GIRIDHAR NARASAPURA RAJAGOPALAIAH

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EDUCATION

University of Southern California   Los Angeles, CA
Master of Science - Computer Science (Emphasis: Artificial Intelligence)   *December 2023*

Nitte Meenakshi Institute of Technology   Bengaluru, India
Bachelor of Engineering - Computer Science and Engineering   *July 2018*

WORK EXPERIENCE

Deep Learning Student Researcher (Computer Vision) – Laboratory of Neuro Imaging, USC   Los Angeles, CA
Research Focus- Multi site MRI Data Harmonization for Alzheimer's Disease (AD) Analysis   *May 2022-Present*
- Developed a **3D Cycle Generative Adversarial Network** to harmonize MRI data between scanners for better understanding of AD.
- Developing an **Attention Gaited Transformer** for unpaired image-to-image translation.

Machine Learning Student Researcher - Dept. of Population and Public Health Sciences, USC   Los Angeles, CA
Research Focus- AI for Empathy in Healthcare   *March 2022 - Present*
- Spearheading a project to devise an automatic speech and language processing pipeline to diarize and recognize using **RNN-Transducers** and Attention based models. This will accelerate the manual process of annotation by at-least **10X**.

Research Engineer – Philips Innovation R&D   Bengaluru, India
Research Focus- Ultrasound Medical Imaging using Computer Vision and Deep Learning   *Aug 2018 - Dec 2021*
- Researched and developed a **real-time pose estimation model** to track systole and diastole phases of a fetal heart. Developed Deep Learning architectures for high accuracy **semantic segmentation** of anatomies of fetal heart.
- Researched and developed **reinforcement learning** agent to acquire and learn behavior of key-planes in a fetal heart. Improved the performance of the plane identification algorithm from **69% to 84%.**
- Spear-headed the team to pass **Principle Proven** and **Function Proven** milestones. Core-team member of funded innovation by **Bill & Gates Foundation of $15M**.

Co-founder and Chief Technological Officer – AIVolved Technologies Pvt Ltd   Bengaluru, India
Research Focus- Automatic Biometric GAIT Analysis using Computer Vision and Deep Learning   *Nov 2019 - Dec 2021*
- Researched, Developed and Spearheaded a portable product named '**Postura'** that extracts Biometric GAIT features for diagnosis purposes. Raised funding of **$500K** by Ramaiah Evolute and Govt. of India.

PROJECTS

[1] Little GO - USC: Designed an AI agent using reinforcement learning which learns the rules of Go Game and plays against different players using minmax and alpha-beta pruning.

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[1] Modelling of Transitions in Video Using Textures. Registration Number: SW-14707/2017. Granted by Govt. of India.

PATENTS (Filed by Koninklijke Philips N. V)

[1] Methods for Guided 3D ultrasound acquisition using Spatio-Temporal Image Correlation (App no: PCT/EP2021/081925)
[2] Automatic Intelligent Visualization and Interaction using Real Time View Plane Classification and Pose Estimation (App no: PCT/EP2021/080229)
[3] Automating Localization and Estimation of Heartbeat in First Trimester Ultrasound Scans (App no: PCT/EP2022/066933)
[4] AI Based Approach to improve Ultrasound Image Quality. (App no: 2020ID01990)

PUBLICATIONS

[1] Soumabha Bhowmick, **Giridhar NR**, Celine Firtion, Karthik Krishnan, Subhendu Seth and Pallavi Vajinepalli. E-FTUS: an Early First Trimester Ultrasound Scan Assistance. Publisher: Philips Research Global – OCUPAI 2020.

[2] Karthik Krishnan, **Giridhar NR,** Celine Firtion and Pallavi Vajinepalli. Real Time Deep Pose Estimation in Ultrasound. Publisher: Philips Research Global – OCUPAI 2020

[3] **Giridhar NR,** Aniketh Manjunath and Jharna Majumdar. Modelling Fade Transition in a video using Texture Methods. ICCMLA Goa 2020. Publisher: Springer, Singapore.

[4] **Giridhar NR,** Gagan PE and Jharna Majumdar. Autonomous Mobile Robot Navigation on Identifying Road Signs using ANN. IIT Kanpur 2019. Publisher: IEEE

[5] Aniketh Manjunath, **Giridhar NR** Jharna Majumdar. Optical Flow for Detection of Transitions in Video, Face and Facial Expression. IEEE SAI Computing Conference, London - 2018. Publisher: Springer, Cham.

[6] Sudip Gupta, **Giridhar NR** and Jharna Majumdar. Human Tracking by a Mobile Robot in Low Illumination Environment Publisher: IEEE

TECHNICAL SKILLS

C, C++, CUDA C++, Python, PyQt, Azure DevOps, TensorFlow, Keras, PyTorch, Caffe, OpenCV, cuDNN, TensorRT, OpenVINO, Linux, Git, Statistical Analysis, Digital Image Processing, Computer Vision, NLP, Machine Learning, Deep Learning, Adversarial Networks, Transformers.

HONORS AND AWARDS

- Oct' 21: Start Startup Award from Ramaiah Evolute for 'Postura'.
- June 20: Individual Award (Philips) – 'Take ownership to deliver fast' to boost the accuracy of algorithm from 69% to 84%
- May 19: Individual Award (Philips) – Bringing wAssist-AI from research prototype to product in record time
- Apr' 18: DRDO: DRUSE Design and Development of Human Tracking Mobile Robot for Defense Application. Top 10 among 15000 teams to represent South India.
- Dec' 16: Placed 2nd among 850 teams in Nokia Innovation Day - Campus