

Cenk Baykal

Research Scientist, Google Research

baykal@alum.mit.edu | [baykalc.github.io](https://github.com/baykalc) | linkedin.com/in/cenkbaykal | [Google Scholar](https://scholar.google.com/citations?user=...)

Education

Massachusetts Institute of Technology

Ph.D. in Computer Science (GPA: 5.00/5.00)

Cambridge, MA

2017–2021

- Minor: Probability in High Dimension (Mathematics)
- Thesis: *Sampling-based Algorithms for Fast and Deployable AI*
- Advisor: Daniela Rus

Massachusetts Institute of Technology

S.M. in Computer Science (GPA: 4.91/5.00)

Cambridge, MA

2015–2017

- Thesis: *Algorithms for Persistent Autonomy and Surveillance*
- Advisor: Daniela Rus

University of North Carolina at Chapel Hill

B.S. Computer Science with Highest Honors, B.A. Mathematics (GPA: 3.91/4.00)

Chapel Hill, NC

2011–2015

- Graduated with Highest Distinction
- Thesis: *Design Optimization Algorithms for Concentric Tube Robots*
- Advisor: Ron Alterovitz

Experience

Google Research

Research Scientist

Cambridge, MA

May 2026–Present

Two Sigma

Quantitative Researcher

New York City, NY

July 2024–April 2026

- Designed systematic alpha strategies that leverage alternative data sources and advanced machine learning techniques
- Built and maintained research tooling using agentic AI and LLMs to accelerate signal capture and forecast evaluation

Google Research

Research Scientist

Cambridge, MA

January 2022–June 2024

- Developed conditional computation algorithms for transformers that enabled up to 30% speedups on large language models (LLMs)
- Designed data-efficient knowledge distillation strategies that led to improved transformer architectures with only 50% of teacher labeling cost
- Mentored scholars in Google CSRMP, supporting project design and research execution for students from historically marginalized groups
- Received Google Research Tech Impact Award (2023) and Spot Bonus (2024) for contributions to ML efficiency and compact Gemini models

Massachusetts Institute of Technology

Postdoctoral Researcher

Cambridge, MA

September 2021–January 2022

- Worked on algorithms for privacy-aware and efficient machine learning

J.P. Morgan AI Research

AI Research Intern

New York City, NY

May 2021–September 2021

- Developed sampling-based algorithms with regret guarantees for large-scale graph neural network training

Massachusetts Institute of Technology

Teaching Assistant for Advanced Algorithms (6.854J / 18.415J)

Cambridge, MA

Fall 2019

- Conducted office hours to help students on problem sets and concepts covered in lectures; designed and graded assignments
- TA rating according to the official MIT subject evaluation report: 7.0/7.0

- Shipped SQL Server compression optimizations and analytics tooling deployed across academic and enterprise users
- Conducted research in robotics, path planning, and enabling technologies

Honors & Awards

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| 2024 | Google Spot Bonus – Critical contributions to the efficiency of compact Gemini models | Google |
| 2023 | Google Research Tech Impact Award – Contributions to ML efficiency techniques | Google |
| 2023 | NeurIPS Spotlight Paper – Alternating Updates for Efficient Transformers | NeurIPS |
| 2021 | Winner – MIT The Engine’s Interval Program (one of two winning teams) | MIT |
| 2020–2021 | Expert Reviewer – ICLR (2020, 2021); ICML (2021) | ICLR, ICML |
| 2020 | Top 10% Reviewer – NeurIPS | NeurIPS |
| 2017 | RSS Best Paper Award – Robotics: Science and Systems Conference | RSS |
| 2011–2015 | Early Academic Honors – Carolina Research Scholar; CRA Outstanding Undergraduate Finalist; Phi Beta Kappa; Charles H. Dunham Scholarship; Dunlevie Honors Award; SURF; Honors Carolina; Dean’s List | UNC Chapel Hill |

Selected Publications

For the complete list of publications, visit [Google Scholar](#).

TRANSFORMERS & DISTILLATION

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| Alternating Updates for Efficient Transformers | <i>NeurIPS (Spotlight)</i> |
| Cenk Baykal, Dylan Cutler, Nishanth Dikkala, Nikhil Ghosh, Rina Panigrahy, Xin Wang | 2023 |
| SLaM: Student-Label Mixing for Distillation with Unlabeled Examples | <i>NeurIPS</i> |
| Vasilis Kontonis, Fotis Iliopoulos, Khoa Trinh, Cenk Baykal, Gaurav Menghani, Erik Vee | 2023 |
| Robust Active Distillation | <i>ICLR</i> |
| Cenk Baykal, Khoa Trinh, Fotis Iliopoulos, Gaurav Menghani, Erik Vee | 2023 |
| A Theoretical View on Sparsely Activated Networks | <i>NeurIPS</i> |
| Cenk Baykal, Nishanth Dikkala, Rina Panigrahy, Cyrus Rashtchian, Xin Wang | 2022 |

COMPRESSION & ROBOTICS

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| SiPPing Neural Networks: Sensitivity-informed Provable Pruning of Neural Networks | <i>SIAM SIMODS</i> |
| Cenk Baykal*, Lucas Liebenwein*, Igor Gilitschenski, Dan Feldman, Daniela Rus | 2022 |
| Lost in Pruning: The Effects of Pruning Neural Networks beyond Test Accuracy | <i>MLSys</i> |
| Lucas Liebenwein, Cenk Baykal, Brandon Carter, David Gifford, Daniela Rus | 2021 |
| Provable Filter Pruning for Efficient Neural Networks | <i>ICLR</i> |
| Cenk Baykal*, Lucas Liebenwein*, Harry Lang, Dan Feldman, Daniela Rus | 2020 |
| Data-Dependent Coresets for Compressing Neural Networks with Applications to Generalization Bounds | <i>ICLR</i> |
| Cenk Baykal*, Lucas Liebenwein*, Igor Gilitschenski, Dan Feldman, Daniela Rus | 2019 |
| Sampling-Based Approximation Algorithms for Reachability Analysis with Provable Guarantees | <i>RSS</i> |
| Cenk Baykal*, Lucas Liebenwein*, Igor Gilitschenski, Sertac Karaman, Daniela Rus | 2018 |
| Asymptotically Optimal Design of Piecewise Cylindrical Robots using Motion Planning | <i>RSS (Best Paper Award)</i> |
| Cenk Baykal, Ron Alterovitz | 2017 |