Sowndarya Krishnan N K

Golden, CO, USA — Phone: +1 539–895–1874
Github: github.com/krishnanN27

Email: sowndaryakrishnanna@mines.edu
Website: skfyi.com
LinkedIn: linkedin.com/in/krishnan-n

Summary

Ph.D. student in Computer Science working on hybrid Quantum–AI methods for scientific computing and physics-based modeling. Experienced in developing ML-driven models for PDE-governed processes, inverse problems, and simulation workflows. Strong background in Python-based scientific coding, data-driven modeling, and applied AI for engineering decision support.

Skills

- **Programming**: Python, C, Java, JavaScript
- **Software Development**: Object-oriented design, debugging, testing, documentation, Git
- **Machine Learning**: PyTorch, scikit-learn, optimization, scientific ML
- **Scientific Computing**: PDE-based modeling, numerical methods, simulation pipelines
- **Systems & Tools**: Linux, Docker, REST APIs
- **Cloud & DevOps**: AWS, GCP (familiarity with CI/CD workflows)

Experience

- **G4 Lab, Colorado School of Mines** — Golden, CO
  Research Assistant — Machine Learning and Scientific Computing — *Aug 2025 – Present*
  - Developed ML-driven surrogate models for PDE-governed engineering systems.
  - Built Python-based pipelines for simulation, inverse problems, and parameter estimation.
  - Translated mathematical models into scalable, production-quality research software.
- **Colorado School of Mines** — Golden, CO
  Teaching Assistant — Advanced Machine Learning — *Aug 2025 – May 2026*
  - Mentored graduate students on ML model design, optimization, and debugging.
  - Supported labs, grading, and technical evaluations for advanced ML coursework.
- **Data-Driven CPS Lab, Colorado School of Mines** — Golden, CO
  Research Assistant — Data and Metadata Management of Cyber-Physical Systems — *Aug 2023 – May 2025*
  - Designed FlowSHACL, a dataflow-based SHACL validation engine using explicit DAG-based operator plans.
  - Enabled dependency-aware execution to eliminate redundant validation and reuse shared sub-shape results.
  - Implemented ahead-of-time and run-time optimizations improving validation efficiency while preserving SHACL semantics.
  - Built benchmarking pipelines comparing FlowSHACL with existing validators on large-scale RDF datasets.
- **Sloan Foundation Energy Project** — Colorado, USA
  Full Stack Engineer — *Jan 2023 – May 2025*
  - Built backend services and analytics pipelines for high-frequency energy time-series data.
  - Deployed containerized services using Docker and cloud infrastructure.
  - Optimized long-running data pipelines for performance and reliability.
- **NCompass Tech Studio Pvt. Ltd.** — Chennai, India
  Software Engineer — *May 2021 – May 2022*
  - Developed production Android and Flutter applications.
  - Led a UI redesign resulting in 1,000+ additional downloads.
  - Improved integration efficiency by 25% using reusable components and CI/CD pipelines.

Honors

- : Best Poster Presentation — CMAPP Honors, Colorado School of Mines (Jan 2025)
- : Hackathon Winner — Echoes of Equality, Colorado School of Mines (Feb 2022)
- : Undergraduate Research Symposium Judge (x2) — Colorado School of Mines (Sept 2024, Apr 2024)
- : Best Presentation — ECUBE, Anna University (Mar 2022)

Education

- **Colorado School of Mines** — Golden, CO
  Ph.D. Computer Science (In Progress) — *Aug 2025 – Present*
  - Research Lab: G4 Lab — Advisor: Prof. Pejman Tahmasebi
- **Colorado School of Mines** — Golden, CO
  M.S. Computer Science — GPA: 3.7 / 4.0 — *Aug 2023 – Aug 2025*
  - Research Lab: Data-Driven CPS Lab — Advisor: Prof. Gabe Fierro
- **Anna University** — Chennai, India
  B.E. Electronics & Communication Engineering — GPA: 8.56 / 10 — *Aug 2018 – Aug 2022*
  - Graduated: First Class with Distinction