Swetha Krishnan

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EDUCATION

University of Massachusetts Amherst — **Amherst, MA**
Master of Science in Computer Science — *Expected Graduation Date: June 2026*

Indian Institute of Space Science and Technology — **Thiruvananthapuram, India**
Bachelor of Technology in Electronics and Communications Engineering (Avionics) — *July 2016 - August 2020*

- **Notable Coursework:** Pattern Recognition and Machine Learning, Deep Learning for Computational Data Science, Computer Networking, Computer Architecture, Computer Programming (C++)
- **Awards:** Full-ride Scholarship: provided by Department of Space, Govt. of India on merit basis

PROFESSIONAL EXPERIENCE

Indian Space Research Organisation — **Bengaluru, India**
Scientist/Engineer, Human Spaceflight Centre — *January 2021-June 2024*

- Designed a system (hardware and software) for real-time automated testing of space avionics and instrumentation systems towards India's maiden Crew Module design for Indian astronauts
- Implemented improved software design patterns on C++ on RHEL, improving acquisition scalability by 20%
- Improved software efficiency by 30% using multithreading in C++, optimizing instrumentation and testing operations
- Executed critical launch operations, resulting in a 25% reduction in launch preparation time
- Spearheaded troubleshooting efforts during launch operations, effectively debugging HOLD situations due to satellite positioning system anomalies, leading to a 100% launch success rate
- Led a team of 6 engineers in system realisation, resulting in 40% reduction in testing time
- Co-ordinated multi-disciplinary interactions for end-to-end system realization, accelerating project completion by 30%

RESEARCH EXPERIENCE

Indian Institute of Space Science and Technology — **Thiruvananthapuram, India**

***Undergraduate Research**, Computer Vision Lab, Department of Avionics* — *January-July 2020*

- Proposed a new CNN for learning general image aesthetics assessment with 43% lower parameter count
- Implemented a new architecture for personalized recommendations, improving SRCC by 5% over benchmark models
- Explored parameter optimisation techniques for models trained over AVA, AADB & FLICKR-AES datasets

***Research Intern,** Computer Vision Lab, Department of Avionics* — *June - July 2019*

- Initiated international collaboration with Oslo Metropolitan University for research on image aethetics assessment
- Implemented benchmark deep learning techniques, trained and compared model performances
- Explored explainability of model predictions using multi-layer saliency maps

Indian Space Research Organisation — **Bengaluru, India**

***Research Intern,** Control Dynamics and Simulation Group, U.R. Rao Satellite Centre* — *June - July 2017*

- Performed a study of Visual Odometry methods for camera pose estimation from stereo images
- Implemented benchmark techniques in camera-based visual odometry with dataset for land rover pose estimation

SKILLS

Languages/Frameworks: C, C++, Python, Bash scripting, MATLAB, SQL, HTML, CSS, (La)TeX
Frameworks: Pytorch, TensorFlow, Keras, Scikit learn, Qt, Windows, RHEL, Ubuntu

OTHER EXPERIENCES/ACHIEVEMENTS

Workshops/Seminars/Conferences

- **ISRO Inter-Centre Technical Seminar, 2023:** Accepted poster titled *"Artificial Intelligence in Human Spaceflight: Advancements, Applications, and Challenges"*
- **Neural Information and Processing Systems, 2019:** Volunteered for events and various workshops in Computer Vision, NLP, ML and AI in Vancouver, Canada

Leadership Experience

- **Human Spaceflight Expo, 2022:** Organized Student Events for more than 200 participating schools over a 3-day nation-wide public outreach program on ISRO's human spaceflight program

Co-curricular Achievements

- Scored 91% (merit) for German Language Level A1
- Awarded gold & silver for athletics & badminton in IIST & ISRO Annual Sports Meets (2017, 2018, 2019, 2023)