Raahul Singh

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Dehradun | London

EDUCATION

IIIT SRI CITY
BTech in Computer Science and Engineering
Cum. GPA: 8.43 / 10
August 2018 - 2022 | India

ST. JUDE'S SCHOOL
Grad. May 2017 | Dehradun, India

LINKS

Website: **raahulsingh.net**
Github: **Raahul-Singh**
GitLab: **rasalghul2**
LinkedIn: **raahulsingh42**

COURSEWORK

UNDERGRADUATE
•Advanced Deep Learning and Neural Networks
•Artificial Intelligence and Machine Learning
•Object-Oriented Programming and Software Design
•Information Retrieval and Search Systems
•Service-Oriented Architecture and Application Development

SKILLS

PROGRAMMING
Python
Frameworks:
PyTorch • NumPy
Pandas • SunPy
Tools:
Git • Bash

PUBLIC SPEAKING
English Debate
• Won First Prize in International English Debate QUANTA (2016) among speakers from 33 countries at City Montessori School, Lucknow, India
• Accumulated over 7 years of competitive debating experience in Inter-School and District-level English Debates

RESEARCH AND ENGINEERING EXPERIENCE

PHAIDRA
Staff AI Research Engineer
August 2020 - Present

- Architected the core agentic framework for "Prism," transforming a self-initiated prototype into Phaidra's flagship Observability system.
- Engineered the agent's tool-execution layer to perform **automated information fusion and synthesis**, aggregating heterogeneous industrial data sources for complex multi-step reasoning.
- Designed and implemented an end to end interactive platform for monitoring and analysing all production models and agents for performance and biases, giving insights to Domain Experts for reliable support.
- Invented data-agnostic techniques for incorporating domain knowledge into deep neural networks, resulting in more interpretable and physically consistent models.
- Built comprehensive ML observability pipelines and domain-specific performance monitoring systems to ensure model reliability in production.
- Engineered solutions for large-scale decision problems with complex action spaces, optimising computational efficiency and decision quality.
- Led cross-functional collaboration between Research and Engineering teams to successfully deploy cutting-edge research into production systems.
- Achieved 15x improvement in time series prediction accuracy while reducing data requirements by 30x, successfully extending prediction horizons to 2x and 3x variables.

GOOGLE SUMMER OF CODE '20 @ SUNPY (OPENASTRONOMY)
Student Developer
May 2020 – July 2020

- Developed machine learning models to forecast solar flare probabilities from Active Region data, improving prediction accuracy and reliability.
- Engineered a Search Events object for seamless querying and matching data across HFC, HEK, and HELIO astronomical databases.
- *Link to an overview of deliverables.*

PUBLICATIONS

DETERMINISTIC INDUSTRIAL PROCESS CONTROL Patent
US20250021061A1 (Jan 2025)

- Co-invented a hybrid control architecture that arbitrates between AI agents and local loops to guarantee deterministic constraints in safety-critical systems.
- [Link to Patent]

STARKINDLER arXiv Preprint

- **Raahul Singh**, Ashutosh Pandey. (2025). *Starkindler: An Uncertainty Aware Objective for Photometric Redshift Estimation.* arXiv preprint arXiv:2512.22566.
- Formulated a novel loss function regularised by aleatoric uncertainty, demonstrating significant outlier reduction on SDSS data compared to baseline CNNs.
- [Link to Paper] [Source Code]