

# CAGAN BAKIRCI

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## EDUCATION

### University of Southern California

August 2024-Present

#### Master of Science in Computer Science - Artificial Intelligence

##### Notable Coursework

- CSCI561 - Foundations of Artificial Intelligence
- CSCI567 - Machine Learning
- CSCI566 - Deep Learning and It's Applications
- CSCI571 - Web Technologies

### University of California Santa Cruz

March 2020

#### Bachelor of Science in Computer Science with Honors

##### Notable Coursework

- CMPS242 - Machine Learning (Graduate level)
- CSE244 - Machine Learning for NLP (Graduate level)
- CSE140 - Artificial Intelligence
- CSE130 - Principles of Computer System Design
- CSE115A - Intro to Software Engineering
- CSE115B - Software Design Project

## SKILLS

Languages: Java, C, C++, Python, SQL

FrameWorks: Spring Boot, Django, Eclipse Vert.x

Machine Learning: PyTorch, TensorFlow, Keras

Technologies: Alexa Skill Kit, SAP Hybris

## EXPERIENCE

### Research Assistant - Robotics & Reinforcement Learning Team

January 2025-Present

University of Southern California - CPS Vida Lab, Los Angeles, CA

- Conducting graduate-level research on learning-based agent systems, including multi-agent path finding and autonomous decision-making for robotics using language-conditioned policies
- Contributing to development of a real-time failure detection and intervention framework for language-conditioned robotic policies, with measurable improvements in task success rates

### SENIOR MACHINE LEARNING SOFTWARE ENGINEER

June 2021-July 2024

BEKO/ARCELIK Global, ISTANBUL, TURKEY

- Founder & Lead of ComMind - Spearheaded the ComMind initiative, introducing a revolutionary rating system featuring a dynamic, self-correcting algorithm and machine learning models. Project gained recognition from Sabanci University, fostering a collaboration with Professor Anil Koyuncu and securing a place within Koc University's incubation hub for commercial development
- Co-Founder & Developer of the Search Helper Project - Conceptualized and spearheaded development of a scalable, containerized microservice for string matching, automatically correcting over 210,000 search query typos in its first month, boosting search reliability by 89% and enhancing online sales through improved in-site search
- Founder & Lead of Oculus - Launched and lead development of Oculus Project, employing computer vision to automate reading of stock and serial numbers on Arcelik products
- Backend Developer for Digital Commerce Solutions - Implemented features on SAP Hybris Commerce using Java and Spring Boot
- Technical Lead of Arcelik DropShipment - Architected and lead implementation of DropShipment project at Arcelik, implemented key features such as fulfillment module, enhancing operational efficiency and service delivery
- Organizer/IT Owner of the Arcelik Personnel Website - Constructed and orchestrated multiple teams to create a productive work environment, leading to dramatic improvements of user experience on Arcelik personnel website

### SOFTWARE ENGINEER

August 2020-June 2021

FAIRBIT LLC, ORANGE, CALIFORNIA

- Developed asynchronous, reactive microservices using Eclipse Vert.x in Java 15, with PostgreSQL for data storage, improving system reliability

## ACADEMIC PROJECTS

**Researcher, Reconstructing Sound From Brain Responses To Music Stimuli, Los Angeles, CA** August 2024-December 2024

- Developed deep learning models to reconstruct music stimuli from EEG recordings by mapping power spectral density representations to mel-spectrograms, modestly improving on the EEG2Mel baseline (82.9% classification accuracy, 0.80 cosine similarity) using CNN, RCNN, encoder-decoder, and Transformer architectures

**Researcher, Earthquake Prediction, Santa Cruz, California** April 2019-June 2019

- Designed machine learning algorithms to predict earthquake time-to-failure by leveraging real-time seismic data, achieving a top 5% ranking in the LANL Earthquake Prediction Kaggle competition and validating strong generalization

**Algorithm/Research Team Lead, WikiTrust 2.0, Santa Cruz, California** October 2019-January 2020

- Led the Algorithm/Research team in development of WikiTrust 2.0; an open-source, online reputation system for Wikipedia authors and content

**Lead Researcher, Microsoft Malware Prediction, Santa Cruz, California** January 2020-March 2020

- Implemented several machine learning algorithms to predict potential malware attacks

**Developer, Amazon Sponsored Project - Modular Adapter, Santa Cruz, California** January 2020-April 2020

- Engineered a modular adapter leveraging Raspberry Pi and Alexa Voice Service SDK to enable Alexa control of switch-controlled appliances, enabling accessibility for users with disabilities

**Developer, Multi-threaded HTTP Server, Santa Cruz, California** September 2019-December 2019

- Developed a multi-threaded HTTP server in C++ handling Get and Put requests