

# SUNDAR SRIPADA V. S.

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## RESEARCH INTERESTS

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Empirical Inference, Explainability, Interpretability, Geoinformation, Earth Sciences

## EDUCATION

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**The University of Bonn** **Bonn, Germany**  
*Doctor of Engineering Sciences (Dr.-Ing.), Geodesy and Geoinformation* Jun. 2026 –

**The University of Texas at Austin** **Austin, USA**  
*Master of Science in Engineering (M.S.E), Electrical and Computer Engineering, GPA: 3.81/4* Aug. 2022 – Dec. 2024

**Anna University (SSN College of Engineering)** **Chennai, India**  
*Bachelor of Engineering (B. Eng), Electronics and Communication Engineering, GPA: 8.54/10* Jun. 2016 – Sept. 2020

## RESEARCH EXPERIENCE

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**Doctoral Researcher** Jun. 2026 –  
*Geoinformation Group, Institute of Geodesy and Geoinformation, University of Bonn* **Bonn, Germany**

- Building data quality tools for FAIRAGRO

**ML Research Engineer** Jan. 2025 – Dec. 2025  
*AI Safety Camp* **Remote**

- Developed and evaluated PPO-based LLM agents with Causal LM tokenizers to study adversarial reward optimization in Machiavelli and AgentHarm benchmarks [GitHub](#) [PR](#)

**Graduate Research Assistant** Aug. 2022 – Jun. 2023  
*Swarm Lab, The University of Texas at Austin* **Austin, TX, USA**

- Built a TensorFlow-based Smart Tool user activity recognition model with 87% classification accuracy across 4 tool-use behaviors, enhancing ergonomics for the user [Paper](#)
- Led a team of 3 students in a large-scale data collection project and implemented an ML pipeline using CNN, TFLite, and MLFlow for real-time edge inference on a Raspberry Pi, achieving 162 ms per prediction

**Research Engineer** Oct. 2020 – Jul. 2022  
*Robotics Research Center, International Institute of Information Technology* **Hyderabad, India**

- Implemented a PPO-based reinforcement learning model for autonomous vehicle control across LIDAR SLAM systems like LOAM, LeGO-LOAM, and LIO-SAM using large-scale CARLA simulations [Paper](#), [GitHub](#)
- Developed a PyTorch-based classification pipeline for LIDAR drift heatmaps, achieving 92 % classification accuracy and built a CNN pipeline around it achieving 76.8 % drift reduction over baselines [Paper](#), [GitHub](#)

**Summer Research Fellow** May 2019 – Aug. 2019  
*Department of Electrical Engineering, Indian Institute of Technology (IIT) – Madras* **Chennai, India**

- Developed a MATLAB algorithm leveraging homogeneous matrix transformations in a stereo camera setup to estimate surgical tool-tip locations relative to fiducial markers for Image-Guided Surgery (IGS) systems

## WORK EXPERIENCE (INDUSTRY)

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**Software Engineer Intern** Jun. 2023 – Aug. 2023  
*Hewlett Packard Enterprise* **San Jose, CA, USA**

- Enhanced HPE Aruba's network management tool scalability by developing Python-based VM simulation within Docker, integrating SQL-driven system data extraction, and enabling up to 2,000,000 simulated devices with rapid onboarding

**Software Engineer Intern** May 2018 – Aug. 2018  
*Ghost Vision Pvt. Ltd., IIT Madras Incubation Cell* **Chennai, India**

- Developed a C# application for placing 3D objects on real-world surfaces using Augmented Reality (AR) techniques with Vuforia SDK in Unity3D

## MENTORSHIP/TEACHING EXPERIENCE

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### Graduate Teaching Assistant

Department of Physics, The University of Texas at Austin

Jan. 2024 – Dec. 2024

Austin, TX, USA

- Taught two sections of PHY 105N introductory Physics Lab 2, simplifying complex topics in Electricity and Magnetism for students from diverse backgrounds

### ECE Pod Program Mentor

Department of Electrical and Computer Engineering, The University of Texas at Austin

Aug. 2023 – May 2024

Austin, TX, USA

- Mentored new graduate students in the ECE Pod Program, providing guidance on academics and life in Austin

### Secretary of Robotics and Computer Vision

TechClubSSN, SSN College of Engineering, Anna University

Jul. 2019 – Sept. 2020

Chennai, India

- Taught introductory computer vision and robotics concepts to a class of 60+ undergraduate students
- Conducted weekly lab sessions and provided one-on-one support during office hours

## SKILLS

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<b>Programming</b>	Python, C++, C, Bash, R, MySQL, MATLAB, Java, Julia, JAX, HTML, CSS, JavaScript, $\LaTeX$
<b>Frameworks</b>	PyTorch, TensorFlow, TFLite, LangChain, Gymnasium, ROS, MLFlow, InspectAI (AISL), Apache Spark, AWS (S3, EC2, SageMaker), <a href="#">CARLA</a> , <a href="#">Gazebo</a>
<b>Libraries</b>	numpy, pandas, polars, matplotlib, seaborn, OpenCV, HuggingFace Transformers, HuggingFace TRL, Stable Baselines3, CleanRL, RLLib, Pillow, scikit-learn, Keras
<b>Tools</b>	git, Docker, VS Code, Google Colab, Linux, Windows 10/11, MacOS, Microcontrollers
<b>Certificates</b>	<a href="#">AI Safety Fundamentals</a>
<b>Academic Service</b>	Reviewer for: CASE 2022, CASE 2023, IROS 2023, ICRA 2024

## ACADEMIC ACHIEVEMENTS

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- Awarded **Ram's Horn Best Project Award** in Digital Image Processing at UT Austin for our project on *Style Transfer to Calvin and Hobbes Comics using Stable Diffusion* among a class of 140 students [Video](#), [arXiv](#)
- Graduated **First Class in Distinction** from Anna University, top 10% of the class (GPA: 8.54/10)
- Awarded **SSN Internally Funded Projects Grant** of ₹20,000 (€200) for a research project on *Design and development of a mobile robot for autonomous navigation using Simultaneous Localization and Mapping (SLAM)*
- Awarded **Merit Scholarship** for the Academic Year 2016-17 by Anna University for securing **University Rank #2** in Higher Secondary Examinations among 800+ candidates in Tamil Nadu State Board
- Graduated with **School Rank #2** from Sri Sankara Vidyashramam, 98.9<sup>th</sup> percentile in Tamil Nadu State Board, securing Subject Topper awards in Maths (200/200), English (192/200), French (199/200)

## PUBLICATIONS

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