Jaidev Shriram

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Education

2018-Present **B.Tech. (Honours) in Computer Science Engineering**, *International Institute of Information Technology*, Hyderabad, India.
CGPA - **9.31/10**

2014-2018 **High School Diploma**, *Fahaheel Al-Watanieh Indian Private School*, Kuwait.
Score: **96.6%**, top 1% of graduating class

Publications

How Much do Lyrics Matter? Analysing Lyrical Simplicity Preferences for Individuals At Risk of Depression, ***J. Shriram***, *S. Paruchuri, and V. Alluri*, In Speech, Music, and Mind, Satellite Workshop of INTERSPEECH 2021.

Research Experience

June 2020 - Present **Robotics Research Center, IIIT-H**, *Honours Student*.
- Supervised by **Prof. Madhava Krishna**
- Researching indoor layout estimation from RGB images using deep neural networks.
- Exploring self-supervised learning of depth and pose through warping based approaches like 'Monodepth2' and 'SfMLearner'.

August 2021 – Present **Centre for Visual Information Technology, IIIT-H**, *Independent Study*.
- Supervised by **Prof. Makarand Tapaswi** and **Prof. Vinoo Alluri**
- Automatically aligned chapters in a book with scenes in the movie adaptation using dynamic programming and a multi-modal neural network (CLIP).
- Generated a pleasing soundtrack for books by comparing the emotion trajectory of chapters and the corresponding movie soundtrack.

May 2021 – August 2021 **Graphics and Experiential Media Lab, Dalhousie University**, *Summer Intern*.
- Interned with **Prof. Derek Reilly** through the competitive **MITACS Globalink Program**.
- Developed novel navigation rules for non-playable-characters in augmented reality stories.
- Applied theories in robotics to imbue personality to characters in Unity Engine.

January 2021 – August 2021 **Music Cognition Group, IIIT-H**, *Independent Study*.
- Discovered lyrical preferences for individuals at-risk of depression from Last.fm listening histories with **Prof. Vinoo Alluri**; work published at SMM'21 workshop.
- Used image processing techniques to investigate the structural properties of lyrics and measure differences in repetition across genre and user groups.

Work Experience

January 2019 – May 2020 **Full Stack Developer**, *subtl.ai*, Hyderabad.
- Developed backend APIs that integrate with an NLP question-answer solution.
- Built an analytics dashboard to provide live statistics and onboard new users.

Teaching

2020 – Present **Teaching Assistant**, *IIIT-H*.
- Planned assignments and took tutorials for the following courses: **'Mobile Robotics', 'Data and Applications', and 'Digital Systems and Microcontrollers'**.

July 2021 **Robotics Summer School Instructor**, *IIIT-H*.
- Gave lectures on multi-view geometry and stereo reconstruction to a class of ∼30 juniors.

Projects

mini-SLAM, *(Robotics)*, *Python*.
- Pose-graph optimisation for 2D-SLAM using non-linear least squares, with odometry and loop-closure constraints; awarded as the best project in 'Mobile Robotics'.

Efficient Key-Value Storage API, *(Programming for Performance)*, *C++*.
- Handled million concurrent database requests with minimal RAM/CPU usage and clever parallelization, beating 25 teams (#1 rank).
- Built a compressed trie (from scratch) with memory optimizations to maximise key-value API transaction throughput.

Computer Vision/Robotics Algorithms, *Python*.
- Perspective-n-Points and Iterative Closest Points for pose estimation and odometry.
- Bundle Adjustment for 'Structure from Motion' with noisy pose on the ladybug dataset.
- Camera calibration using Direct Linear Transform and Zhang's method.
- Motion planning using RRT and Model Predictive Control with Collision Cone constraints.

Wikipedia Search Enginer, *(Information Retrieval)*, *Python*.
- Real-time querying of Wikipedia corpus, stored as an inverted index, ranked using TF-IDF.

Various Machine Learning Algorithms, *Python*.
- SciBERT based intent classifier for citations in academic papers.
- Realistic cat image generation using a DCGAN architecture.
- Misc: Decision Trees for classification; genetic algorithms for function estimation; POMDP, and Value Iteration for policy learning.

Honours and Awards

- Dean's Merit List *Monsoon and Spring 2020-21*, Dean's List-2 *Spring 2018-19*, Dean's Merit List *Monsoon 2018-19*.
- Runner up at **Megathon'19 (National Hackathon)**, awarded by PwC.
- Runner up at **Howzhack'19 (National Online Hackathon)**, *awarded by Apxor, Cyrrup*

Extra-curricular Activities

- **Editor-in-Chief of Ping!** - Coordinated and contributed to the daily operation of the 60+ member college magazine and newspaper. Doubled the digital readership in a year.
- **Entrepreneurship Cell** - Worked on the web portals for one of India's largest hackathons. Participated in 'Startup Aid' and ran a small smartup for six months.