

Abhiraj Ezhil

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EDUCATION

University of Michigan - Ann Arbor <i>Masters of Data Science</i>	Ann Arbor, MI Aug 2024 -
Birla Institute of Technology and Sciences <i>Computer Science and Engineering - 3.71 CGPA</i>	Pilani, Rajasthan Aug 2019 - May 2023

TECHNICAL SKILLS

Courses: Machine Learning, Data Structures and Algorithms, Data Mining, Deep Learning, Operating Systems, Regression Analysis, Object Oriented Programming, Database Management, Image Processing, Advanced Topics in Computer Vision
Skillset: Git, Pandas, R, SQL, Python, C++, AWS, Azure DevOps, 3D modeling, Numpy, React, Scikit-learn, Opencv

ACADEMIC ACHIEVEMENTS

Foundation models for instance segmentation of 3D mitochondria Undergraduate thesis	May 2023
Kishore Vaigyanik Protsahan Yojana scholarship Indian Institute of Science	March 2019
JEE Advanced - Rank 1092 in India National Testing Agency	May 2019

ACADEMIC EXPERIENCE

Research Assistant <i>Boston College (Collaboration with Harvard University) - Prof. Donglai Wei</i>	Jan 2023 – June 2023 <i>Boston, Massachusetts</i>
<ul style="list-style-type: none">Developed a foundation model for Instance Segmentation of mitochondria in collaboration with Harvard UniversityCreated a pipeline to predict instances and separate the mitochondria from other objects in 3D EM tissue volumesImproved the accuracy on 4 benchmark datasets by using the distance between instance features with KNN	

PROFESSIONAL EXPERIENCE

Development Engineer <i>Standard Chartered GBS</i>	Jul 2023 – Aug 2024 <i>Bangalore, India</i>
<ul style="list-style-type: none">Worked to automate transactions between entities and provide data analytics for the digital channels of transactionsMoving Electronic Data Interchange Platform to B2Bi for entities that optimized entity interchange in the bank (30%)	
Research Intern <i>Adobe - Big Data Experience Lab</i>	Jun 2022 – Aug 2022 <i>Bangalore, India</i>
<ul style="list-style-type: none">Created a model to generate a person's 3D avatar animation given their image and audio speech/action labelsDeveloped a novel method to animate a static person by imposing the generated poses created from audio onto the avatarTrained an optimization algorithm that implicitly clothed multiple 3D meshes with unseen gestures and actions	
Machine Learning Analyst <i>PyrisOne - Data Science</i>	Sep 2021 – Dec 2021 <i>Bangalore, India</i>
<ul style="list-style-type: none">Developed an ad placement model on YouTube based on user-input keywords using data scraping and clustering videosDevised a formula that optimized scores and ranks of the videos based on engagement and semantic relevance for clustering	

PROJECTS

Loan Origination <i>Full stack development, React, Node, SQL</i>	Aug 2023 – Sep 2023
<ul style="list-style-type: none">Developed a comprehensive loan origination platform, encompassing the front-end, back-end, and database integrationEngineered REST API-based full stack integration, and implemented a dashboard for real-time cash-flow visualization	
Yoga pose avatar generation <i>Pose estimation, 3D modeling</i>	Aug 2022 – Dec 2022
<ul style="list-style-type: none">Worked with a start-up to generate human avatars for videos of instructors to assist in yoga lessons for childrenCollected videos from Youtube and fine-tuned a state-of-the-art algorithm to perform well with difficult yoga poses	
Multi Person detection using WiFi <i>Object Detection, Signal Processing</i>	Feb 2022 – June 2022
<ul style="list-style-type: none">Created a real-time model that uses Wi-Fi CSI signals to locate multiple people and monitor their activity in a roomImplemented the low computational model on an ESP32 chip on mobile devices for real-time use for healthcare industries	
Turn by turn routing - MapMyIndia <i>C++, Graphs, Algorithm</i>	Sep 2021 - Dec 2021
<ul style="list-style-type: none">Developed software to create three sub-optimal routes between two locations on a map with turn-by-turn directionOptimized the path-finding algorithm to O(nlogn) using rtrees data structure and a novel critical path retrieval method	
Covid detection with audio <i>Deep learning, Data filtering, Audio processing</i>	July 2021 - Aug 2021
<ul style="list-style-type: none">Filtered the raw dataset containing audio signals of coughs and created a cleaned CSV file and spectrogram datasetCreated a CNN classifier that takes spectrograms as images and predicts if the patterns indicate COVID-19 infection (83%)	

EXTRA CURRICULARS

Computer Vision Research Society <i>Core member</i>	March 2021 – Dec 2022
<ul style="list-style-type: none">Established the foundation of the club along with peers to promote research on computer vision in the universityWorked on action recognition in low-resolution surveillance videos to improve security risk detection applications	