

# Yusuf Hakan Kalaycı

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## Education

- 2019-Present **Ph.D. Student in Computer Science**, *University of Southern California*, Los Angeles, USA.  
Advisor : Shaddin Dughmi  
Co-advisor : David Kempe
- 2013-2019 **B.Sc. in Computer Engineering and Mathematics with High Honors**, *Boğaziçi University*, İstanbul, Turkey.  
Advisors: Ali Taylan Cemgil, Ümit Işlak

## Research Interests

Theory of **optimal stopping**, **combinatorial optimization**, and **computational social choice**, with applications to **inference-time optimization** for accurate, aligned, and efficient large language models.

## Publications/Preprints (Complete list)

- In submission **LYNX: Learning Dynamic Exits for Confidence-Controlled Reasoning**; Ömer Faruk Akgül, Yusuf Hakan Kalaycı, Rajgopal Kannan, Willie Neiswanger, Viktor Prasanna.
- In submission **Optimal Stopping vs Best-of-N for Inference Time Optimization**; Yusuf Hakan Kalaycı, Vinod Raman, Shaddin Dughmi.
- AAMAS 2026 **Temporal panel selection in ongoing citizens' assemblies**; Yusuf Hakan Kalaycı, Evi Micha; *In Proc. of 2026 Intl. Conf. on Autonomous Agents and Multiagent Systems*.
- AAMAS 2026 **Relationships and connections between definitions of metric proportional representation**; Yusuf Hakan Kalaycı, David Kempe; *In Proc. of 2026 Intl. Conf. on Autonomous Agents and Multiagent Systems*.
- ITCS 2026 **Near-optimal sparsifiers for stochastic knapsack and assignment problems**; Shaddin Dughmi, Yusuf Hakan Kalaycı, Xinyu Liu; *In Proc. of 2026 Innovations in Theoretical Computer Science*.
- AAMAS 2025 **Full Proportional Justified Representation**; Yusuf Hakan Kalaycı, Jiasen Liu, David Kempe; *In Proc. of 2025 Intl. Conf. on Autonomous Agents and Multiagent Systems*.
- ALT 2025 **Is Transductive Learning Equivalent to PAC Learning?**; Shaddin Dughmi, Yusuf Hakan Kalaycı, Grayson York; *In Proc. of 2025 Intl. Conf. on Algorithmic Learning Theory*.
- STOC 2024 **Limitations of Stochastic Selection Problems with Pairwise Independent Priors**; Shaddin Dughmi, Yusuf Hakan Kalaycı, Neel Patel; *In Proc. of 2024 Symposium on Theory of Computing*.
- AAAI 2024 **Proportional Representation in Metric Spaces and Low-Distortion Committee Selection**; Yusuf Hakan Kalaycı, David Kempe, Vikram Kher; *In Proc. of 2024 AAAI Conf. on Artificial Intelligence*.
- ICALP 2023 **On Sparsification of Stochastic Packing Problems**; Shaddin Dughmi, Yusuf Hakan Kalaycı, Neel Patel; *In Proc. of 2023 EATCS Intl. Colloquium on Automata, Languages and Programming*.

## Teaching Experience

**University of Southern California, Teaching Assistant, Computer Science**

- Spring 2025 CSCI 670 - *Advanced Analysis of Algorithms* taught by Prof. David Kempe.
- Fall 2022 CSCI 670 - *Advanced Analysis of Algorithms* taught by Prof. David Kempe.
- Fall 2021 CSCI 670 - *Advanced Analysis of Algorithms* taught by Prof. Shang-Hua Teng.

**Competitive Programming, Instructor and Problem Setter**

- 2013 - Present Judge and problem setter in Turkish National Olympiads in Informatics
- 2017 - 2021 Training/Building Algorithmic Competition Community at **inzva**
- Fall 2023 ACM-ICPC Trainer at University of Southern California

**Boğaziçi University, Student Assistant**

- Summer 2018 Math 345 - *Probability Theory*
- Fall 2017 Cmpe 250 - *Algorithms and Data Structures*

## Working Experience

- Jul 2017 - Aug 2021 **Technical Lead (Voluntary)** of Competitive Programming Community at **inzva**
- Jul 2016 - Sept 2016 Business Technical Intern at **Google**, Dublin/Ireland

## Awards/Honors

- 2013 **Gold Medal** in International Olympiad in Informatics (IOI), Australia
- 2013 **Gold Medal** in Balkan Olympiad in Informatics (BOI), Bosnia and Herzegovina
- 2013 **Gold Medal** in Turkish National Olympiad in Informatics
- 2012 **Bronze Medal** in Balkan Olympiad in Informatics (BOI), Serbia
- 2012 **Silver Medal** in Turkish National Olympiad in Informatics

## Service

**Program Committee**

AAAI 2026

**Reviewing**

ESA 2025, STOC 2024, STOC 2023, IPCO 2023

**Mentoring**

- Spring 2024 - Present Jiasen Liu (Undergraduate Student in USC)
- Fall 2024 - Present Xinyu Liu (Master Student in USC)
- 2020 - 2023 TUBITAK 2248 Mentoring high school students.

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## References

- Ph.D. Shaddin Dughmi, Associate Professor of Computer Science, University of Southern California,  
Advisor **shaddin@usc.edu**
- Ph.D. David Kempe, Professor of Computer Science, University of Southern California,  
Co-advisor **david.m.kempe@gmail.com**
- Collaborator Evi Micha, Assistant Professor of Computer Science, University of Southern California,  
**evi.micha@usc.edu**