Mert Erdemir

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Education

Georgia Institute of Technology	**Georgia, USA**
PhD, School of Cybersecurity and Privacy	*August 2021 - August 2026 (Expected)*

cGPA: -/4,00,
Co-advisors: Paul Pearce and Frank Li

University of Iowa	**Iowa, USA**
MCS, Computer Science	*August 2019 - May 2021 (Expected)*

cGPA: 3,92/4,00
Advisor: Rishab Nithyanand

Middle East Technical University	**Ankara, Turkey**
B.S., Computer Engineering	*October 2014 - July 2019*

cGPA: 3,51/4,00

Experience

BEEs Lab and Dr. Pearce's Lab, Georgia Institute of Technology	**Georgia, USA**
Graduate Researcher	*August 2021 -*

Working on the development of the large scale Internet scanning component of a malware driven Internet scans.

SPARTA Lab, The University of Iowa	**Iowa, United States**
Graduate Researcher	*April 2020 -*

Designing a new defense, which uses Multipath-TCP network protocol, to mitigate the treats of website fingerprinting attacks on users' privacy.

Computer Science Department, The University of Iowa	**Iowa, United States**
Graduate Teaching Assistant	*August 2019 -*

Leading Discussion Classes & Tutoring students & Grading
○ CS1210: Computer Science I: Fundamentals (Fall 2019, Fall 2020)
○ CS3330: Algorithms (Spring 2020)

Prof. Pınar Karagöz's Lab, METU	**Ankara, Turkey**
Undergraduate Researcher	*June 2018 - August 2019*

Creating a graph mining library on graph databases for information extraction from news related text and social network data by integrating machine learning and natural language processing with graph theoretical algorithms.

Computer Engineering Department, METU	**Ankara, Turkey**
Undergraduate Teaching Assistant	*September 2017 - July 2019*

o CENG213: Data Structures & CENG229: C Programming
  - Preparing laboratory material, homework and homework related laboratory quizzes
  - Teaching students in laboratory and discussions about hashing topic
o CENG232: Logic Design
  - Collaboration with TA's in homework preparation processes
  - Tutoring and teaching students in discussions

NETCAD YAZILIM AŞ.   **Ankara, Turkey**
Software Engineering Intern   *June 2017 - September 2017*
o Implementation of GIT version control system for the company's code repository
o Spatial data management and conversion between data models (vector/raster)

Publications

Conference Papers:
M. Erdemir, F. Goz, A. Mutlu, P. Karagoz, *Comparison of Querying Performance of Neo4j on Graph and Hypergraph Data Model*, IC3K19 - KDIR19, September 2019

Book Chapters:
B. Yilmaz, H. Genc, M. Agriman, B. Kaan Demirdover, M. Erdemir, G. Simsek, P. Karagoz, *Recent Trends in the Use of Graph Neural Network Models for Natural Language Processing*, in *Deep Learning Techniques and Optimization Strategies in Big Data Analytics*, edited by J. Joshua Thomas, P. Karagoz, B. Bazeer Ahamed and P. Vasant, IGI Global, pp.274-289, November 2019, DOI: 10.4018/978-1-7998-1192-3.ch016.

Poster Presentations:
P. Angin, E. Ciklabakkal, A. Donmez, M. Erdemir, E. Suren, M. Kaan Yilmaz, *ARTEMIS: An Intrusion Detection System for MQTT Attacks in Internet of Things*, 38th IEEE International Symposium on Reliable Distributed Systems (SRDS 2019)

Research Projects

Malware Driven Internet Scans (August 2021 -): Creating an automated tool to detect RATs over the Internet by using malware samples, which is bootstrapped with full Internet scans and aims to measure:
o Identifying the real-world compromises
o Population studies

Phalanx (April 2020 -): Developing a new defense, based on newer networking technologies like Multipath-TCP, against website fingerprinting attacks. It mainly aims to enhance users' anonymity and privacy, and decrease the total bandwidth cost while preserving the same level of security compared to prior work.

TEGHUB (The Textual Event Graph Hub) (June 2018 - August 2019): Participated in modeling online resources, such as news web sites and social media posts in graph structure, and performing information extraction on these graphs via text/data mining, event detection/event extraction based on the relationships among events, and news recommendation based on hyper-graph structures. The project is funded by TUBITAK (NSF for Turkey).

ARTEMIS (A Near Real-Time Monitoring and Intrusion Detection System for IoT) (October 2018 - July 2019): Developed a monitoring and intrusion detection tool, anomaly detection

algorithms and visualization of the network traffic for different IoT devices, networks and protocols.

DUPDET (Detection of Duplicate Questions in Quora) (October 2018 - January 2019): Participated in the development of a new method to detect duplicate questions in Quora with RNN and LSTM models. The project will provide the feature of informing user, who asks questions, in the case of a match with existing questions in the aspect of not only the syntax but also the semantics.

Basic Unity Database Management System (October 2017 - November 2017): Developed a user-friendly interface and database application for beginner programmers to get familiar to database systems, basic object-oriented programming skills and graphical user interface design.

Rhygun (April 2017 -): Developed A 3D multiplayer first person shooter game on Unity that is based on playing the game by reacting to the music on the background.

METUMECH ROV (Remotely Operated Underwater Vehicle) (September 2016 - April 2018): Participated in the design and manufacturing of an underwater vehicle which is capable of observing and implementing tasks given by MATE (Marine Advanced Technology Education) and controlling it by MATLAB based GUI.

Skills

Languages: Go, C, C++, C#, Python, OCaml, PHP, MATLAB, Haskell, Prolog, LaTeX, SQL, Cypher, Javascript, NodeJS, Swift, Bash, HTML, CSS

Technologies: Neo4j, PostgreSQL, Scikit-learn, Tensorflow, Jupyter Notebook, OpenGL, LINDO, Unity, CUDA

Operating Systems: UNIX, LINUX, MacOSX, Windows

Examinations, Scholarships, Awards & Honors

Examinations:
TOEFL iBT Score: 110 (Reading: 29 - Listening: 29 - Speaking: 27 - Writing: 25)

Scholarships:
(2014 - 2019) - Sema Yazar Youth Foundation Academic Success Scholarship

Awards & Honors:
o 2017 - Academic Personnel and Postgraduate Education Entrance Exam (ALES, Turkey), top %0.2 out of 222.000 examinees
o 2014 - National University Entrance Exam (Turkey), top %0.1 out of 2.5 million examinees