Orhun Eren YALÇINKAYA

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EDUCATION

Cukurova University **October 2019 – January 2025**
Computer Engineering GPA 2.93/4.00

- **Education:** Artificial Intelligence, Machine Learning, Object-Oriented Programming (C/C++), Discrete Mathematics, Linear Systems, Optimal Control Systems, Database Management Systems, Theory of Computation, Computer Networks

West Pomeranian University of Technology, Szczecin **September 2023 – February 2024**
Computer Science GPA 4.5/5.00

- **Education:** Artificial Intelligence, Python Programming, Database Systems, Front-End Web Development, Business Intelligence

EXPERIENCE

Kaan Technology Club **December 2024 – Present**
AUV Team Software Systems Lead Adana, Türkiye

- Gained experience in developing software systems and team management. The V-Model approach was adopted for all system design and development.
- Worked on parallel environment recognition systems, MPC, kinematic and dynamic vehicle modelling; parameter optimization, convolutional and imitation neural networks.

Ordinatrum **November 2024 – December 2024**
Intern İstanbul, Türkiye

- Built a monitoring system for local wireless devices by integrating Prometheus, Grafana, Node Exporter, and Docker Compose.
- Developed an API for analyzing device uptime and performance. Worked on signal processing and data parsing for IoT devices.

SignumTTE **July 2023 – August 2023**
Intern Ankara, Türkiye

- Collaborated with a consulting engineer and R&D management on the database design of a web application project.
- Developed a scraper using Python, Scrapy, and Selenium to collect data from a specific website into a MongoDB database.

PROJECTS

AUV Control System | Source Code | (Vehicle Dynamics, AWS, Pytorch, C++, MPC) **July 2025**

- Features Model Predictive Control with CasADi, CUDA-based environment mapping, GPU-accelerated A* path planning, Fossen equations for marine vehicle dynamics, Fast-SCNN model, distance prediction by CNN, simulation tests on Unity.
- Managed the data pipeline by generating simulation data on an AWS EC2 instance using a public Docker container.
- Architected and trained a deep imitation learning model (FossenNet with an LSTM) to distill a complex NL-MPC policy for real-time AUV thruster control. Boosted overall model performance from 77% to 97.6% R^2 and fixed underperforming components, raising the R^2 score on a key thruster from 0.25 to 0.94.

Edunote | Source Code | (Python, MongoDB, RestAPI, Google Cloud, ElasticSearch) **February 2025**

- Developed a backend API using Gemini AI API, Elasticsearch, and MongoDB for the Edunote project. This API allowed users to search their own and shared notes and interact with AI.
- Deployed the API on Google Cloud, using Google Cloud Buckets for message history.

IoT Monitoring System | Source Code | (Docker Compose, Grafana, RestAPI) **December 2024**

- The project sets up a monitoring system for local wireless devices using Docker Compose, integrating Prometheus, Grafana, Node Exporter, and Telegraf. It includes an API for insights into device uptime, performance, and issues, with notification management and data interpretation for proactive monitoring.

Place Suggestion API | Source Code | (Python, Gemini, Selenium, FastAPI) **September 2024**

- Dockerized RESTful API that leverages Gemini AI to suggest places based on user prompts. Returns detailed place information including names, locations, and multimedia content.

Dynamic Table | Source Code | (PPO, Unity, C#, Google Colab) **June 2024**

- Designed a table composed of vertically movable parts. By the end of training, the table could move objects on it as desired.
- Used A* algorithm to ensure the object reached its target point without hitting obstacles.
- Achieved 90% success rate in obstacle courses and 98% in open areas after 25 million training steps.

CERTIFICATES

- Autonomous Driving Technologies Expert Program Basic Training Certificate **December 2024**