

Senior Software Engineer and Researcher | PhD in Secure & Distributed Machine Learning

Senior software engineer with 10+ years of experience delivering enterprise-scale systems and leading cross-functional teams in C++, Java, Scala, and modern web technologies. Completed a PhD (August 2025) in Secure & Distributed Machine Learning, focusing on proof-of-learning protocols, model watermarking, and large-scale distributed machine learning systems. Architected real-time simulators, led engineering teams of 14+, and consistently translated cutting-edge research into robust production solutions across cybersecurity, aerospace, and enterprise cloud environments.

EXPERIENCE

Avion Full Flight Simulators

NIEUW-VENNEP, NETHERLANDS

Senior Software Engineer

October 2023 – Present

- Developed real-time simulator software using C, C++, Scala, and Git.
- Built web applications for the Avion Cloud Environment to monitor, configure, and diagnose core simulator components using TypeScript/JavaScript (Svelte), Scala (backend services), Python, gRPC & Protocol Buffers, HTML, and CSS/Tailwind.
- Containerized and deployed services with Docker; implemented caching and storage with Redis and PostgreSQL; automated testing and deployments via GitLab CI/CD.
- Translated requirements and specifications into efficient solutions, rapidly prototyping complex systems.
- Incorporated multithreading, synchronous communication, and other techniques to meet rigorous real-time requirements.

Embry-Riddle Aeronautical University, Daytona Beach

FLORIDA, USA

Graduate Research Assistant in Electrical Engineering and Computer Science

August 2021 – August 2025

- Thesis Advisor: [Dr. Kenji Yoshigoe](#)
- Dissertation: “Enhancing Proof-of-Learning Security Against Spoofing Attacks Using Model Watermarking”

Havelsan

ANKARA, TURKEY

Software Team Lead

November 2020 – August 2021

Havelsan DLP Data Leakage Prevention product.

- Technologies and tools used: C, C++, Java, Go, JavaScript, Qt, Sonar, Pardus, Windows, Git, Jira.
- Led a team of 14 engineers (developers, QA, DevOps, support).
- Developed and maintained key features of the endpoint agent, ensuring robust data protection.
- Coordinated with stakeholders to align project goals with business objectives, ensuring timely delivery.
- Provided mentorship and training to team members, fostering a collaborative work environment.

STM Defence Technologies

ANKARA, TURKEY

Expert Software Engineer

February 2019 – November 2020

Kargu Autonomous Rotary-Wing Attack UAV and Togan Autonomous Multi-Rotor Reconnaissance UAV.

- Technologies and tools used: C++11, Boost, Qt, QML, Google Test, Clang-Tidy, Ubuntu, Git.
- Contributed to the architecture and implementation of the mission-control unit, enhancing drone operational capabilities.
- Developed components of the ground-control unit using Qt and QML, ensuring effective communication and control.
- Designed and implemented Power-On and Continuous Built-In Tests to ensure system reliability and performance.
- Worked closely with cross-functional teams to align technical solutions with project requirements and military standards.

Comodo Cybersecurity

ANKARA, TURKEY

Expert Software Engineer

July 2014 – February 2019

Comodo Dome Secure Web Gateway, Comodo Patch Manager, and the Chromium-based web browser Comodo Dragon.

- Technologies and tools used: C++17, Boost, Qt, Git, Jira, Jenkins, WinAPI, Bitbucket, JavaScript, jQuery.
- Led the design and development of Windows services and applications to enhance functionality and reliability.
- Established unit testing and code-review protocols to ensure software quality.
- Pioneered the development of advanced browser features, enhancing user security and experience.
- Developed statistical reporting modules, providing product managers with insights for data-driven decision-making.
- Coordinated with cross-functional teams, including product management and QA.
- Implemented and maintained CI/CD pipelines using Jenkins.

EDUCATION

Embry-Riddle Aeronautical University, Daytona Beach

FLORIDA, USA

Ph.D. in Electrical Engineering and Computer Science

2021 – 2025 (conferred August 2025)

- Dissertation: “Enhancing Proof-of-Learning Security Against Spoofing Attacks Using Model Watermarking”

Middle East Technical University

ANKARA, TURKEY

PUBLICATIONS

- Ural, O. (2025). [Enhancing Proof-of-Learning Security Against Spoofing Attacks Using Model Watermarking](#). Doctoral dissertation, Embry-Riddle Aeronautical University, Daytona Beach, Florida.
- Ural, O. and Yoshigoe, K. (2025). Evaluation of Model Watermarking Techniques for Proof-of-Learning Security Against Spoofing Attacks. [IEEE Access](#). Accepted, in press; DOI forthcoming.
- Ural, O. and Yoshigoe, K. (2024). [Enhancing Security of Proof-of-Learning against Spoofing Attacks using Feature-Based Model Watermarking](#). [IEEE Access](#). DOI: 10.1109/ACCESS.2024.3489776.
- Ural, O. and Yoshigoe, K. (2023). [Survey on Blockchain-Enhanced Machine Learning](#). [IEEE Access](#), pp. 145331–145362. DOI: 10.1109/ACCESS.2023.3344669.
- Ural, O. and Acartürk, C. (2021). [Automatic Detection of Cyber Security Events from Turkish Twitter Stream and Newspaper Data](#). Proceedings of the 7th International Conference on Information Systems Security and Privacy (ICISSP), ISBN 978-989-758-491-6; ISSN 2184-4356, pp. 66–76. DOI: 10.5220/0010201600660076.
- Ural, Ozgur and Erdur, Efe. (2016). [Secure Proxy on Cloud](#). DOI: 10.13140/RG.2.2.24058.08649.
- Ural, Ozgur (2014). [Autonomous Cargo and Mail Delivery](#). Turkish Autonomous Robots Conference, Ankara, Turkey.

MAJOR ACHIEVEMENTS

- Graduate Record Examinations General Test - Quantitative Reasoning: 164 out of 170, April 2021
- The Scientific and Technological Research Council of Turkey National Project Competition First Prize Winner, June 2014.
- Middle East Technical University Graduation Projects Competition: Second Prize Winner, June 2014.
- National University Entrance Exam: Placed 363rd among 1.6 million participants, Turkey, June 2010.