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Google Scholar
La Jolla, CA

Amirhesam Abedsoltan

PhD Candidate, University of California San Diego

Summary of Qualification

Expertise

- Strong foundation in machine learning, optimization, and statistical learning, with both theoretical and applied contributions.
- Published in **NeurIPS, ICML, AISTATS**, with research spanning scaling, generalization, and kernel methods.
- Developed and fine-tuned open-source large language models (**GPT-2, Qwen, LLaMA**) using **Hugging Face Transformers** and **PyTorch**, with focus on in-context learning, reasoning, and generalization.
- Built **multi-agent frameworks** (Agent-Squad, OpenManus) to coordinate collaborative model workflows for design in my internship.

Research Interests

Machine Learning, Optimization, Generalization, Scaling

Education

PhD in Computer Science, (Advisor: Misha Belkin) *University of California San Diego, La Jolla, CA* 2021—Present
Master of Science in Computer Science (GPA: 3.95/4.00), *University of Southern California, Los Angeles, CA* 2018—2021
Bachelor of Science in Electrical Engineering, *Sharif University of Technology, Tehran, Iran* 2014—2018

Selected Publications

- *Fast training of large kernel models with delayed projections.*
  Amirhesam Abedsoltan, Siyuan Ma, Parthe Pandit, Mikhail Belkin
  39^{th} Neural Information Processing Systems **(NeurIPS 2025 - Spotlight)**
- *Task Generalization With AutoRegressive Compositional Structure: Can Learning From D Tasks Generalize to D^T Tasks?*
  Amirhesam Abedsoltan, Huaqing Zhang, Kaiyue Wen, Hongzhou Lin, Jingzhao Zhang, Mikhail Belkin
  42^{nd} International Conference on Machine Learning **(ICML 2025)**
- *Context-Scaling versus Task-Scaling in In-Context Learning*
  Amirhesam Abedsoltan, Adityanarayanan Radhakrishnan, Jingfeng Wu, Mikhail Belkin
- *On the Nystrom Approximation for Preconditioning in Kernel Machines*
  Amirhesam Abedsoltan, Mikhail Belkin, Parthe Pandit, Luis Rademacher
  27^{th} International Conference on Artificial Intelligence and Statistics **(AISTATS 2024)**
- *On Emergence of Clean-Priority Learning in Early Stopped Neural Networks*
  Chaoyue Liu*, **Amirhesam Abedsoltan***, Mikhail Belkin
- Towards Large Kernel Models
  Amirhesam Abedsoltan, Mikhail Belkin, Parthe Pandit
  40^{th} International Conference on Machine Learning **(ICML 2023)** (*Open source code GitHub*)
- *Benign, Tempered, or Catastrophic: Toward a Refined Taxonomy of Overfitting*
  Neil Mallinar, James B. Simon, **Amirhesam Abedsoltan**, Parthe Pandit, Mikhail Belkin, Preetum Nakkiran
  36^{th} Neural Information Processing Systems **(NeurIPS 2022)**
- *Uncertainty Estimation with Recursive Feature Machines*
  Daniel Gedon*, **Amirhesam Abedsoltan***, Thomas B Schön, Mikhail Belkin
  40^{th} Conference on Uncertainty in Artificial Intelligence **(UAI 2024)**

*Equal contribution

Experience

Graduate Research Assitant **Fall 2021-Present**
University of California SanDiego (UCSD) *La Jolla, CA*

AI Research Intern **Summer 2025**
Figma *San Francisco, CA*

Graduate Visiting Student **November 2023**
Simons Institute for the Theory of Computing (Host: Peter Bartlett) *Berkeley, CA*

Summer Cluster: Deep Learning Theory **Summer 2022**
The Simons Institute for the Theory of Computing at the University of California Berkeley *Berkeley, CA*
https://simons.berkeley.edu/people/amirhesam-abedsoltan