 - Spring 2010 and Spring 2012

- *Beedie School of Business*: Business Data Management

- *School of Computing Science*: Data Structures and Algorithms, Introduction to Computer Science and Programming II (Java), Introduction to Multimedia and the Internet

Team leader/Researcher/Developer, *Ferdowsi University Software Simulation and Modeling Lab.*, Mashhad, Iran, 2005 - 2009

- Design and implementation of autonomous software agents and conducting AI research

- Team leader of Nexus Robocop soccer simulation team

Instructor, *Iranian Academic Center for Education, Culture and Research*, Mashhad, 2007-2008

- Teaching Sofware Engineering Lab., AI and Logic Programming, Algorithm Design.

Research Assistant/Developer, *Ferdowsi University Internship Center* & *Iran Khodro SAPCO Mfg.*, Mashhad, Iran, 2005

- Design and implementation of a surface roughness estimator for axial parts using image processing and neural networks.

- Attending technical meetings with Iran Khodro SAPCO Mfg. engineers.

Teaching Assistant, *Ferdowsi University of Mashhad*, Iran, Spring 2005 - Spring 2008

- Algorithm Design and Analysis, Artificial Intelligence, Database System Design, Compiler Design, Data Structures and Algorithms, Discrete Structures

INDUSTRY AND BUSINESS EXPERIENCE	**Technical Advisor**, *Shoptaki Inc.*, New York, US, Sep 2020 - Now

- Helping with the design and implementation of Smartchain, smartID, and biometric applications, as well as patenting process.

Co-founder and Tech Lead, *InformedIn Inc.*, Vancouver, Canada, Dec 2018 - Jan 2023

- Design and implementation of IoT projects for intelligent monitoring and management of facilities (winner of the SFU Venture Connection Top Idea Prize for the Smart Parks Canada).

Co-founder and CEO, *AnalyticsBuffet Inc.*, Vancouver, Canada, July 2015 - May 2017

- Design and implementation of an automated testing and debugging tool for web applications.

- Applying for industrial grants, meeting with business clients and technical team, managing NRC-IRAP grant, training software engineering interns, product market validation, and financial management.

Technical Writer, *BeneFACT Consulting Group*, Toronto, ON, Canada, 2011 - 2013

- Producing technical reports for submission to the SR&ED tax credit program, identification and summarization of technological challenges in software development process.

Software Developer, *Intelligent Systems Co.*, Mashhad, Iran, 2002 - 2008

- Contributing in the design and implementation of different projects including management information system (MIS), official and industrial automation, transition controlling system, remote video monitoring systems, and content management system (CMS).

HONORS, AWARDS AND GRANTS

Global Impact Research Grant, NYIT, Vancouver, 2024-2025, Canada

Most Influential Paper Award, The 23rd IEEE International Conference on Source Code Analysis and Manipulation (SCAM), 2023, Bogota, Colombia

Presidential Excellence Award Finalist in the Excellence in Teaching category, NYIT, 2023

NYIT-Vancouver Research Grant, Vancouver, 2021-2022, Canada

Best Paper Award, The 41st European Conference on Information Retrieval (ECIR) 2019, Cologne, Germany

Global Faculty Research and Creativity Grant, NYIT - Vancouver, 2019, Canada

Teaching Excellence Recognition, SFU, 2018, Burnaby, Canada

Best Paper Award Nominee, The 10th IEEE International Conference on Software Testing, Verification and Validation (ICST) 2017, Tokyo, Japan

NRC Industrial Research Assistance Program (IRAP) Grant, ($40,000) National Research Council Canada 2016, Vancouver, Canada

ACM SIGSOFT CAPS Grant Award, ($1,800 USD) ACM, 2014 and 2015

NSERC Alexander Graham Bell Canada Graduate Scholarship (CGS-D), ($35,000/year) Natural Sciences and Engineering Research Council of Canada, 2013-2016, Vancouver, Canada

NSERC Postgraduate Scholarship, ($21,000) 2013, Vancouver, Canada

Four Year Fellowship Award, ($22,000/year) UBC, 2012, Vancouver, Canada

Faculty of Applied Science Graduate Award, ($4,000) UBC, 2012-13, Vancouver, Canada

Graduate Fellowship Award, ($6,250), SFU, 2010, Burnaby, Canada

Additional Scholarship, Offered $3000 more than the school's standard financial support for master students, 2009, SFU, Burnaby, Canada

2nd place, Khwarizmi National Robotics Competition, 2008, Tehran, Iran

4th place, IEEE Robotics Competition, 2008, Rio de Janeiro, Brazil

9th place, RoboCup International Robotics Competition, Soccer Simulation, 2007, Atlanta, US

19th place, Asia Regional ACM ICPC Programming Contest, 2007, Tehran, Iran

5th place, BICup: Business Intelligence Data Mining Challenge, 2006, Santiago, Chile

Exceptional Talents Admission Award, Entering university without taking national universities entrance exam, FUM, 2003, Mashhad, Iran

Research Medal, National Research Inst. for Science Policy, Ministry of Science, 2002, Iran

1st Rank Khwarizmi Award, (5 golden coins=$1,800) Awarded by Iran's President Mohammad Khatami for outstanding achievement in research and innovation in science and technology, Khwarizmi Young Festival 2002, Tehran, Iran

PUBLICATIONS ☞ Google Scholar Profile

1. F. Ahmadi Abkenari, A. Milani Fard, S. Khanchi. (2023), ***Hybrid Machine Learning-Based Approaches for Feature and Overfitting Reduction to Model Intrusion Patterns***, *Journal of Cybersecurity and Privacy*, no. 3: 544-557. 2023

2. H. Zhou, A. Milani Fard, A. Makanju. (2022), ***The State of Ethereum Smart Contracts Security: Vulnerabilities, Countermeasures, and Tool Support***, *Journal of Cybersecurity and Privacy*, no. 2: 358-378. 2022

3. S. Anbaee Farimani, M. Vafaei Jahan, A. Milani Fard. (2022) ***From Text Representation to Financial Market Prediction: A Literature Review***, *Information* 13, no. 10: 466. 2022

4. S. Anbaee Farimani, M. Vafaei Jahan, A. Milani Fard, R. K. Tabbakh. (2022) ***Investigating the Informativeness of Technical Indicators and News Sentiment in Financial Market Price Prediction***, *Knowledge-Based Systems*, Elsevier, Vo. 247, 108742. 2022

5. A. Piran, C. Chang, A. Milani Fard. (2021) ***Vulnerability Analysis of Similar Code***, *21st IEEE International Conference on Software Quality, Reliability and Security* (QRS), Hainan Island, China, 2021. [*61/243=25% acceptance rate*]

6. S. Anbaee Farimani, M. Vafaei Jahan, A. Milani Fard, G. Haffari. (2021) ***Leveraging Latent Economic Concepts and Sentiments in the News for Market Prediction***, *8th IEEE International Conference on Data Science and Advanced Analytics* (DSAA), Porto, Portugal, 2021, pp. 1-10. [*59/262=22.5% acceptance rate*]

7. Z. Alamatian, M. Vafaei Jahan, A. Milani Fard. (2021) ***Using Market Indicators to Eliminate Local Trends for Financial Time Series Cross-Correlation Analysis***, *34th Canadian Conference on Artificial Intelligence* (Canadian AI), Vancouver, 2021.

8. P. Ralph, S. Baltes, G. Adisaputri, R. Torkar, V. Kovalenko, M. Kalinowski, N. Novielli, S. Yoo, X. Devroey, X. Tan, M. Zhou, B. Turhan, R. Hoda, H. Hata, G. Robles, A. Milani Fard, R. Alkadhi. (2020) ***Pandemic Programming: How COVID-19 affects software developers and how their organizations can help***, *Empirical Software Engineering Journal* (EMSE), 25:4927-4961, Springer, 2020. ✯Also in the Journal-First track of the 43rd International Conference on Software Engineering (ICSE), 2021 ✯

9. S. M. Fattahi, A. Makanju, A. Milani Fard. (2020) ***SIMBA: An Efficient Simulator for Blockchain Applications***, *50th IEEE/IFIP International Conference on Dependable Systems and Networks* (DSN), Valencia, Spain, 2020. [*48/291=16.5% acceptance rate*]

10. A. Milani Fard, E. Bagheri, K. Wang. (2019) ***Relationship Prediction in Dynamic Heterogeneous Information Networks***, *41st European Conference on Information Retrieval* (ECIR), Cologne, Germany, 2019, pp. 1-16. [*39/165=23% acceptance rate*] ✯Best Paper Award✯

11. A. Milani Fard, A. Mesbah. (2017) *JavaScript: The (Un)covered Parts*, *10th IEEE International Conference on Software Testing, Verification and Validation* (ICST), Tokyo, Japan, 2017, pp. 230-240. [*36/135=26% acceptance rate*] ✮Best Paper Award Nominee✮

12. A. Milani Fard, A. Mesbah, E. Wohlstadter. (2015) *Generating Fixtures for JavaScript Unit Testing*, *30th IEEE/ACM International Conference on Automated Software Engineering* (ASE), Lincoln, NE, 2015, pp 190-200. [*60/289=20% acceptance rate*] ✮Editor Select paper in IEEE Internet Computing, March 2016.✮

13. A. Vahabzadeh, A. Milani Fard, A. Mesbah. (2015) *An Empirical Study of Bugs in Test Code*, *31st IEEE International Conference on Software Maintenance and Evolution* (ICSME), Bremen, Germany, 2015, pp 101-110. [*32/148=21% acceptance rate*]

14. A. Milani Fard, K. Wang. (2015) *Neighborhood Randomization for Link Privacy in Social Network Analysis*, *The World Wide Web Journal* (WWW), Springer, January 2015, Volume 18, Issue 1, pp 9-32.

15. A. Milani Fard, M. Mirzaaghaei, A. Mesbah. (2014) *Leveraging Existing Tests in Automated Test Generation for Web Applications*, *29th ACM/IEEE International Conference on Automated Software Engineering* (ASE), Vasteras, Sweden, 2014, pp 67-78. [*55/276=19% acceptance rate*]

16. A. Milani Fard, A. Mesbah. (2013) *Feedback-Directed Exploration of Web Applications to Derive Test Models*, *24th IEEE International Symposium on Software Reliability Engineering* (ISSRE), 2013, Pasadena, CA, pp 278-287. [*46/131=35% acceptance rate*]

17. A. Milani Fard, A. Mesbah. (2013) *JSNose: Detecting JavaScript Code Smells*, *13th IEEE International Conference on Source Code Analysis and Manipulation* (SCAM), 2013, Eindhoven, The Netherlands, pp 116-125. ✮Most Influential Paper Award in 2023✮

18. A. Milani Fard, K. Wang, P. S. Yu. (2012) *Limiting Link Disclosure in Social Network Analysis through Subgraph-Wise Perturbation*, *15th International Conference on Extending Database Technology* (EDBT), Berlin, Germany, ACM Publication, pp 109-119. [*43/193=22% acceptance rate*]

19. A. Milani Fard. (2012) *Privacy Preserving Web Query Log Publishing: A Survey on Anonymization Techniques*, Technical report, *Computing Research Repository*, arXiv preprint arXiv:1211.2354, 10 pages.

20. A. Milani Fard, K. Wang. (2010) *An Effective Clustering Approach to Web Query Log Anonymization*, *5th International Conference on Security and Cryptography* (SECRYPT), Athens, Greece, 2010, IEEE publications, pp 1-11. [*22/164=13% acceptance rate*]

21. A. Milani Fard, M. Ester. (2009) *Collaborative Mining in Multiple Social Networks Data for Criminal Group Discovery*, *IEEE International Conference on Social Computing* (SocialCom), Vancouver, BC, 2009, pp 582-587. [*20% acceptance rate*]

22. A. Milani Fard. (2009) *Competitive-Cooperative Automated Reasoning from Distributed and Multiple Source of Data*, in *Data Mining and Multiagent Integration*, Editor: Long-bing Cao, 12 pages, Springer US, pp. 279-290.

23. J. A. Nasiri, A. Milani Fard, et al. (2009) *High Dimensional Problem Optimization using Distributed Multi-agent PSO*, *3rd European Symposium on Computer Modeling and Simulation* (EMS), Athens, Greece, 2009, IEEE Computer Society, pp. 245-250.

24. M. A. Rigi, A. Milani Fard, M. Akbarzadeh –T. (2008) *Finding Optimal Grid Dimension for Partitioning Linguistic Variables of Fuzzy Concepts*, *International Journal of Mathematics and Computer Science*, V3, N2. pp 141-150.

25. R. Ghaemi, A. Milani Fard, H. Tabatabaee, and M. Sadeghizadeh. (2008) *Evolutionary Query Optimization for Heterogeneous Distributed Database Systems*, *International Journal of World Academy of Science, Engineering and Technology*, V. 19, pp 43-49.

26. A. Milani Fard, H. Kamyar, M. Naghibzadeh. (2008) ***Multi-expert Disease Diagnosis System over Symptom Data Grids on the Internet***, *World Applied Sciences Journal*, Vol. 3 No. 2, pp 244-253.

27. A. Milani Fard, V. Salmani, M. Naghibzadeh, et al. (2007) ***Game Theory based Data Mining Technique for Strategy Making of a Soccer Simulation Coach Agent***, *6th International Conference on Information Systems Technology and its Applications* (ISTA), Kharkiv, Ukraine, Lecture Notes in Informatics, pp 54-65. [*17/99=17% acceptance rate*]

28. M. A. Rigi, A. Milani Fard, M. Akbarzadeh –T. (2007) ***An Evolutionary Data Mining Model for Fuzzy Concept Extraction***, *IEEE International Conference on Innovations in Information Technology* (IIT), Dubai, UAE, 2007, 5 pages, IEEE publications, pp 257-261.

29. M. Mohebbi, M. Akbarzadeh –T., A. Milani Fard. (2007) ***Microorganism DNA Pattern Search in a Multi-agent Genomic Engine Framework***, *World Applied Sciences Journal*, V. 2 No. 6. Also a poster in *International Conference on Bioinformatics* (InCoB'07).

30. Milani Fard, A., Kahani, M., Ghaemi, R., Tabatabaee, H. (2007) ***Multi-agent Data Fusion Architecture for IntelligentWeb Information Retrieval***. *International Journal of Intelligent Systems and Technologies*, Vol 2 N.3, pp. 201-205.

31. A. Milani Fard, R. Ghaemi, M. Akbarzadeh –T., H. Akbari. (2007) ***Kavosh: An Intelligent Neuro-Fuzzy Search Engine***, *7t IEEE International Conference on Intelligent Systems Design and Application* (ISDA), Rio de Janeiro, Brazil, 2007, pp. 597-602.

32. A. Milani Fard, A. Deldari, H. Deldari. (2007) ***Quick Grammar Type Recognition: Concepts and Techniques***, *International Conference on Compilers, Related Technologies and Applications* (CoRTA), Covilha, Portugal, 2007, pp 51-61.

33. S. T. Zargar, M. H. Yaghmaee, A. Milani Fard. (2006) ***Fuzzy Proactive Queue Management Technique***, Annual *IEEE India Conference*, New Delhi, India, 2006, 6 pages.

34. A. A. Akbari, A. Milani Fard, A. Goodarzvand Chegini. (2006) ***An Effective Image Based Surface Roughness Estimation Approach Using Neural Network***, *World Automation Congress* (WAC'06), July 2006 , Budapest, Hungary

35. A. Milani Fard, H. Akbari, M. Akbarzadeh –T. (2006) ***Fuzzy Adaptive Resonance Theory for Content-Based Data Retrieval***, *IEEE International Conference on Innovations in Information Technology* (IIT), Dubai, UAE, 2006, pp 1-5.

36. V. Salmani, A. Milani Fard, M. Naghibzadeh (2006) , ***A Fuzzy Two-Phase Decision Making Approach for Simulated Soccer Agent***, *IEEE International Conference on Engineering of Intelligent Systems* (ICEIS), Islamabad, Pakistan, 2006

37. A. Milani Fard, M. -R. Akbarzadeh –T, F. Varasteh –A (2006), ***A New Genetic Algorithm Approach for Secure JPEG Steganography***, *IEEE International Conference on Engineering of Intelligent Systems* (ICEIS), Islamabad, Pakistan, 2006

PRESENTATIONS, TALKS, AND GUEST LECTURES

1. ***Source Code Analysis Tools: Research and Practice***, DevFest Vancouver Tech Talk, Google Developer Group, NYIT, Vancouver, Nov 2023

2. ***JSNose: Detecting Code Smells in JavaScript***, The *Most Influential Paper Award* invited talk, IEEE International Conference on Source Code Analysis and Manipulation, Bogota, Colombia, Oct 2023

3. ***Actionable Graph Mining: Privacy-Preserving Data Publishing, Recommender Systems, and Program Analysis***, Toronto Metropolitan University (Ryerson University), Toronto, March, 2018

4. ***Hybrid Analysis and Test Generation for Web Applications***, Ferdowsi University of Mashhad (FUM), Aug, 2017

5. ***Directed Test Generation for Web Applications***, UBC, Vancouver, Oct, 2016

6. ***Directed Model Inference for Analysis of Web Applications***, FUM, Oct, 2015

7. ***Automating Web Application Testing and Analysis***, FUM, Nov, 2013

8. ***Search-based Software Engineering***, FUM, May, 2012

9. ***Privacy-Preserving Data Mining and Publishing***, FUM, Oct, 2010

ACTIVITIES AND SERVICES

Program Committee:
IEEE/ACM International Conference on Automated Software Engineering (ASE), 2024
IEEE/ACM International Conference on Program Comprehension (ICPC), 2021, 2022
IEEE International Conference on Data Science and Advanced Analytics (DSAA), 2022
The Genetic and Evolutionary Computation Conference (GECCO), 2019, 2020, 2021
International Conf. on Advances in System Testing and Validation Lifecycle (VALID), 2018, 2019
International Conf. on Intelligent, Secure and Dependable Systems in Distributed and Cloud Environments (ISDDC), 2018
IEEE International Conference on Intelligent Systems Design and Application (ISDA), 2007

Reviewer:
IEEE Transactions on Software Engineering (TSE), since 2014
ACM Transactions on Knowledge Discovery from Data (TKDD), since 2015
IEEE Transactions on Neural Networks and Learning Systems (TNNLS), since 2023
Empirical Software Engineering Journal (EMSE), Springer, since 2023
Scientific Reports, Springer Nature, since 2023
Automated Software Engineering, Springer, since 2021
Financial Innovation, Springer, since 2023
Journal of Systems and Software (JSS), Elsevier, since 2014
Information Systems (IS), Elsevier, since 2017
Computers & Security, Elsevier, since 2019
Machine Learning with Applications, Elsevier, since 2023
Cryptography Journal, MDPI, since 2023
Expert Systems with Applications, Elsevier, since 2024
ACM/IEEE International Conference on Software Engineering (ICSE), 2016, 2017
ACM SIGSOFT Symposium on the Foundations of Software Engineering (FSE), 2017
IEEE International Conference on Software Maintenance and Evolution (ICSME), 2014
IEEE International Conference on Software Testing, Verification and Validation (ICST), 2012
International World Wide Web Conference (WWW), 2013
The Working Conference on Mining Software Repositories (MSR), 2016
IEEE International Conference on Data Mining (ICDM), 2009
ACM International Conference on Information and Knowledge Management (CIKM), 2010
The Genetic and Evolutionary Computation Conference (GECCO), 2019
IEEE Working Conference on Reverse Engineering (WCRE), 2012, 2013
IBM International Conference of the Centre for Advanced Studies (CASCON), 2012
International Conference on Social Media and Society (SMSociety), 2018
IEEE International Conference on Social Computing, (SocialCom), 2009, 2010
IEEE/WIC/ACM International Conference on Web Intelligence, (WI), 2010

Advising, Supervision, Mentoring, Thesis Defense Committee, Industry/Academy Reviewer:

- Advising and mentoring over 100 master students in their capstone Project I and Project II focusing on cybersecurity research at New York Tech - Vancouver, 2018 - Now

- Supervising PhD students out of NYIT and serving as PhD thesis external examiner, 2019-Now

- Swiss National Science Foundation (SNSF) Postdoc Fellowship reviewer, 2023

- Mitacs Accelerate research proposal reviewer, 2019

- Advised and mentored 3 graduate (master) students with their research in the Software Analysis and Testing Lab (one mutual published paper) UBC, Canada, 2012 - 2017