

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, PyQT, Azure, AWS, Hadoop, PySpark, Git, AutoML, NLTK

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

PATENTS (Filed by Koninklijke Philips N. V)

- Improving image quality of medical images. App no: [WO2023061910A1](#).
- Guided acquisition of a 3d representation of an anatomical structure. App no: [EP4251059A1](#)
- Rendering and displaying a 3d representation of an anatomical structure. App no: [WO2022096404A1](#).
- Generation of m-mode data for detecting fetal cardiac activity. App no: [WO2022268844A1](#)

PUBLICATIONS

1. Karthik Krishnan, **Giridhar NR**, Celine Firtion, Pallavi Vajinepalli. Real-Time Deep Pose Estimation in Ultrasound. *Philips Research Global. OCUPAI 2020*.
2. **Giridhar NR**, Aniketh Manjunath, Jharna Majumdar. Modelling Fade Transition in a video using Texture Methods. *Cybernetics, Cognition and Machine Learning Applications - Proceedings of ICCMMLA 2019*. Springer, Singapore
3. **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

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.