






# Atal Narayan Sahu

Incoming Graduate Student, UCLA

 [atalnarayan.github.io](https://github.com/atalnarayan)    [atalnarayan@g.ucla.edu](mailto:atalnarayan@g.ucla.edu)    Google Scholar  
 [github.com/atalnarayan](https://github.com/atalnarayan)    [linkedin.com/in/atal-narayan](https://linkedin.com/in/atal-narayan)

---

## EDUCATION

---

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

---

- **PrashantAdvait Foundation** *Apr 2024 – Apr 2025*  
*Senior Software Engineer*
  - Set up a scalable data warehouse for data-driven decisions.
  - Designed and implemented ranking algorithms for the Gita Feed.
- **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.

## RESEARCH INTERESTS

---

My current research interests lie in computational methods for scientific discovery. I aim to develop generative and physics-informed ML models and explore hybrid quantum-classical algorithms to tackle inverse design, property prediction, and synthesis planning in drug discovery, materials design, and quantum chemistry.

## 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, Elementary Probability Theory.
- **Algorithms:** Data Structures & Algorithms, Randomized Algorithms, Advanced Algorithms, Applications of Markov Chains in Combinatorial Optimization and Evolutionary Dynamics.
- **Physics:** Electrodynamics, Mechanics.

## 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.

## EXTRACURRICULAR ACTIVITIES

---

- **Winner** – Regology GenAI hackathon 2023.
- **Winner** – Design and Build Medical Devices at Winter Enrichment Program, 2020, KAUST.
- Represented Jabalpur Region, Table Tennis (U-17) in **KVS National Sports Meet** 2011–12.
- Secured **3rd position** in **KVS Regional Youth Parliament** 2012 acting as Deputy Speaker.