

ARUNKUMAR NACHIMUTHU PALANICHAMY

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EDUCATION

Masters | Tandon School of Engineering, NYU, NY

Expected May 2023

Major: Electrical Engineering – GPA: 3.67/4

Bachelor of Technology | Amrita Vishwa Vidyapeetham, Coimbatore, India

May 2020

Graduated - First class with distinction. Major: Electronics and Communication Engineering, GPA: 8.33/10.

EXPERIENCE

JUNIOR MACHINE LEARNING INTERN

Omdena | New York, United States

Jan 2021 - Jul 2021

- Improved predictive modelling of global health and aging trends partnering with health-tech company, Humanity Inc.
- Started from pre-processing the data like data cleaning and implemented different data visualization techniques.
- Built predictive models using features like biological age, given lifestyle, profession, and demographic features.
- Implemented propensity score matching to reduce bias in estimating causal effect.

MACHINE LEARNING INTERN

Auxo Technology Private Ltd. | Chennai, India

Dec 2019 - Jun 2020

- Designed and developed end-to-end machine learning models from design to deployment.
- Assessed the accuracy and effectiveness of the data gathering techniques and data sources.
- Improved the accuracy of the pre-trained models by ~20% using transfer learning.

UNDERGRADUATE INTERN

Bharath Heavy Electronics Ltd. | Project Team Co-ordinator | Bangalore, India

May 2019 - Sep 2019

- Worked on performance analysis and optimization of Real-Time Remote Performance Data Monitoring System (RPDM) and monitored Open Platform Communication (OPC) connectivity from Distributed Control System (DCS) to third party systems.
- This robust system helped monitor specific process parameters of the plant remotely. Reduced the delay in communication during field visits. Also, this System sent periodic updates to internet-enabled smartphones about the machinery in the plant.
- The system helps prevent the organization from spending extra on designated monitoring staff in the plant.

TEACHING ASSISTANT

Amrita University | Coimbatore, India

Jan 2019 - May 2019

- Interacted with the Professor and gave suggestions based on a student's perspective to update the course Data Structures and Algorithms. Introduced a new practical session to this course. Also, handled the logistics for this course throughout the semester.
- Organized practice sessions on optimization techniques to junior year students for a better understanding of the Data Structures and Algorithms course.

PROJECT

RESEARCH PROJECT

Amrita University | Coimbatore, India

Aug 2019 - Apr 2020

- Presented a method for detecting and tracking multiple objects and predicting the future paths of the objects using 2 methods – Machine Learning algorithms and Signal Processing filters.
- Tested the accuracy (using RMSE), robustness, and computational time of the algorithm to improve the algorithm's efficiency.
- The OpenCV object tracking algorithms like YOLO proved to be approximately 12% more efficient than using Kalman filter and Hungarian algorithm in the absence of clutters and 7% more efficient in a cluttered environment.

KAGGLE OPEN SOURCE COMPETITION

Cell Instance Segmentation | New York, USA

Oct 2021 – Dec 2021

- Detected and delineated distinct objects of interest in biological images depicting neuronal cell types commonly used in the study of neurological disorders using 2 object detection deep learning models – U-NET and Mask RCNN.
- Used phase-contrast microscopy images to train and evaluate our model for instance segmentation of neuronal cells and obtained 73% accuracy on neuroblastoma cancer cells, which among the 8 tested cancer cells, has the lowest precision score.

OPEN-CV AI COMPETITION 2021 (Finalist of the global Competition)

Project Head | Coimbatore, India

Jan 2021 – Jun 2021

- Introduced Pose Trainer, an application that detects the user's exercise pose with 98% accuracy, which then calculates the vector geometry of the pose and provides personalized, detailed recommendations on how the user can improve their form.
- Created a dataset consisting of 100 exercise videos of correct and possible incorrect forms based on personal training instructions and built geometric-heuristic and machine learning algorithms for testing. This works on 3 common exercises.

PUBLICATION

Nov 2020

- International Symposium on Security in Computing and Communication - SSCC'20.
Link: https://link.springer.com/chapter/10.1007/978-981-16-0422-5_15

SKILLS

Programming Languages: Python, C, C++, Matlab

Data Science Skills: Data Visualization, Machine learning, Deep learning, Hyper parameter Tuning, Computer Vision

Libraries/Tools: Pandas, Pytorch, Tensorflow, Scikit-learn, OpenCV, Jupyter, Keras, XGBoost

Version Control: Git/GitHub