Can Erer

+90 505 576 14 30 | can.erer.work@gmail.com | LinkedIn | GitHub | Scholar

Education

Bogazici University Istanbul, Turkey

- **BSc in Computer Engineering** *Expected Graduation: June 2027*
- **BSc in Mathematics (Double Major Program)** GPA: **3.66/4**
- Ranked **276th** in **YKS** (National University Exam), placing in the **top 0.008%** among 3.5M candidates.
- **Relevant Coursework:** Metric Spaces (Real Analysis), Functional Analysis, Logic, Set Theory, Machine Learning, Deep Learning, Formal Languages & Automata Theory, Advanced Automata Theory, Analysis of Algorithms

Experience

Concurrent appointments reflect ongoing collaborations across multiple labs.

Undergraduate Research Assistant Jun. 2026 – Present
Bogazici University – ALLab (Advisor: İnci M. Baytaş) *Istanbul, Turkey*

- Conducting research on **flow matching** and **Schrödinger Bridge**-based generative methods for image-to-image synthesis.
- Applying these methods to **MRI synthesis**, generating conditioned intermediate representations between scan timepoints.

Undergraduate Research Assistant Jun. 2024 – Present
Bogazici University – NetLab (Advisor: H. Birkan Yılmaz) *Istanbul, Turkey*

- Building transformer-based models for **radiation attenuation ratio prediction**, designing custom architectures and training pipelines for improved estimation accuracy.
- Researching **network performance optimization** through TCP/IP analysis, **active queue management** (RED/ARED, FQ-CoDel), and ML-driven adaptive methods in modern protocols like QUIC.

Undergraduate Research Intern Feb. 2025 – Jul. 2026
Koç University – GGLab (Advisor: Gözde Gül Şahin) *Istanbul, Turkey*

- Researching **neural theorem proving** by developing pipelines that evaluate state-of-the-art **mathematical reasoning models**, producing proof attempts, success metrics, and detailed error analyses.
- Experimenting with post-training techniques such as **SFT**, **DPO**, and **RLHF**, and integrating symbolic proof assistants with machine learning workflows to study how model alignment impacts formal reasoning performance.

NLP Researcher (Part-time) Oct. 2025 – Jan. 2026
TÜBİTAK BİLGEM *Kocaeli, Turkey*

- Contributing to the development and refinement of **Turkish LLM evaluation frameworks**, focusing on model reasoning, comprehension, and factual consistency.
- Analyzing model outputs and assisting in the design of new evaluation tasks to improve assessment coverage for emerging Turkish language models.

AI Research Intern Aug. 2025 – Sep. 2025
TÜBİTAK BİLGEM *Kocaeli, Turkey*

- Developed multiple **Turkish NLP evaluation datasets**, covering both **reasoning-oriented** and **knowledge-based** tasks, enabling assessment of model capabilities across diverse linguistic phenomena.
- Designed and implemented Python-based data processing pipelines for large-scale text collection, cleaning, and structuring, supporting internal experimentation for Turkish LLM evaluation.

Software Engineering Intern Jul. 2025 – Aug. 2025
Commencis *Istanbul, Turkey*

- Developed onboarding features and **OTP-based authentication flows** using **Flutter & Dart**, delivering modular, production-ready UI components and writing **unit tests** to ensure reliability.
- Performed detailed **APK & device compatibility analysis** (including **16KB page support** issues) and integrated the internal **analytics event tracking** tool to improve observability and data-driven debugging.

Undergraduate Research Intern Jun. 2024 – Aug. 2024
Bogazici University – Summer Research Internship (Advisor: Bahri Atay Özgövde) *Istanbul, Turkey*

- Explored applications of **reinforcement learning (RL)** in game environments, building and training agents in **Unity** using the **ML-Agents** library across varied game scenarios.
- Developed and experimented with RL algorithms, evaluating performance through iterative testing, and presenting methodology and findings in periodic team presentations.

Publications

TreeThink: A Modular Tree Search Library for Mathematical Reasoning with LLMs *arXiv, 2026*

- Z.A. Uluşan, B.S. Akbudak, **Can S. Erer**, G.G. Şahin [Code]

FormalRewardBench: A Benchmark for Formal Theorem Proving Reward Models *arXiv, 2026*

- Z.A. Uluşan, B.S. Akbudak, **Can S. Erer**, G.G. Şahin

Generative Reward Models for Tree Search in Automated Formal Theorem Proving *In Preparation*

- Z.A. Uluşan, B.S. Akbudak, **Can Erer**, G.G. Şahin

STAR-XPC: Set Transformer for Estimating X-ray Transmission in Polymer Composites *In Preparation*

- **Can Erer**, H.B. Yılmaz, N. Aral

Comparative Tutorial on AQM in OMNeT++ and ns-3 *In Preparation*

- C.O. Gölbaşı, **Can Erer**, B.N. Deniz, H.B. Yılmaz

Teaching

Undergraduate Teaching Assistant Feb. 2023 – Present
Bogazici University *Istanbul, Turkey*

- **Courses (8):** CMPE 150 (Intro. to Computing), CMPE 220 (Discrete Math) ×4, CMPE 230 (Systems Prog.), CMPE 240 (Digital Systems), CMPE 250 (Data Structures & Algorithms), CMPE 343 (Prob. & Stats) ×2, CMPE 350 (Formal Languages & Automata Theory), CMPE 462 (Machine Learning). Ran weekly problem sessions and office hours across **8 courses** for **2000+ students** total.
- Designed original assignments including a C systems-programming project (CMPE 230), a graph-algorithms assignment (CMPE 250), a music recommendation system project (CMPE 343), and a multimodal machine-learning project (CMPE 462) spanning supervised and unsupervised learning. [Materials]. Supported lab sessions (CMPE 150, 240) and graded assignments/quizzes/exams (CMPE 220, 350), maintaining consistent evaluation across large cohorts.

Algorithm Guide Oct. 2025 – Present
inzva *Istanbul, Turkey*

- Volunteer lecturer delivering sessions on **advanced data structures** (segment trees, lazy propagation) and **graph algorithms** [Materials], as well as **mathematical topics** (number theory, combinatorics) [Materials], to competitive programming students.
- Designed original **contest problems** across all covered topics, bridging rigorous mathematical foundations with algorithmic problem-solving.

Technical Skills & Certifications

Languages: Python, C/C++, Java, Dart, C#, Assembly (RISC-V), Verilog, Bash, LaTeX, HTML/CSS, JS, SQL
ML/AI: PyTorch, TensorFlow, Keras, Hugging Face, scikit-learn, NumPy, pandas
Proof Assistants: Isabelle, Lean
Tools: Git, Docker, Flutter, Jira, Linux, VS Code, IntelliJ, Charles Proxy, Proxyman, Unity, ns-3, OMNeT++
Certifications: Deep Learning Specialization (Coursera), inzva Deep Learning Study Group, inzva Algorithm Programs & Camps (2024–2025) (x3)