

## RESEARCH INTERESTS

I study multi-agent coordination and fair decision-making through formal methods and algorithmic design. My research applies logic-based reasoning, constraint programming, and optimization to develop explainable and equitable intelligent systems. I aim to bridge symbolic knowledge representation with learning frameworks to create AI systems that are interpretable, fair, and human-compatible.

## EDUCATION

Sabancı University	Istanbul, Turkey
B.S. in Computer Science and Engineering, B.S. in Industrial Engineering Minor in Mathematics, Minor in Business Analytics	Expected June 2026
<ul style="list-style-type: none"><li>GPA: 3.97/4.00, Dean List: High Honor</li><li>Highest GPA in Industrial Engineering, Top 5 in Computer Science and Engineering</li><li>Full Tuition Scholarship</li></ul>	

Uppsala University (Erasmus Exchange)	Uppsala, Sweden
Computer Science and Mathematics	Jan 2024 - June 2024

## RESEARCH EXPERIENCE

<b>CON-NET: Platform-Agnostic Bot Detection Model</b> <i>TUBITAK &amp; CHIST-ERA funded project</i> <i>Supervisor: Dr. Onur Varol</i>	Jan 2025 - Present
---	--------------------

- Designing and implementing a platform-agnostic bot detection model
- Implementing account-based and digital-dna based VAE models
- Feature engineering for cross-platform compatibility and implementation of novel approaches to avoid distribution shifts
- Co-authoring paper for submission to ACM Web Conference 2026, Special Track on Web4Good

<b>Partial Observable Multi-Agent Path Finding with Constrained Communication</b> <i>Erasmus Internship, University of Luxembourg</i> <i>Supervisors: Prof. Leon van der Torre &amp; Dr. Pere Pardo Ventura</i>	July - Sep 2025
---	-----------------

- Designed a framework to solve a novel variant of the Multi-Agent Path Finding (MAPF) problem featuring partial observability, decentralization, and anonymous task-sequential requirements with constrained communication
- Modeled observation and communication using dynamic epistemic logic and employed Answer Set Programming for collaborative planning under uncertainty
- Developed a simulation script to compare performance across different exploration strategies and map configurations
- Currently preparing a manuscript for publication

<b>Solving Matching Problems Using AI Methods</b> <i>PURE Project, Sabancı University, Supervisor: Prof. Esra Erdem</i>	Sep 2024 - Jan 2025
--	---------------------

- Designed a student-to-department assignment system using Gale-Shapley algorithm and Constraint Programming to balance student preferences, diversity goals, and department capacities

<b>Automatic Transcription of Ottoman Documents (AKIS)</b> <i>TUBITAK funded project, Sabancı University</i> <i>Supervisors: Prof. Berrin Yanikoglu &amp; Dr. Esma Bilgin Tasdemir</i>	Aug 2023 - Jan 2024
--	---------------------

- Enhanced image segmentation capabilities of existing R-CNN model and achieved significant improvement in model accuracy for document transcription

<b>A Digital Analysis of an Early Ottoman Chronicle</b> <i>PURE Project, Sabancı University</i> <i>Supervisors: Dr. Inanç Arın &amp; Dr. Mehmet Kuru</i>	July - Sep 2023
--	-----------------

- Created geo-visualizations and interactive data analyses of Asıkpasazade's Chronicle

	<ul style="list-style-type: none"> <li>Performed NLP analyses with BERT and BERTopic to explore sentiment and themes</li> <li>Developed an LLM-based chatbot using GPT-3.5 to enable dynamic user interaction with the chronicle</li> </ul>
INDUSTRY EXPERIENCE	<p><b>Legotize: 3D to LEGO Converter</b>  <i>Valensas Software, Supervisor: Akin Idil</i> Aug - Sep 2024</p> <ul style="list-style-type: none"> <li>Designed a program to convert 3D models into pixelated LEGO representations using PyTorch3D.</li> </ul> <p><b>Vinventory: Inventory Management App</b>  <i>Valensas Software, Supervisor: Moray Baruh</i> July - Sep 2024</p> <ul style="list-style-type: none"> <li>Built an inventory management app using Go, React.js, and PostgreSQL with Azure AD authentication. Integrated CI/CD pipelines with GoReleaser and deployed on Kubernetes with Helm Charts.</li> <li>The app is currently being used as a tool inside the company.</li> </ul> <p><b>OREDATA Data Science Intern   Istanbul, Turkey</b> Jan 2023 - Feb 2023</p> <ul style="list-style-type: none"> <li>Experimented with and compared different tumor-detection ML and DL models using scikit-learn. Practiced exploratory data analysis leveraging Kaggle datasets.</li> </ul>
TEACHING EXPERIENCE	<p><b>Teaching Assistant:</b> Algorithms (Prof. Esra Erdem, Jan 2025 - present); Machine Learning (Dr. Onur Varol, Sep 2024 - Jan 2025); Data Structures (Dr. Gülsen Demiröz, Sep 2023 - Jan 2024).</p>
AWARDS AND HONORS	<ul style="list-style-type: none"> <li><b>Ranked 139th</b> among 2,416,974 students (<b>884th in STEM category</b>) in Turkey's national university entrance exam 2021</li> <li><b>Full Tuition Scholarship</b> and Monthly Stipend, Sabancı University 2021</li> <li><b>TUBITAK 1001 Undergraduate Scholarship</b>, Research Trainee on a TUBITAK-funded project with monthly stipend Aug 2023 – Jan 2024</li> <li><b>Highest GPA</b>, Industrial Engineering Department, Sabancı University 2025</li> <li><b>Top 5 GPA</b>, Computer Science and Engineering Department, Sabancı University 2025</li> </ul>
SKILLS	<p><b>Languages:</b> Turkish (Native), English (IELTS: 8.0/9.0), German (Basic)</p> <p><b>Programming:</b> Python, C/C++, Go, JavaScript, Java, Verilog</p> <p><b>ML/AI:</b> PyTorch, TensorFlow, Keras, scikit-learn, OpenCV, NetworkX, Matplotlib, Seaborn, PyTorch3D</p> <p><b>Tools &amp; Infrastructure:</b> Git, Docker, Kubernetes, Flask, MERN Stack, Unix/Linux CLI, L<sup>A</sup>T<sub>E</sub>X, Markdown</p> <p><b>Databases:</b> PostgreSQL, MySQL, NoSQL</p>
EXTRA-CURRICULAR ACTIVITIES	<p><b>Google Developer Student Club:</b> Led workshops on TensorFlow, Selenium and Git/GitHub for 2-3 hours each.</p> <p><b>Literature Club:</b> Board member of the Literature Club of Sabancı University for 4 years, the last year as the President. For the last 3 years, I was the coeditor of the club's semianual literature fanzine, "harmoni."</p> <p><b>Social Responsibility:</b> Volunteered in shoreline cleanups, Gender and Memory Walks, and botanic garden projects.</p>