

Ashwath Vaithinathan Aravindan

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GitHub: [Mystic-Slice](#) | **Scholar:** [Ashwath](#) | **LinkedIn:** [linkedin.com/in/ashwath-va](#) | **Website:** [mystic-slice.github.io](#)

University of Southern California

Aug 2024-May 2026(expected)

Master of Science in Computer Science (Artificial Intelligence)

Amrita Vishwa Vidyapeetham | GPA: 9.57/10

Oct 2020-Jun 2024

Bachelor of Technology in Computer Science and Engineering

Gold Medalist (Rank 1st/421)

EXPERIENCE

Research Intern

Jan 2024-Jul 2024

CREB, Universitat Politècnica de Catalunya | **Project**

Remote

- Implemented a synthetic data generator and conducted a comparative study on the effectiveness of CNNs & ViTs with attention mechanisms in identifying and localizing Retinopathy of Prematurity (RoP), guided by [Dr. Raul Benitez](#).

Research Intern

Aug 2023-Jun 2024

Amrita x Sony - SSUP

Coimbatore, India

- Devised a control system for efficient low-cost food drying in a solar polyhouse using cyber-physical modelling and simulation, resulting in a 10 - 15% improvement in drying efficiency with an exhaust fan as the only actuator.

Open-source Developer

Jun 2022-Jun 2024

Helmholtz Analytics Toolkit (Heat) | **Project**

Remote

- Developed the new sparse module for Heat - a distributed tensor framework for HPC systems with 50k+ downloads.
- DCSR_matrix and DCSC_matrix display about 76% improvement in performance in place of dense matrices.

Software Engineering Intern

May 2023-Jul 2023

Intuit

Bangalore, India

- Contributed to the revamp of ItsDeductible - a product of Intuit for tracking charitable donations with over 200k users.
- Constructed an intuitive web experience on a micro-frontend architecture with caching, logging, and analytics.

PUBLICATIONS

- Ashwath, V. A., Sikha, O. K., & Benitez, R. (2023). TS-CNN: a three-tier self-interpretable CNN for multi-region medical image classification. IEEE access. | [Paper](#) | [Code](#)
- Ashwath, V. A., Ayyagari, A. S., Deebakkarthi, C. R., & Arun, R. A. (2023, August). Building of Computationally Effective Deep Learning Models using Attention-Guided Knowledge Distillation. In 2023 12th International Conference on Advanced Computing (ICoAC) (pp. 1-8). IEEE. | [Paper](#) | [Code](#)

PROJECTS

SmartVidIndex | **Project**

Jul 2024-Present

- Built an intelligent video index that can answer user queries and retrieve relevant snippets from a video collection.
- Utilized techniques like multi-query generation, reciprocal rank fusion and heirarchical indexing to improve search efficiency and accuracy.

RejuvenAqua | **Project**

Feb 2023-Jun 2023

- Led a team in designing a intelligent IoT system for a network of water sumps to ensure optimal distribution of water.
- Integrated a demand forecasting system and a heuristic path-finding algorithm to optimally route the water supply.

SKILLS & INTERESTS

Interests: Deep Learning, Artificial Intelligence, Application Development, Computer Vision, Natural Language Processing

Deep Learning: TensorFlow & Keras, PyTorch, Scikit-learn, Numpy, Scipy, Pandas, Matplotlib, Pillow, OpenCV

Web/App Development: React.js, Next.js, Redux, Redux-Saga, GraphQL, Flask, Langchain, Qdrant, Firebase (Firestore, Auth, Cloud Storage), Sqlite3, Qt(C++), Electron.js

Languages: Python, C++, TypeScript, Go, C, Rust

CERTIFICATIONS & LEARNING

- 6th Summer School on AI - IIIT-H (Online) | [Link](#)
- Neural Networks and Deep Learning - Coursera (Online) | [Link](#)

LEADERSHIP & ACHIEVEMENTS

- Intuit's Spotlight recognition - for exemplary performance during the summer internship.
- FOSS Lead, GDSC - guided students and organized seminars on development of open-source software.
- Reach an all-time highest rating of 1645 (Expert) on [Codeforces](#) and 1942 on [Codechef](#).
- 3x Regionalist in the ICPC and placed 231st in Round G and 314th in Round H (of 10k+ globally) in Google Kickstart.