Sriram Krishna

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Education

Carnegie Mellon University — *Pittsburgh, PA*

Master of Science in Robotics - **GPA: 4.17/4.0** — *Aug 2024 - Aug 2026 (Expected)*

PES University — *Bengaluru, India*

Bachelor of Technology in Computer Science and Engineering - **Overall GPA: 8.99/10.0 || Major GPA: 9.17/10.0** — *Aug 2017 - May 2021*

Experience

Carnegie Mellon University - Robotics Institute — *Pittsburgh, PA*

Graduate Research Assistant — *Aug. 2024 - Present*

- Advisor: David Held
- Currently working on learning 3D Goal Generation from large-scale human / robot data, towards guiding generalist robot manipulation policies.

Samsung Research — *Bengaluru, India*

Software Engineer - Computer Vision — *Dec. 2021 - Apr. 2024*

- **AR Vision Lab - Depth Estimation and 3D Scene Reconstruction** - Development of Spatial Understanding solutions
- Research and Development on depth estimation by leveraging a range of machine learning techniques such as self-supervised learning and knowledge distillation. Optimised models for real-time on-device inference and integrated depth subsystems into 3D Reconstruction pipeline.
- Designed and developed **DeepSmooth**, a model which achieved SOTA results for temporal consistency in depth completion. Paper presented at the VOCVALC workshop at CVPR 2023.
- Proposed the design and led implementation for a tool to generate ground truth depth / segmentation for an arbitrary camera system using a laser scanner & motion capture.
- Tech Stack: C++, PyTorch, CMake, ONNX

MIDAS-IIIT Delhi — *New Delhi, India*

Research Assistant - Part Time — *Jun. 2021 - Jul. 2023*

- Improved reliability of Automated Scoring systems by bringing humans into the loop. Presented at EAAI 2022, organized jointly with AAAI-22
- Evaluated viability of Topological Data Analysis (TDA) for modeling the coherence of natural language text. Accepted in The Tiny Papers Track at ICLR 2024.

Nextuple Inc. — *Bengaluru, India*

Software Engineer — *Jul. 2021 - Dec. 2021*

- Built Nextuple's Machine Learning Platform. Integrated the platform into existing infrastructure following best practices (logging, visualization, etc.) Tech Stack: Azure, Kubernetes, Kubeflow

Software Engineer - Intern — *Jan. 2021 - July. 2021*

- Developed a simulation demonstrating a new sourcing model, showing 20% reduction in shipping costs and 20-50% reduction in the number of shipments. Designed and developed the simulation flow and core logic in a modular architecture.

OffNote Labs — *Bengaluru, India*

Deep Learning Intern — *May. 2020 - Sep. 2020*

- Developed Gestop, an application for customizable gesture control of computer systems. The application provides an interface to communicate with a computer through hand gestures. Custom gestures to be recognized can be added to extend the application. Designed, developed and extensively documented the entire application.

Publications

- Samyak Jain, Rishi Singhal, **Sriram Krishna**, Yaman Kumar Singla, and Rajiv Ratn Shah. Beyond Words: A Topological Exploration of Coherence in Text Documents. In *The Second Tiny Papers Track at ICLR*, 2024.
- **Sriram Krishna** and Basavaraja Shanthappa Vandrotti. DeepSmooth: Efficient and Smooth Depth Completion. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition - VOCVALC Workshop*, pages 3357–3366, 2023.
- Yaman Kumar Singla*, **Sriram Krishna***, Rajiv Ratn Shah, and Changyou Chen. Using sampling to estimate and improve performance of automated scoring systems with guarantees. In *Proceedings of the AAAI Conference on Artificial Intelligence - Educational Advances in Artificial Intelligence*, 2022.

- **Sriram Krishna** and Nishant Sinha. Gestop: Customizable Gesture Control of Computer Systems. In *8th ACM IKDD CODS and 26th COMAD*, pages 405–409. ACM, 2021.
- **Sriram Krishna**, Siddarth Vinay, and KS Srinivas. Searching a Raw Video Database using Natural Language Queries. In *2021 International Conference on Advances in Electrical, Computing, Communication and Sustainable Technologies (ICAECT)*, pages 1–6. IEEE, 2021.
- **Sriram Krishna** and Niharika Pentapati. Genetic Bi-objective Optimization Approach to Habitability Score. In *International Conference on Modeling, Machine Learning and Astronomy*, pages 144–157. Springer, 2019.

Projects

nanoraytracer

- A recursive raytracer written from scratch in C++
- Supports shadows, reflections, specular/diffuse lighting and sphere/triangle primitives. Implemented in a modular and extensible manner following C++ best practices.

FrLove - Could a Frenchman rapidly identify Lovecraft?

- Exploration of cross-domain few-shot learning from a multilingual perspective. Experiments to validate whether the ”distance” between different language families can be quantified in terms of their few-shot performance.
- **French**→**English** performance is weaker than **German**→**English**, which is expected since German and English belong to the Germanic family.

YAG - Yet Another Google

- An implementation of a search engine in Python
- A search engine which can construct an inverted index on a corpus and then retrieve results for various types of queries. In addition to plain queries, it also supports phrase queries and wildcard queries.

Face Colorizer

- Developed and trained a CycleGAN using Tensorflow. The model was trained on the Labeled Faces in the Wild (LFW) dataset, and after training, could colorize black and white images of faces.

Skills

Programming Languages	Python, C++, C
Relevant Coursework	Data Structures & Algorithms, Computer Vision, Operating Systems, Human Computer Interaction, Machine Learning, Artificial Intelligence, Computer Graphics, Information Retrieval
Tools and Frameworks	PyTorch, OpenCV, Flask, Docker, CMake, Tensorflow, Kubernetes, Azure
Additional	Shell Scripting, Latex