

# Sowndarya Krishnan Navaneetha Kannan

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Highlands Ranch, CO, USA





## RESEARCH INTERESTS

Hybrid Quantum–Classical Machine Learning (QX-ML); Quantum Computing for Scientific Simulations; Quantum Algorithms for PDE-based Models; Multiscale and Multiphysics Modeling; Applications in Fluid Flow and Porous Media Systems

## EDUCATION

- **Colorado School of Mines** Aug 2025 – Present  
*PhD in Computer Science*  
◦ Advisor: Prof. [Pejman Tahmasebi](#) | Lab: [G4 Lab](#)  
Golden, CO, USA
- **Colorado School of Mines** Aug 2023 – May 2025  
*MS in Computer Science*  
◦ Advisor: Prof. [Gabe Fierro](#) | Lab: [Data-Driven CPS Lab](#)  
◦ GPA: 3.6 / 4.0  
Golden, CO, USA
- **Anna University** Aug 2018 – Aug 2022  
*B.E. in Electronics & Communication Engineering*  
◦ GPA: 8.56 / 10 | Graduated: First Class with Distinction  
Chennai, India

## EXPERIENCE

- **NCompass Tech Studio Pvt. Ltd**  May 2021 – May 2022  
*Mobile Engineer, Frontend Engineer & Cloud Engineer*  
◦ Developed mobile applications and cloud solutions using Kotlin, Flutter, and Android development.  
◦ Led a major UI redesign for the company's Android app, resulting in **1,000+ additional downloads** on the Play Store.  
◦ Created custom reusable components, driving a **25% increase in integration** across business groups.  
◦ Ensured high-quality code by applying Git, unit testing, and TDD, achieving a **98% bug-free release rate**.  
◦ **Technologies:** Android, Kotlin, Flutter, Node.js, React, AWS, GCP, Terraform, Docker, Grafana, SQL, Firebase, Git, DevOps  
Chennai, India
- **Sloan Foundation Interdisciplinary Project**  Jan 2023 – Present  
*Frontend Developer & Backend Engineer*  
◦ Designed and implemented **backend solutions** for large-scale time-series data on community energy consumption.  
◦ Built a **real-time community dashboard** with accessible, inclusive UI/UX for diverse stakeholders.  
◦ Developed scalable pipelines and optimized retrieval for energy time-series datasets.  
◦ **Technologies:** React, PostgreSQL, Firebase, Docker, Grafana, AWS SNS, VPN  
Leadville, CO, USA
- **Data-Driven CPS Lab**  Aug 2023 – Present  
*Graduate Research Assistant*  
◦ Conducting research on **SHACL validation and inference** under Prof. Gabe Fierro, with a focus on RDF graph acceleration.  
◦ Improving scalable **data validation pipelines** for real-time applications in IoT and Smart Cities.  
◦ **Technologies:** RDF, SHACL, SHACL-AF, Python, Git, Linux, Bash  
Golden, CO, USA
- **BrickSchema Ontology**  June 2024  
*Contributor*  
◦ Implemented a new search functionality (using Fuse.js), resolving a long-standing issue now widely used worldwide.  
◦ **Technologies:** JavaScript, Git  
Remote

## PROJECTS

### • Echoes of Equality: Social Platform for LGBTQIA+ Support

Feb 2022

Tools: React, Node.js, Firebase, Google Cloud



- Won **1st Place in Beginner Category & LGBTQIA+ Category** at BlasterHacks Hackathon.
- Built a platform to foster inclusivity and social support through interactive community features.
- Designed impactful UI/UX, receiving special recognition from judges for innovation and social impact.

### • Community Energy Dashboard: Real-Time Visualization Platform

May 2024 – Present

Tools: React, Firebase, AWS SNS (in progress)



- Collaborated with interdisciplinary teams to design a **real-time dashboard** for community energy consumption.
- Ensured accessibility and usability for diverse users by following **inclusive UI/UX design guidelines**.
- Built dynamic visualizations to support informed decision-making for local stakeholders.

### • BrickSchema Ontology Contribution: Global Ontology Enhancement

June 2024

Tools: JavaScript (Fuse.js), Git



- Contributed a new **search functionality**, solving a long-standing issue and enabling faster global adoption.
- Integrated Fuse.js for efficient client-side search, now used by developers worldwide.

## PATENTS AND PUBLICATIONS

C=CONFERENCE, J=JOURNAL, P=PATENT, S=IN SUBMISSION, T=THESIS

[S.1] In Progress

## SKILLS

- **Programming Languages:** Python, Java, C, Kotlin, Flutter (Dart), JavaScript (Node.js, React, TypeScript), OCaml, LISP
- **Web & App Technologies:** React, Node.js, Angular.js, Nest.js, Android App Development, HTML/CSS
- **Database Systems:** PostgreSQL, SQL, Firebase
- **Data Science & Machine Learning:** SHACL, SHACL-AF, Machine Learning, Data Pipelines, RDF Graphs, Discrete Math
- **Cloud Technologies:** AWS, GCP, Azure, Firebase
- **DevOps & Version Control:** Docker, Terraform, Git, Linux, Grafana
- **Specialized Areas:** Quantum Computing, PDE-based Simulations, Hybrid QX-ML, Multiscale Modeling
- **Mathematical & Statistical Tools:** Numerical Simulation, Algorithms, Cryptography, Statistics
- **Other Tools & Technologies:** MS Office, Jira, Bash, LaTeX
- **Research Skills:** RDF/SHACL Validation, Time-Series Data Analysis, Accessible UI/UX Design, Interdisciplinary Collaboration

## REFERENCES

### 1. Prof. Pejman Tahmasebi

Associate Professor, Petroleum Engineering  
Colorado School of Mines  
Email: [ptahmase@mines.edu](mailto:ptahmase@mines.edu)  
Relationship: PhD Advisor (G4 Lab)

### 2. Prof. Gabe Fierro

Assistant Professor, Computer Science  
Colorado School of Mines  
Email: [gtfierro@mines.edu](mailto:gtfierro@mines.edu)  
Relationship: MS Advisor (Data-Driven CPS Lab)

## KEYWORDS

Quantum Computing, Scientific Simulations, Partial Differential Equations (PDEs), Hybrid Quantum-Classical Machine Learning (QX-ML), Multiscale Modeling, Multiphysics Systems, Fluid Flow in Porous Media, Data Validation, SHACL, RDF, Artificial Intelligence (AI), Machine Learning (ML), Deep Learning, Neural Networks, Natural Language Processing (NLP), Computer Vision, Algorithms, Data Structures, Software Engineering, Object-Oriented Programming (OOP), Agile Development, Cloud Computing (AWS, GCP, Azure), DevOps, CI/CD, Docker, Terraform, Git, SQL, PostgreSQL, NoSQL, React, Node.js, JavaScript (TypeScript, Angular, Nest.js), Python, Java, C, Kotlin, Flutter, Android Development