Giridhar Narasapura Rajagopalaiah

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EDUCATION

University of Southern California **Jan. 2022 – Dec. 2023**
Masters of Science - Computer Science (Artificial Intelligence) *Los Angeles, CA*

Nitte Meenakshi Institute of Technology **Aug. 2014 – July 2018**
Bachelor of Engineering - Computer Science *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 **August 2023 – Present**
Postgraduate Researcher (Language Models, Fine-tuning, RLHF, Generative AI) *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 **May 2023 – August 2023**
Applied Scientist Intern (Continual Learning, Deep Learning, Machine Learning) *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 **March 2022 – May 2023**
Graduate Research Associate (Computer Vision, Generative AI, Multi-Modal, Deep Learning) *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 **Aug. 2018 – Dec. 2021**
Machine Learning Engineer (Computer Vision, Machine Learning, Deep Learning, Optimization) *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)

1. Improving image quality of medical images. App no: WO2023061910A1.
2. Guided acquisition of a 3d representation of an anatomical structure. App no: EP4251059A1
3. Rendering and displaying a 3d representation of an anatomical structure. App no: WO2022096404A1.
4. 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 ICCCMLA 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.