

EDUCATION	University of Michigan	Ann Arbor, MI
	<i>Ph.D. in Environment and Sustainability</i> - Advised by Dr. Lauren Gillespie; co-advised by Dr. Elizabeth Bondi-Kelly - Pursuing a dual-degree pathway in Computer Science (pending approval)	2026 - Present
	PES University	Bangalore, India
	<i>Bachelor of Technology in Computer Science & Engineering</i> - CGPA: 8.66/10.00, First Class with Distinction - Specialization in Machine Intelligence & Data Science	2020 - 2024
RESEARCH & WORK EXPERIENCE	University of California, Davis Jr. Specialist	Aug 2024 - Aug 2026
	- Forest Change Analysis Lab (FOCAL) and Open Forest Observatory (OFO). - Lead developer of tree-detection-framework, an open source Python package to detect trees on realistic scale raster data - Trained and deployed a semantic segmentation model on diverse drone imagery to map post-fire vegetation recovery at three California UCNRS reserves, quantifying shrub reestablishment and tree resprouting - Developed a multi-view drone imagery dataset and classification pipeline for individual tree species identification across 107 field plots in California, achieving 85% accuracy - Automated resin duct and tree ring detection from tree core imagery - TorchGeo, PyTorch Lightning, RasterIO, GeoPandas, PyTorch3D, QGIS, Argo, Kubernetes	
	Intel Corporation, Bangalore Machine Learning Intern	Jan 2024 - Jul 2024
	- Implemented an optimization strategy for mimetic initialization of pretrained self-attention layers in ViT and DETR. - Experiments and literature survey for task-free continual learning & knowledge distillation for object detection. - Tensorflow, PyTorch, JAX, Docker, ONNX, AWS, Ansible	
	Lawrence Berkeley National Laboratory, Berkeley Intern	Jun 2023 - Aug 2023
	- Science Undergraduate Laboratory Internship (SULI) - Prediction of microbial traits at scale through metagenomics and remote sensing. - Performed data analysis and applied ML models - Random Forest, XGBoost, Decision Trees with biogeochemical data and remote sensing data products. - Identified important features with explainable AI, using SHAP and LIME	
	CARAIO Technologies, Bangalore & Berkeley Co-Founder	Aug 2021 - Jun 2023
	- AI Lead of an early-stage Digital Health startup focused on making Cytogenetics based Medical Diagnostics simplified through AI. - Participant of the UC Berkeley SkyDeck Pad-13 Batch 15 & 16 incubation program - Developed an MVP that automates the process of creating a Karyotype from a Metaphase image through Computer Vision - Novel strategy implementing watershed segmentation and autoencoders for chromosome image reconstruction - Zero-shot with SAM, trained SqueezeNet and EfficientNet. MLOps: WandB, Cloud: AWS & Azure, Streamlit - Mentored junior interns from UC Berkeley and other institutions	

PROJECTS

Tree-Detection-Framework

Python framework to detect trees on raster data (TorchGeo, PyTorch Lightning); open-forest-observatory/tree-detection-framework: Release v0.1.1. Zenodo Jan 2025

Gesture and Speech Recognition for Multimodal Human-Robot Interaction

Trained LSTM, Transformer models with MediaPipe pose estimation; OpenAI Whisper for speech-to-text and Llama 2 transcription analysis Dec 2023

UC Berkeley Cal Hacks AI Hackathon

Built a Cytogenetics Copilot Chatbot by customizing GPT-4 model (Langchain, Pinecone, OpenAI) Jun 2023

AI for Sign Language (Winner at SpaceJam Hackathon)

AI enabled interface that converts American Sign Language hand gestures to text in realtime. Built with SqueezeNet Mar 2021

PUBLICATIONS & TALKS

Journal Articles & Preprints

1. A. Pallavoor, D. Russell, D. Young, *Geospatial tree species prediction using multi-view drone imagery and computer vision. Methods in Ecology and Evolution*, Jul 2026, Submitted.
2. D. Russell, A. Pallavoor, G. Bucciarelli, A. Latimer, D. Young, *Mapping California woodland-chaparral ecosystems following wildfire with diverse drone images and computer vision. Ecosphere*, Oct 2025, Under review.
3. A. Pallavoor, P. Anagani, S. Tambarahalli, S. Pallavoor. *Chromosome Segmentation Analysis Using Image Processing Techniques and Autoencoders. American Journal of Computer Science and Technology*, 5(4), 210-216., 2022.

Conference Papers & Workshops

4. M. Chen, D. Russell, A. Pallavoor, D. Young, J. Wu. *Zero-Shot Tree Detection and Segmentation from Aerial Forest Imagery. ICLR Machine Learning for Remote Sensing Workshop*, Apr 2025, Singapore.
5. A. Pallavoor, A. Jalan, S. Ballapur, S. Kiran, A. P., S. S. Shylaja. *Gesture and Speech Recognition for Real-Time Multimodal Human-Robot Interaction Using Deep Learning. International Conference on Computing and Machine Learning*, 2024.
6. U. Karaoz, P. Sorensen, N. Falco, G. Marschmann, F. Ciulla, N. Bouskill, A. Pallavoor, et al. *Scaling microbial traits from genomes to watersheds through combined airborne hyperspectral imaging, soil biogeochemistry, and metagenome assembled genomes. AGU Fall Meeting Abstracts*, 2023.

Talks & Poster Presentations

7. J. E. Cribbs, J. M. Bochner, A. S. Pallavoor, S. D. Abrea, S. M. Hood, E. Kacharina, B. S. Lenington, A. G. Sherriff-Norton, T. S. Magney, A. M. Latimer. *MATRIX: Machine-Augmented Tree Ring (and Resin) Imaging and Xylotomy. Poster, UC Davis Plant Sciences Symposium*, Davis, CA, Apr 2026.
8. Invited talk: *Global AI Products: Challenges and Opportunities in Bringing AI to International Markets* at ISPMA, UC Berkeley, Dec 2024.
9. Keynote: *First International Conclave on Artificial Intelligence for Enabling Health and Singularity (iCARE-HS 2024)*, Trivandrum, India, Apr 2024.
10. A. Pallavoor, N. Falco, U. Karaoz *Predicting microbial traits at scale through metagenomics and remote sensing. Poster, SULI Symposium, Lawrence Berkeley National Laboratory, Berkeley, CA, Aug 2023.*
11. A. Pallavoor, S. Pallavoor *AI for Karyotyping. Poster presented at the BIOMEDevice Conference, Santa Clara, CA, Nov 2022.*

ADDITIONAL INFORMATION	• MRD Scholarship - 2021, 50% tuition fee refund for top 5% students, PES University • Distinction Award Certificate - 2021 to 2024, PES University • Google Developer Student Club, Core Team Member for Machine Learning • United Nation's Reboot The Earth Hackathon, Nov 2025 - Participated as a preliminary judge at the UCSC Silicon Valley Extension • Relevant courses completed: Machine Intelligence, Computer Vision, Data Analytics, Graph Theory, Statistics & Data Science, Network Analysis & Mining, Reinforcement Learning, Data Structures, Cloud Computing, Environmental & Life Sciences
SKILLS	Programming Languages: Python, R, C, MATLAB, Java, SQL, JavaScript. Spoken Languages: English, Tamil, Kannada, Hindi