# Jaidev Shriram Kariyatt

San Diego, CA · (619) 953-7110 · jkariyatt@ucsd.edu · linkedin.com/in/jaidev-shriram

## Education

**University of California, San Diego** — Expected June 2024
Master of Science in Computer Science, **GPA: 4.0/4.0** — *San Diego, USA*

**International Institute of Information Technology, Hyderabad** — May 2022
Bachelor of Technology in Computer Science, **GPA: 9.37/10** — *Hyderabad, India*

## Skills

**Languages**: Python, C, C++, MATLAB, JavaScript, HTML/CSS, Bash
**Tools**: PyTorch, Git, OpenCV, Kornia, Open3D, ROS, Pandas, Wandb, Tensorboard, Slurm, Docker, Numpy
**Relevant Coursework**: Machine Learning, Computer Vision, 3D Deep Learning, Robotics, Optimization Methods

## Publications and Patents

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|---|---|---|
| Leveraging Attention for Indoor Layout Estimation | *Comp. Vision, Machine Learning* | **IROS '22 (Patent Filed)** |
| **(Award Winner)** Automated Soundtrack Construction | *Comp. Vision, Machine Learning* | **ISMIR '22 (Patent Filed)** |
| Analysing Lyrical Preferences for Individuals At Risk of Depression | *Data Analytics* | **SMM '21 @ INTERSPEECH** |

## Experience

**Computer Vision Researcher** — May 2020 – May 2022
Robotics Research Center, IIIT-Hyderabad — *Hyderabad, India*

- Surpassed state of art by 10% on mapping indoor spaces, resulting in a top robotics conference publication (IROS '22)
- Improved robot navigation by 27% in indoor simulations, with smarter routes afforded by our CNN map estimator
- Trained semantic segmentation and self-supervised depth estimation networks on distributed GPUs with PyTorch

**Computer Vision Researcher** — January 2021 – May 2022
Kohli Center on Intelligent Systems, IIIT-Hyderabad — *Hyderabad, India*

- Created highly rated immersive soundtracks for books automatically using multi-modal AI (text-video alignment, text-image retrieval) and audio processing, resulting in a top music technology conference publication (ISMIR '22)
- Extended a CVPR '15 paper by enabling higher granularity text-video matching, using CLIP based ranking and retrieval

**Software Engineering Intern** — June 2021– August 2021
Graphics and Experiential Media Lab, Dalhousie University — *Halifax, Canada*

- Selected by Mitacs (Canadian research organization) for a project to improve character navigation in Virtual Reality
- Devised novel pathfinding techniques on navigation graphs using spatial information, enhancing character realism

**Software Engineering Intern** — January 2020 – May 2020
subtl.ai (Language Processing Startup) — *Hyderabad, India*

- Led a team of four using agile framework to detail software requirements and deliver a final product in three months
- Engineered a new analytics and onboarding dashboard in Django, improving admin operations and user experience

## Projects

**3D Reconstruction from Images** | *Computer Vision, Machine Learning [Python]*

- Reconstructed complex 3D objects using neural radiance fields in PyTorch, achieving 30+ PSNR on novel view synthesis

**Computer Vision Algorithms** | *Computer Vision, Machine Learning [Python]*

- Ranked #5/200 on an online food identification contest, using EfficientNets with MixUp data augmentation
- Implemented image captioning networks using RNN, LSTM, and multi-head transformer from scratch without autograd

**Image Based Structure and Motion Estimation** | *Computer Vision, Robotics [Python]*

- Successfully reconstructed 3D environment from a moving car using just a monocular video stream, on KITTI dataset
- Triangulated image pairs for depth estimation with ICP and Perspective-n-Points for accurate pose estimation

**Efficient Key-Value Storage API** | *Software Development [C++]*

- Outperformed 25 teams (#1 rank), handling one million concurrent API requests with minimal RAM and CPU usage
- Built a compressed trie from scratch with memory optimizations to maximize key-value API transaction throughput

## Awards and Roles

Google Research Week (Computer Vision) India 2022 Participant
Dean's Award for Academic and Research Excellence (*IIIT Hyderabad)*
Runner up at Megathon'19 (National Hackathon in India) | *Awarded by PricewaterhouseCoopers*