Jaidev SHRIRAM KARIYATT

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EDUCATION

University of California, San Diego   Expected June 2024
Master of Science in Computer Science and Engineering   *San Diego, USA*

International Institute of Information Technology, Hyderabad   May 2022
Bachelor of Technology in Computer Science and Engineering   *Hyderabad, India*
- **GPA**: **9.37/10**. Dean's list for academic excellence. Dean's Research Award.
- **Courses**: Machine Learning, Computer Vision, Robotics, Optimisation Methods, Data Structures, Algorithms, Software Systems, Operating Systems, Networks, Information Retrieval, Distributed Systems
- **Activities**: Chief Editor of student magazine (oversaw a team of 60, doubling readership in a year), Teaching Assistant (Mobile Robotics, Digital Systems, Data & Applications)

SKILLS

Languages: Python, C, C++, MATLAB, JavaScript, HTML/CSS, Bash
Tools: PyTorch, Git, OpenCV, Kornia, Open3D, ROS, Pandas, Wandb, Tensorboard, Slurm, Docker, Unity

PUBLICATIONS

Leveraging Attention for Extended Indoor Layout Estimation from a RGB Image	*Computer Vision, Robotics*	**IROS '22**
Automated Dense Soundtrack Construction for Books using Movie Adaptations (1st **Author**)	*Multimedia, NLP*	**ISMIR '22**
Analysing Lyrical Simplicity Preferences for Individuals At Risk of Depression (1st **Author**)	*Data Analytics*	**SMM '21**

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 simulation, with smarter routes afforded by a CNN map estimator and RL planner
- Trained semantic segmentation and self-supervised depth estimation networks on distributed GPUs with PyTorch

Machine Learning 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

HCI 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

Computer Vision Algorithms | *Computer Vision, Machine Learning [Python]*
- Ranked #5/200 on an online food identification contest, using EfficientNets with MixUp data augmentation
- Achieved realistic image generation using a DCGAN network, with ablations on using attention and conditional GANs
- Implemented image captioning networks using RNN, LSTM, and multi-head transformer from scratch without autograd

Visual Odometry | *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

Wikipedia Search Engine | *NLP, Information Retrieval [Python]*
- Developed a highly efficient search engine for Wikipedia articles, returning results in < 1 second for 80GB of XML
- Implemented a quick indexing scheme, reducing dataset size by 75%, and an effective weighted TF-IDF ranking system

2D Robot Localisation | *Robotics [Python]*
- Recovered accurate positional information from noisy location data using pose-graph optimization (2D-SLAM)