

Alireza Bahramali

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LinkedIn
Google Scholar

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| EDUCATION | University of Massachusetts Amherst <i>PhD</i> , Computer Science, GPA: 3.93 Sep 2017 – Jan 2023 (Expected) University of Massachusetts Amherst <i>Master of Science</i> , Computer Science, GPA: 3.94 Sep 2017 – Sep 2020 University of Tehran <i>Bachelor of Science</i> , Electrical Engineering, GPA: 3.68 Sep 2012 – Jun 2017 | Amherst, MA Amherst, MA Tehran, Iran |
| INTERESTS | Machine Learning in Security & Privacy, Natural Language Processing in Healthcare | |
| PUBLICATIONS | Robust Adversarial Attacks Against DNN-Based Wireless Communication Systems Bahramali A., Nasr M., Houmansadr A., Goeckel D., Towsley D. The ACM Conference on Computer and Communications Security, 2021 Defeating Deep Neural Network (DNN)-Based Traffic Analysis Systems in Real-Time With Blind Adversarial Perturbations Nasr M., Bahramali A., Houmansadr A. The USENIX Security Symposium, 2021 Practical Traffic Analysis Attacks on Secure Messaging Applications Bahramali A., Soltani R., Houmansadr A., Goeckel D., Towsley D. The Network and Distributed System Security Symposium, 2020 DeepCorr: Strong Flow Correlation Attacks on Tor Using Deep Learning Nasr M., Bahramali A., Houmansadr A. The ACM Conference on Computer and Communications Security, 2018 | |
| EXPERIENCE | Graduate Research Assistant The SPIN Research Group, UMass Amherst Sep 2017 – Present Amherst, MA <ul style="list-style-type: none">Implemented a framework to perform traffic analysis on Tor connections using Deep Learning (DL), Python, and PyTorch. Improved the state-of-the-art by 92%.Designed Universal Adversarial Examples to preserve privacy against traffic analysis attacks using Python and PyTorch. Reduced the accuracy of such attacks by 90% by only adding 10% bandwidth overhead.Implemented limited-data network traffic analysis attacks using Semi-Supervised and Self-Supervised machine learning techniques and Diffusion Probabilistic Models. Machine Learning Engineer Intern TRUEVTA – AI/ML Team Jun 2022 – Aug 2022 Seattle, WA <ul style="list-style-type: none">Designed a knowledge graph for clinical notes and ontologies using T5 sequence-to-sequence transformer.Improved the state-of-the-art in clinical ontology mapping task by 2% using back-translation.Reduced the fine-tuning inference time for clinical notes entity detection task by a factor of 10. | |

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| | Data Science Intern FAIRE – Search and Recommendation Team | Jun 2021 – Aug 2021 San Francisco, CA |
| | <ul style="list-style-type: none"> Implemented a recommender system using XGBoost binary classifier to recommend products from the same brand. Improved the <code>impression.to.click.rate</code> of the recommender system by 12%. Performed user analytic and data model reviews for different parts of the Faire website. | |
| TECHNICAL SKILLS | <p>Programming Languages: Python, PyTorch, SQL, C/C++, TensorFlow.</p> <p>Developer Tools: GitHub, scikit-learn, Keras, Hugging Face, pandas DataFrame, CUDA, Linux, Git, REST API, Docker, Selenium, Tor, Jupyter Notebooks.</p> <p>Expertise: Data Structures, Deep Learning, Machine Learning, Natural Language Processing, Self-Supervised Learning, Semi-Supervised Learning, Diffusion Probabilistic Models, Generative Adversarial Networks (GAN), Adversarial Examples, Contrastive Learning, Security and Privacy.</p> | |
| PROJECTS | <p>Social Network <i>C++, Object Oriented Programming, QT</i></p> <ul style="list-style-type: none"> Developed a social network similar to LinkedIn using C++ and Qt as the user interface. <p>Packet Scheduling <i>C++, Object Oriented Programming, Graph Theory</i></p> <ul style="list-style-type: none"> Implemented and compared packet scheduling algorithms in network switches using C++ and graph theory. <p>English Premier League Prediction <i>Python, PyTorch</i></p> <ul style="list-style-type: none"> Designed a DL classifier to predict English Premier League soccer matches using PyTorch. <p>Top-K Insights From Multi-Dimensional Data <i>Python, pandas, MySQL</i></p> <ul style="list-style-type: none"> Automated the process of extracting useful insights from multi-dimensional data. <p>Messaging Application Bots <i>Python, REST API, Selenium, Docker</i></p> <ul style="list-style-type: none"> Automated message sending and receiving in Telegram, Signal, and Wickr using Python and REST API. | |
| RELEVANT COURSES | Machine Learning, Deep Learning, Database & Design Implementation, Pattern Recognition, Advanced Algorithms, Advanced Computer Networks, Advanced Information Assurance | |
| HONOURS | Ranked 70th among 260000 participants in Iran's National Universities Entrance Exam (Konkur), 2012. | |