

LAIN (ZELAL) MUSTAFAOGLU

Austin, Texas

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Education

University of Texas at Austin

Ph.D. in Computer Science

- Research focus: reinforcement learning, evolutionary computation, and ML for systems.

Aug 2025 – Present

Austin, TX

University of Texas at Austin

M.S. in Computer Science

- **Thesis:** Evolutionary Policy Optimization (advised by Keshav Pingali and Risto Miikkulainen)

Aug 2023 – May 2025

Austin, TX

University of Illinois Springfield

B.S. in Computer Science, Summa Cum Laude, Student Marshal (GPA: 3.97/4.00)

Aug 2018 – May 2022

Springfield, IL

Publications

You, B., Wang, I., **Mustafaoglu, Z.**, Jangda, A., Moreira, A., Dathathri, R., Mahajan, D., Pingali, K. “Flashlight: PyTorch Compiler Extensions to Accelerate Attention Variants.” *MLSys*, 2026.

Mustafaoglu, Z., Pingali, K., Miikkulainen, R. “Evolutionary Policy Optimization.” *GECCO*, 2025.

Guo, Y., **Mustafaoglu, Z.**, Du, C., Garg, H., Koundal, D. “Using Hybrid Transformer and Convolutional Neural Network for Malware Detection in Internet of Things Firmware.” *International Journal of Pattern Recognition and Artificial Intelligence*, 2025.

Guo, Y., **Mustafaoglu, Z.**, Koundal, D.. “Spam Detection Using Bidirectional Transformers and Machine Learning Classifier Algorithms.” *Journal of Computational and Cognitive Engineering*, 2022. <https://doi.org/10.47852/bonviewJCCE2202192>.

Mustafaoglu, Z., Bogumill, N., Jumah, A. “LSTM-Based Analysis of Company Sentiments Regarding Cryptocurrencies.” *Metamorphosis*, 2022.

Teaching

University of Texas at Austin

Teaching Assistant, Foundations of ML for Systems Researchers

- Helped launch the course in its first offering; built/maintained the course website; organized the schedule and materials.
- Prepared instructional content and delivered three lectures; supported students via office hours.

Fall 2025

Austin, TX

BOOST 2024 Summer School (Bologna, Italy)

Invited Co-Lecturer

- Co-lectured with Dr. Keshav Pingali on ML/RL foundations and their applications to systems.
- Designed and delivered hands-on tutorials translating theory into implementation; supported a cohort of 70+ students through interactive exercises.
- Delivered an additional talk on ML/RL applications in healthcare.

Summer 2024

Bologna, Italy

Experience

Oden Institute for Computational Science and Engineering

Graduate Research Assistant

- Lead an ML/RL reading group at the Center for Distributed and Grid Computing (CDGC); selected papers, prepared discussion prompts, and facilitated weekly sessions.
- Research deep reinforcement learning methods and evolutionary approaches, with a focus on applications to systems.

June 2024 –

Austin, TX

Levi, Ray and Shoup, Inc.

Software Developer

- Served as a full-stack developer for PensionGold using C#, .NET Core, SQL Server, JavaScript, and proprietary tools.
- Implemented custom solutions including complex APIs, stored procedures, and database objects for large pension funds with over 100,000 members.
- Led the development of a secure access control system rehaul for the largest client with a 20% performance increase.
- Led the first deployment of the latest version of PensionGold, completing key deliverables including a custom import process with a 70% gain in performance.

July 2022 – April 2024

Springfield, IL

Levi, Ray and Shoup, Inc.

January 2022 – May 2022

Software Developer Intern

Springfield, IL

- Accelerated through the training program on development tools and business data in half the allocated time.
- Assisted team lead by serving as a full-stack developer and leading key deliverables for several customer projects.

Brookens Library at the University of Illinois

September 2019 – December 2021

Student Manager

Springfield, IL

- Led and trained a team of around 30 students, and served as circulation supervisor.
- Implemented Scrum techniques to streamline service workflows, doubling the efficiency of the circulation desk.
- Oversaw operations during COVID-19 and created service guidelines to pause, offer limited services, and reopen safely.

Awards

Student Marshal

May 2022

University of Illinois Springfield

- Honored as the top graduating student of the CS program for exceptional academic and extracurricular achievements.

Presenter

November 2021

Eaton Corporation

- One of 15 presenters selected nationally by Eaton Corporation to present at their Tech Poster Competition.

NCL Gold Division

November 2020

National Cyber League

- Took 30th place in the gold division of the NCL cybersecurity competition's team game in Fall 2020.

Service & Leadership

- Undergraduate Student Senator, UIS Student Government Association.
- Peer Mentor, UIS Capital Scholars Honors Program.
- Volunteer, UIS Volunteer & Civic Engagement Center.

Technical Skills

Programming: Python, C++, C#, Java, SQL, R, JavaScript

ML/RL: PyTorch, JAX (jaxrl), Keras, NumPy, Pandas, scikit-learn, Matplotlib, NLTK, Gym/Gymnasium, MuJoCo

Systems & Dev: Linux, Git, .NET (ASP.NET Core), SQL Server, Azure DevOps, Docker

Tools: VS Code, Visual Studio, Jupyter, Tableau

Conference Presentations

“Spam Detection Using Bidirectional Transformers and Machine Learning Classifier Algorithms.” Sigma Xi Scientific Honor Society Student Research Showcase - April 25 - May 9 2022

“Spam Detection Using Bidirectional Transformers and Machine Learning Classifier Algorithms.” UIS Student Technology, Arts & Research Symposium (STARS) - April 7-8 2022

“Textual Analysis of Companies’ Performance During the COVID-19 Pandemic.” Honors Council of the Illinois Region Student Research Symposium - February 26 2022

“Improved Convolutional Neural Network for Binary Malicious Data Flow Detection.” Midwest/West Regional Undergraduate Research, Scholarly, and Creative Activity (URSCA) Virtual Conference - November 13 2021

“Application of Text Analysis to Company Financial Statements.” Midwest/West Regional Undergraduate Research, Scholarly, and Creative Activity (URSCA) Virtual Conference - November 13 2021

“Convolutional Neural Network Model for Malicious Data Flow Detection.” Louis Stokes Midwest Regional Center of Excellence Annual Conference - October 22-24 2021

“Application of Text Analysis to Company Financial Statements.” Louis Stokes Midwest Regional Center of Excellence Annual Conference - October 22-24 2021