Atal Narayan Sahu

Graduate Student, UCLA

🌐 atalnarayan.github.io @ atalnsahu@gmail.com 📞 +1-213-734-6350
○ github.com/atalnarayan in linkedin.com/in/atal-narayan 🎓 Google Scholar

EDUCATION

- **University of California, Los Angeles** *Sep 2025 – Sep 2026 (expected)*
  Master of Quantum Science & Technology

- **King Abdullah University of Science and Technology, KSA** *Jan 2019 – Dec 2020*
  M.S. in Computer Science

- **Indian Institute of Technology, Kanpur** *Jul 2014 – June 2018*
  B.S. in Mathematics & Scientific Computing
  Minors in Algorithms and Machine Learning

EXPERIENCE

- **University of California, Los Angeles** *Mar 2026 – present*
  Graduate Research Assistant, Quantum Light Matter Cooperative

  – Developing a prior-aware extension of COPRA for ultrafast pulse retrieval, integrating analytic, physics-informed, and learned denoising priors into the iterative retrieval loop.

- **PrashantAdvait Foundation** *Apr 2024 – Apr 2025*
  Senior Software Engineer

  – Engineered a scalable ClickHouse data warehouse using dbt for organizational analytics.
  – Developed optimized ranking algorithms and secure, multi-tenant social feed architectures in Go.

- **Regology** *Sep 2021 – Mar 2024*
  Senior Data Scientist

  – Led Reggi, a RAG-based legal AI assistant built on in-house semantic search and LLMs.
  – Applied state-of-the-art NLP techniques on Regology's legal corpora.

- **King Abdullah University of Science and Technology** *Jan 2019 – Aug 2021*
  Graduate Research Assistant, SANDS Lab

  – Developed communication-efficient methods for large-scale distributed machine learning.

- **STARS, INRIA, Sophia Antipolis** *Jun 2020 – Aug 2020*
  Summer Research Intern, STARS Team

  – Explored weakly supervised methods for activity detection in videos. [Report]

- **King Abdullah University of Science and Technology** *May 2017 – Jul 2017*
  Summer Research Intern, Optimization and Machine Learning Lab

  – Researched asynchronous randomized methods for solving large linear systems.

PUBLICATIONS

* denotes equal contribution

1. *REFL: Resource-Efficient Federated Learning.*
   Ahmed M. Abdelmoniem, **Atal Narayan Sahu**, Marco Canini, Suhaib A. Fahmy
   ACM EuroSys 2023 [Link]

2. *On the Convergence Analysis of Asynchronous SGD for Solving Consistent Linear Systems.*
Atal Narayan Sahu, Aritra Dutta, Aashutosh Tiwari, Peter Richtárik
Linear Algebra and its Applications (LAA) 2023   [Link]

3. *Natural Compression for Distributed Deep Learning.*
Samuel Horváth, Chen-Yu Ho, Ludovít Horváth, **Atal Narayan Sahu**, Marco Canini, Peter Richtárik
MSML 2022   [Link]

4. *Rethinking gradient sparsification as total error minimization.*
Atal Narayan Sahu, Aritra Dutta, Ahmed M. Abdelmoniem, Trambak Banerjee, Marco Canini, Panos Kalnis
NeuRIPS 2021 Spotlight presentation (Top 3%)   [Link]

5. *Efficient Sparse Collective Communication and its application to Accelerate Distributed Deep Learning.*
Jiawei Fei*, Chen-Yu Ho*, **Atal Narayan Sahu**, Marco Canini, Amedeo Sapio
ACM SIGCOMM 2021   [Link]

6. *On the Discrepancy between the Theoretical Analysis and Practical Implementations of Compressed Communication for Distributed Deep Learning.*
Aritra Dutta, El Houcine Bergou, Ahmed M. Abdelmoniem, Chen-Yu Ho, **Atal Narayan Sahu**, Marco Canini, Panos Kalnis
AAAI 2020   [Link]

TECHNICAL SKILLS

- **Programming languages:** Python, Go, C, Julia, MATLAB, R, SQL
- **Software:** Docker, Git, MongoDB, Couchbase, Clickhouse, Elasticsearch, Solr
- **Machine Learning Packages:** PyTorch, TensorFlow, Keras, Langchain, Spacy

RELEVANT COURSES

- **Machine Learning & Optimization:** Introduction to Machine Learning, Combinatorial Machine Learning, Deep Learning for Computer Vision, Data Efficient Deep Learning, Computational Methods in Data Mining, Big Data Optimization.
- **Mathematics:** Linear Algebra, Real & Complex Analysis, Mathematical Logic, Multivariate Calculus & Differential Geometry, Theory of Computation, Measure Theory.
- **Probability & Statistics:** Applied Stochastic Processes, Statistical Inference, Probability Theory.
- **Algorithms:** Data Structures & Algorithms, Randomized Algorithms, Advanced Algorithms, Markov Chains in Combinatorial Optimization and Evolutionary Dynamics, Quantum Algorithms.
- **Physics:** Electrodynamics, Mechanics, Quantum Computation, NMR, Quantum Information, Quantum Optics.

HONORS

- **KAUST graduate fellowship** awarded to KAUST MS students.
- **KVPY fellowship** (2015–2018) with **ALL INDIA RANK 9**, awarded by Dept. of Science & Technology, India for promoting research careers among promising students in sciences.
- **INSPIRE fellowship** (2014), awarded by Dept. of Science & Technology, India to meritorious students pursuing an undergraduate in sciences at premier institutes.
- **99.86 percentile** (among 1,500,000 candidates) in **JEE (Main)** 2014.
- **98.9 percentile** (among 150,000 screened candidates) in **IIT-JEE (Advanced)** 2014.