

Varun Ganjigunte Prakash

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PROFILE

Computer vision and applied AI engineer with production experience in multimodal video understanding, object detection fine-tuning, document AI, and speech biometrics for clinical healthcare. Five peer-reviewed publications in computer vision for autism assessment and human action recognition.

EDUCATION

Bachelor of Engineering in Electronics and Communication

Sri Jayachamarajendra College of Engineering

GPA: 8.47/10.0

Aug 2014 - May 2018

Mysuru, India

WORK EXPERIENCE

Senior Research Scientist

Frontera Health

Jan 2025 - Sep 2026

Remote / India

- Led evaluation of multimodal and pose-based approaches for rare maladaptive behaviors in long therapy videos, comparing VideoMamba, YAMNet, HumanOmni, and RGB+pose pipelines; identified a candidate cascade that removed 91.5% of normal chunks while retaining 73% of positives.
- Productionized a multimodal scream/cry detection pipeline combining HumanOmni video-audio inference, YAMNet filtering, and Gemini validation; evaluated 59.1 hours across 65 therapy videos and contributed to a documented test precision/F1 of 0.785/0.751.
- Designed an end-to-end speaker-signature pipeline using Silero VAD, pyannote diarization, WeSpeaker embeddings, similarity-graph clustering, and human review, enabling learner/therapist voice registration and achieving 80.2% segment accuracy and 92.2% mean person-level accuracy in clinic evaluations.
- Fine-tuned RF-DETR on COCO-formatted assessment grids and integrated it into an ABLIS vision parser, reaching 0.772 AP and 0.936 AP50 on an unseen test split versus 0.583 AP and 0.846 AP50 for the strongest SSD baseline.
- Served as an offshore ML coordinator and technical support lead for a five-member research team, facilitating stand-ups, code reviews, and design discussions while resolving blockers across time zones.
- Built and productionized multimodal document-AI pipelines using Gemini vision, PDF rasterization, typed schemas, and gold-set regression tests, achieving 94–98% field accuracy across clinical assessments and expanding support to ABLIS, AFLS, ADI-R, CARS-2, Intake, and RIAS-2.

Senior Computer Vision Engineer

Frontera Health

Dec 2023 - Dec 2024

Remote / India

- Contributed to the production social-engagement computer-vision stack spanning person tracking, child/adult detection, gaze models, and Gemini-based engagement summarization, including early pipeline integration, visualization tooling, and cross-model evaluation on clinic video.
- Improved social-gaze estimation in a therapy-video engagement prototype by fusing gaze-model outputs with YOLOv4 head detection and WHENet head-pose estimation, using rule-based correction to reduce false child-therapist look-at predictions.
- Improved clinical-video ASR by resolving ghost transcripts through speech-segment language voting and more reliable language detection.

Senior Engineer, Data Science

Colt Technology Services

Mar 2023 - Dec 2023

Bengaluru, India

- Implemented and integrated NLP models for contract data mining, sentiment analysis, and opportunity prioritization.
- Evaluated scalable NLP techniques and ran biweekly ML/NLP sessions to drive adoption across stakeholders.

Head Machine Learning and Technology Architect

CogniAble

July 2022 - Feb 2023

Remote, India

- Researched and implemented a few computer vision approaches for clinical screening.
- Implemented a neural network-based recommender system for treatment personalization and skill enhancement for patients with neurodevelopmental disorders

Machine Learning Engineer - Computer Vision

Mar 2021 - July 2022

CogniAble

Remote, India

- Trained and deployed a custom action-recognition network for children's behaviors and led nine production computer-vision models.
- Built object classifiers/trackers for clinical skill recognition and large-scale video training/inference pipelines.
- Implemented treatment-personalization classifiers spanning classical models, recommenders, and graph methods.

Engineer

June 2018 - Mar 2021

L&T Technology Services

Bengaluru, India

- Developed three computer-vision edge-inference applications for a leading AI/semiconductor customer, covering detection, tracking, and on-device deployment.
- Designed an OCR pipeline for HMI screen automation (2× time savings) and accelerated customer deep models with OpenVINO.
- Proposed CV framework improvements, taught deep learning for computer vision, and automated delivery workflows.

PUBLICATIONS

- "Computer Vision-Based Assessment of Autistic Children...", **Varun Ganjigunte Prakash** et al., *IEEE Access*, 2023
- "Deep Learning-Based Human Action Recognition Framework to Assess Children on the Risk of Autism...", Manu Kohli, Arpan Kumar Kar, **Varun Ganjigunte Prakash**, Prathosh A. Prasad, *ICONIP, Springer*, 2023
- "Video-based real-time assessment and diagnosis of autism spectrum disorder using deep neural networks", **Varun Ganjigunte Prakash** et al., *Expert Systems, Wiley*, 2023
- "Behavior-Aware Robot Navigation with Deep Reinforcement Learning", **Varun Ganjigunte Prakash**, *IEEE CSITSS*, 2022
- "Autonomous Service Robot", Arshad Javeed, **Varun Ganjigunte Prakash**, Sudarshan Patilkulkarni, *AIR 2019 - ACM ICPS*

TECHNICAL SKILLS

Languages:	Python, C++, MATLAB, C, Embedded C
Computer Vision:	RF-DETR, YOLO-World, YOLOv8, SSD, action recognition, pose / head-pose, person tracking, OpenCV
Multimodal & Speech:	Gemini Vision, HumanOmni, InternVideo2, VideoMamba, V-JEPA, YAMNet, WeSpeaker, Wav2Vec2, pyannote
ML / MLOps:	PyTorch, TensorFlow, Hugging Face, Temporal, AWS (S3, Batch), Docker, CUDA, W&B, Label Studio

ACCOLADES AND LEADERSHIP

- Reviewer for Biomedical Signal Processing and Control and International Journal of Machine Learning and Cybernetics.
- Co-led "Dexterous Service Robot," a top-seven Anveshan Fellowship 2018 finalist (Analog Devices).
- DELF B1 French certification; Best Teacher of the Year 2019–20 at U&I.