

Hakan Karakuş

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🔗: [Hakkush-07](#)

EDUCATION

Boğaziçi University

M.S. in Mathematics

Istanbul, Türkiye

Sep 2025 - June 2027 (expected)

Boğaziçi University

B.S. in Computer Engineering & Mathematics, GPA: 3.54/4.00

Istanbul, Türkiye

Sep 2019 - Feb 2025

- Computer Engineering Graduation Project: “Conversion between 3D Object Representations”
- Mathematics Project: “Riemann-Roch Theorem and Its Proof”

RESEARCH INTERESTS

- Algebraic Geometry, Hyperbolic Geometry, Elliptic Curve Cryptography

WORK EXPERIENCE

Chainway Labs

Blockchain Developer & Research Engineer

Istanbul, Türkiye

June 2023 - Dec 2025

- Contributed to **BitVM** 🔗 and initiated implementation of the **Garbled SNARK Verifier** 🔗.
- Optimized Bitcoin Script implementations for elliptic-curve and finite-field operations.
- Researched trust-minimized bridge designs and cryptographic protocol trade-offs for Bitcoin.

Vestel

Data Engineer Intern

Remote

June 2021 - Sep 2021

- Conducted a comprehensive analysis of the location of competitor retailers across districts.

TEACHING EXPERIENCE

- **Instructor** at Scientific and Technological Research Council of Turkey (TÜBİTAK) Sep 2019 - Present
Mathematics Olympiad Camps
- **Student Teaching Assistant** at Boğaziçi University Spring 2022
Introduction to Computing (CMPE150)

HONORS AND AWARDS

- **Bronze Medal**, International Mathematical Olympiad (**IMO**), (*Bath, UK*) July 2019
- **Gold Medal**, Balkan Mathematical Olympiad (**BMO**), (*Chisinau, Moldova*) May 2019
- **Gold Medal**, Türkiye National Mathematical Olympiad, (*Ankara, Türkiye*) Dec 2018
- **Silver Medal**, Türkiye National Mathematical Olympiad, (*Ankara, Türkiye*) Dec 2017
- **Silver Medal**, Türkiye Junior National Mathematical Olympiad, (*Ankara, Türkiye*) Dec 2015
- **Silver Medal**, Junior Balkan Mathematical Olympiad (**JBMO**), (*Belgrade, Serbia*) June 2015
- **Bronze Medal**, Türkiye Junior National Mathematical Olympiad, (*Ankara, Türkiye*) Dec 2014

LEADERSHIP & SERVICE

- **Observer**, Junior Balkan Mathematical Olympiad, (*Struga, North Macedonia*) June 2025
- **Observer**, Balkan Mathematical Olympiad, (*Sarajevo, Bosnia and Herzegovina*) April 2025
- **Problem Committee**, Junior Balkan Mathematical Olympiad, (*Antalya, Türkiye*) June 2024
- **Observer**, Balkan Mathematical Olympiad, (*Varna, Bulgaria*) May 2024
- **Coordinator**, Balkan Mathematical Olympiad, (*Antalya, Türkiye*) May 2023

PREPRINTS AND PUBLICATIONS

- [1] E. Bal, L. Aumayr, A. İyidoğan, G. Scaffino, **H. Karakuş**, C. E. Aslan, and O. S. T. Litos, *Clementine: A collateral-efficient, trust-minimized, and scalable bitcoin bridge*, Cryptology ePrint Archive, Paper 2025/776, 2025.
- [2] H. Liu, J. Ke, H. Wen, L. Pearson, R. Linus, L. George, M. Bista, **H. Karakuş**, Domo, J. Liu, Y. Chen, and Y. Feng, *Programmable bitcoin verification via synthesis-aided lifting*, Cryptology ePrint Archive, Paper 2024/1768, 2024.

SKILLS

- Python, Rust, LaTeX, Lean, Git, Bitcoin Script, Elliptic Curve Cryptography, Zero-Knowledge Protocols

LANGUAGES

- **Turkish:** Native, **English:** Advanced, **Spanish:** Beginner

INTERESTS

- Road Cycling, Long Distance Running, Table Tennis, Chess