

GIRIDHAR NARASAPURA RAJAGOPALAI AH

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EDUCATION

University of Southern California

Masters of Science - Computer Science (Artificial Intelligence)

Jan. 2022 – Dec. 2023

Los Angeles, CA

Nitte Meenakshi Institute of Technology

Bachelor of Engineering - Computer Science

Aug. 2014 – July 2018

Bengaluru, India

SKILLS

Languages: C, C++, Python, CUDA, SQL

Frameworks: PyTorch, TensorFlow, OpenCV, Hugging Face, Hadoop, PySpark, PyQT

Technologies: cuDNN, OpenVINO, NVIDIA Nsight, Computer Vision, Natural Language Processing, Machine Learning, Deep Learning, Generative AI, Large Language Models

EXPERIENCE

Yale University

Postgraduate Researcher (Language Models, Natural Language Processing, Generative AI)

August 2023 – Present

New Haven, CT

- Enhanced ASR to achieve a 0.78 Jaro score in noisy conditions through development of adaptive filtering techniques.
- Fine-tuned **BERT** with architectural modifications, elevating speaker recognition accuracy to **0.79** from 0.73.

Amazon

Applied Scientist Intern (Continual Learning, Deep Learning, Machine Learning)

May 2023 – August 2023

San Diego, CA

- Built an efficient abuse prevention system leveraging **Memory Relay** and **Regularization** based Continual Learning.
- Researched & developed an **attention-based Continual Learning**, achieving a **2% less** forgetting over SOTA methods.
- Enhanced **XGBoost's** performance by **1%** AUC on incorporating **memory-replay** continual learning.

University of Southern California, Keck

Graduate Research Associate (Computer Vision, Generative AI, Multi-Modal, Deep Learning)

March 2022 – May 2023

Los Angeles, CA

- Employed **CycleGAN** to boost SNR ratio by **32%** and improved 3D MRI data consistency across DTI & T1 protocols.
- Elevated precision by 0.14 by seamlessly merging 3D MRI and numerical data with a custom **multi-modal** neural net.

Philips Research

Machine Learning Engineer (Computer Vision, Machine Learning, Deep Learning, Optimization)

Aug. 2018 – Dec. 2021

Bengaluru, India

- Improved performance of a fetal heart view plane classification from **69% to 84%** by fine-tuning **HRNet**.
- Leveraged **TensorRT** on NVIDIA P2000 for a remarkable **5x GPU** acceleration in deep neural network performance.
- Achieved accelerated deep learning model performance on **Intel NUC CPU** using **OpenVINO** by **3x**.
- Conducted research for real-time fetal heart tracking using **pose estimation** and **semantic segmentation**.
- Collaboratively contributed to the **filling of four patents** under the umbrella of **Koninklijke Philips N.V.**
- Contributed to **transfer Deep Learning Algorithms** to the **Ultrasound Business**.

PROJECTS

Multi-task Reinforcement Learning for Physical Reasoning - USC | Python, RL, Gym - OpenAI

January 2023

- Single RL agent adapts to environmental variations to solve puzzles in the CREATE OpenAI Gym environment.

GAIT for Meetings - USC | Python, Transformers, Natural Language Processing

August 2022

- Designed a Transformer model to extract action items and generate summaries from meeting transcripts.

PUBLICATIONS

- Karthik Krishnan, **Giridhar NR**, Celine Firtion, Pallavi Vajinepalli. Real-Time Deep Pose Estimation in Ultrasound. *Philips Research Global. OCUPAI 2020*.
- Giridhar NR**, Aniketh Manjunath, Jharna Majumdar. Modelling Fade Transition in a video using Texture Methods. *Cybernetics, Cognition and Machine Learning Applications - Proceedings of ICCMLA 2019*. Springer, Singapore
- Giridhar NR**, Gagan PE, Jharna Majumdar. Autonomous Mobile Robot Navigation on Identifying Road Signs using ANN. *2019 10th International Conference on Computing, Communication and Networking Technologies. ICCCNT - IIT Kanpur 2019*. IEEE

4. Aniketh Manjunath, **Giridhar NR**, Gagan PE. Optical Flow for Detection of Transitions in Video, Face and Facial Expression. *Intelligent Computing: Proceedings of the 2018 Computing Conference (SAI - London, UK)*. Springer, Cham
5. Sudip Gupta, **Giridhar NR**, Gagan PE. Human Tracking by a Mobile Robot in Low Illumination Environment. *Conference: International Conference on Circuits, Control, Communication and Computing (I4C - 2018)*. IEEE

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**.

HONORS AND AWARDS

1. Oct' 2021: [Start Startup Award](#) from Ramaiah Evolute for 'Postura'.
2. June 2020: Individual Award (Philips). 'Take ownership to deliver fast' to boost the accuracy of algorithm from 69% to 84%.
3. May 2019: Individual Award (Philips). Bringing wAssist-AI from research prototype to product in record time.
4. April 2018: DRDO: DRUSE Design and Development of Human Tracking Mobile Robot for Defense Application. Top 10 among 15000 teams to represent South India.

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