

# Mohammadreza (Reza) Ebrahimi

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Assistant Professor, School of Information Systems and Management, University of South Florida

## EDUCATION

- **Doctor of Philosophy (Ph.D.), The University of Arizona,** **2016 - 2021**  
Major: Management Information Systems  
Minor: Computational Linguistics
- **Master of Science, Concordia University, Montreal** **2014 - 2016**  
Major: Computer Science  
Thesis Title: Automatic Identification of Online Predators in Chat Logs by Anomaly Detection and Deep Learning
- **Bachelor of Science, Azad University at Qazvin** **2004 - 2008**  
Major: Computer Science and Engineering  
Thesis Title: A Framework for Intelligent Crime Matching with Neural Network

## RESEARCH INTERESTS

- **AI-enabled Cybersecurity Analytics:** Adversarially Robust AI Agents for Cybersecurity, Automatic Cyber Threat Detection, Cross-lingual Security Analytics
- **Machine Learning and AI:** Adversarial Machine Learning, Transfer Learning and Domain Adaptation, Cross-lingual Knowledge Transfer, Reinforcement Learning, Deep Learning
- **Business Intelligence and Analytics:** Social Media Analytics, Multilingual Product Review Analysis
- **Crime Data Mining:** Online Predator Identification in Social Media, Supervised Methods for Categorizing Behavior of Offenders in Crime Incidents

## SELECTED JOURNAL PUBLICATIONS

- **Ebrahimi M.**, Chai Y., Samtani S., Chen H. Forthcoming, "Cross-Lingual Security Analytics: Cyber Threat Detection in the International Dark Web with Adversarial Deep Representation Learning," *MIS Quarterly (MISQ)*.
- Wen B., Hu P., **Ebrahimi M.**, Chen, H., 2021, "Key Factors Affecting User Adoption of Open-Access Data Repositories in Intelligence and Security Informatics: An Affordance Perspective," *ACM Transactions on Management Information Systems (TMIS)* (13:1), pp. 1–24.
- **Ebrahimi M.**, Nunamaker J., Chen, H., 2020, "Semi-Supervised Cyber Threat Identification in Dark Net Markets: A Transductive and Deep Learning Approach," *Journal of Management Information Systems (JMIS)*, 37(3), pp.694-722.
- **Ebrahimi M.**, Martinez J., 2019, "Involuntary Embarrassing Exposures in Online Social Networks: A Replication Study," *AIS Transactions on Replication Research (TRR)*, Volume 5(1), p. 7.
- **Ebrahimi M.**, Suen C.Y., Ormandjieva O., 2016, "Detecting Predatory Conversations in Social Media by Deep Convolutional Neural Networks," *Digital Investigation*, Elsevier, Volume 18, pp. 33-49.
- Keyvanpour, M., **Ebrahimi, M.**, Javideh, M., 2012, "Designing Efficient ANN Classifiers for Matching Burglaries from Dwelling Houses," *Applied Artificial Intelligence*, Taylor and Francis, Volume 26 (8), pp. 787-807.

## REFEREED CONFERENCE PROCEEDINGS & WORKSHOPS (\*: presenting author)

- \***Ebrahimi M.**, Pacheco, J., Li, W., Hu, J., Chen, H., 2021, "Binary Black-Box Attacks Against Static Malware Detectors with Reinforcement Learning in Discrete Action Spaces, **IEEE Symposium on Security and Privacy (S&P) Deep Learning and Security Workshop**, May 2021, San Francisco.

- **\*Ebrahimi M.**, Zhang, N., Hu, J., Raza M.T., Chen H, 2021, “Binary Black-box Evasion Attacks Against Deep Learning-based Static Malware Detectors with Adversarial Byte-Level Language Model.” **AAAI Workshop on Robust, Secure, and Efficient Machine Learning (RSEML)**.
- Hu J., **Ebrahimi M.**, Chen H., 2021, “Single-Shot Black-Box Adversarial Attacks Against Malware Detectors: A Causal Language Model Approach.” **IEEE International Conference on Intelligence and Security Informatics (ISI)**, pp. 1-6.
- Liu Y., Lin F.Y., **Ebrahimi M.**, Li W., Chen H., 2021, “Automated PII Extraction from Social Media for Raising Privacy Awareness: A Deep Transfer Learning Approach.” **IEEE International Conference on Intelligence and Security Informatics (ISI)**, pp. 1-6. (**Best Paper Award**)
- **\*Ebrahimi M.**, Samtani S., Chai Y., Chen H., 2020, “Detecting Cyber Threats in Non-English Hacker Forums: An Adversarial Cross-Lingual Knowledge Transfer Approach,” **IEEE Symposium on Security and Privacy (S&P) Deep Learning and Security Workshop**, May 2020, San Francisco.
- **\*Ebrahimi M.**, Surdeanu M., Samtani S., Chen H., 2018, “Detecting Cyber Threats in Non-English Dark Net Markets: A Cross-Lingual Transfer Learning Approach,” 2018 IEEE International Conference on Intelligence and Security Informatics (ISI), Miami, FL, 8-10 November, pp. 85-90. (**Best Paper Award Runner-up**)
- **\*Ebrahimi M.**, Suen C.Y., Ormandjieva O., Krzyzak A., 2016, “Recognizing Predatory Chat Documents using Semi-supervised Anomaly Detection,” 23rd Document Recognition Retrieval conference (DRR), San Francisco, CA, 14-18 February, pp. 1-9(9).
- Du P., **Ebrahimi M.**, Zhang N., Chen H., Brown R.A., Samtani, S., 2019, “Identifying High-Impact Opioid Products and Key Sellers in Dark Net Marketplaces: An Interpretable Text Analytics Approach,” 2019 IEEE International Conference on Intelligence and Security Informatics (ISI), Shenzhen, pp. 110-115.
- Arnold N., **Ebrahimi M.**, Zhang N., Lazarine B., Patton M., Chen H., Samtani S., 2019, “Dark-Net Ecosystem Cyber-Threat Intelligence (CTI) Tool,” 2019 IEEE International Conference on Intelligence and Security Informatics (ISI), Shenzhen, China, pp. 92-97.
- Du P., Zhang N., **\*Ebrahimi M.**, Samtani S., Lazarine B., Arnold N., Dunn R. et al. 2018, “Identifying, Collecting, and Presenting Hacker Community Data: Forums, IRC, Carding Shops, and DNMs,” 2018 IEEE International Conference on Intelligence and Security Informatics (ISI), Miami, FL, 8-10 November, pp. 70-75.
- Keyvanpour M., Javideh M., **Ebrahimi M.**, 2011, “Detecting and Investigating Crime by Means of Data Mining: A General Crime Matching Framework,” 2010 World Conference on Information Technology, Procedia Computer Science, Volume 3, Edited by AdemKarahoca, Sezer, pp. 872-880.

## **GRANT & REPORT WRITING SKILLS**

- **D-ISN** (Disrupting Operations of Illicit Supply Networks), **Title:** Disrupting Illicit Trafficking by Dissecting Geometry of Darkweb and Cryptocurrency Transactions, **Source:** National Science Foundation (NSF), **Grant Period:** 2020-2023, **Status:** Under review, **Amount:** \$349,896, **Role:** Assisting Grant writer.
- **SaTC** (Secure & trustworthy Cyberspace), **Title:** Cybersecurity Big Data Research for Hacker Communities: A Topic and Language Modeling Approach, **Source:** National Science Foundation (NSF), **Grant Period:** 2019-2022, **Grant No.:** 1936370, **Status:** Funded, **Funded Amount:** \$510,624, **Role:** Assisting Grant writer.

- **SaTC-DGE** (Secure & trustworthy Cyberspace - Division of graduate Education), **Title:** Cybersecurity Big Data and Analytics Sharing Platform, **Source:** National Science Foundation (NSF), **Reporting Year:** 2019, **Grant No.:** 1719477, **Status:** Funded, **Funded Amount:** \$180,000, **Role:** Assisting Report writer.

## **CURRENT TEACHING**

- **Data Mining** (ISM 6136) – Master's
- **Deep Learning for Business Analytics** (ISM 7561) – Ph.D.

## **PROFESSIONAL SERVICES (REVIEWED JOURNALS & CONFERENCES)**

### **Program Committee**

- IEEE Security and Privacy (S&P) Workshop on Deep Learning and Security 2022
- IEEE ICDM workshop on Deep Learning for Cyber Threat Intelligence (DL-CTI); 2020
- Informs Data Science Workshop; 2021

### **Reviewer**

- IEEE Transactions on Information Forensics and Security (TIFS); 2021
- Journal of Management Information Systems (JMIS); 2019, 2020
- ACM Transactions on Management Information Systems (TMIS); 2020
- International Journal of Electronic Commerce (IJEC); 2020
- Information Systems Frontiers; 2018, 2020

## **AWARDS & HONORS**

- ACM SIGMIS Doctoral Dissertation Award, December 2021.
- Best Paper Award in IEEE ISI, November 2021 (Paper: Automated PII Extraction from Social Media for Raising Privacy Awareness: A Deep Transfer Learning Approach).
- Best Reviewer Award, Informs Data Science Workshop, 2021.
- LaSalle Teaching Excellence Award, 2021.
- Selected for Doctoral Consortium of International Conference on Information Systems (ICIS), 2020.
- Paul S. and Shirley Goodman Award, 2020.
- IEEE S&P Student Travel and Registration Award for Deep Learning and Security Workshop, May 2020.
- Best Paper Award Runner-up in IEEE ISI, November 2018 (Paper: Detecting Cyber Threats in Non-English Dark Net Markets: A Cross-Lingual Transfer Learning Approach).
- Concordia University 25th Anniversary Fellowship – Engineering and Computer Science Department, January 2015 (Awarded based on academic excellence to a few students each year).
- Power Corporation of Canada Graduate Fellowship, May 2015 (Awarded based on academic excellence to 5 students each year).
- Graduate Conference and Exposition Award, December 2015.
- Ranked 1<sup>st</sup> in RoboCup Iran Open International Competitions 2007-Middle Size Robots.
- Ranked 1<sup>st</sup> university student in Fall 2007 and Spring 2008 with GPAs of 18.43/20.00 and 19.50/20.00, respectively.

## **WORK EXPERIENCE**

**SAP Canada (Internship)**

**2015**

- **Role:** Data & Software Engineer (Users behavior analysis for order management systems)
- **Address:** 999 Boulevard de Maisonneuve West Montreal, Quebec H3A 3L4 Canada.