# Mahadev Mahesh Maitri

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## Education

**University of Delaware** — Newark, DE
*Master of Science in Computer Science* — 2022 – 2024

**R. V. College of Engineering** — Bengaluru, India
*Bachelor of Engineering in Electronics and Communication Engineering* — 2016 – 2020

## Technical Skills

**Programming Languages**: Python, JavaScript, TypeScript, C/C++, HTML, CSS, SQL
**Frameworks**: ReactJs, Bootstrap, Redux, Robot Framework, MongoDB, JMeter, Jenkins, Flask, NextJs, PyTorch, TensorFlow
**Developer Tools**: Git, Google Cloud, Amazon AWS, Chrome Developer Tools

## Relevant Experience

**Vivekanand Education Society's Institute of Technology** — Remote
*Back-end Developer - Freelance* — Dec 2022 – Jan 2024

- Restructured data tables into a relational database, improving data management efficiency.
- Enhanced codebase for error-free operation and introduced innovative features like a payment system and location-based search, boosting user experience.
- Optimized Round-Trip Time (RTT) for REST API calls, resulting faster response times and better application performance.
- Managed active servers and development cycles using Jenkins and Amazon EC2, ensuring smooth operations and continuous improvement.
- Led a project addressing challenges in government toilet desludging in slum areas, focusing on efficient operations management and timely resolution of user complaints.
- Contributed to projects at VESIT College of Engineering and BMC, securing funding from institutions like State Bank of India and Star Union Daichi, demonstrating commitment to social responsibility initiatives. Links: Android Apps, Web Link

**English Language Institute - University of Delaware** — Newark, DE
*Instructor* — Aug 2023 – Dec 2023

- Taught CISC106: General Computer Science for Engineers to a class of over 10 students, delivering structured syllabi and coursework to support thorough learning.
- Provided hands-on supervision and guidance to lab assistants, ensuring smooth execution of lab work and reinforcing theoretical concepts taught in class.
- Proficiently instructed Python and MATLAB, incorporating fundamental libraries like math. Guided the completion of three practical projects, including tour recommendation file reading, equation solving with Cramer's rule, and pygame library-based game development.

**IT Client Support & Services - University of Delaware** — Newark, DE
*Troubleshooter - Part Time* — Aug 2023 – Aug 2023

- Provided comprehensive technical support to UD students and professors, resolving issues related to Wi-Fi connectivity, scantrons, UD software, and personal laptop hardware, ensuring uninterrupted access to essential resources and optimal functionality for academic pursuits.

**Optum - UnitedHealth Group** — Bengaluru, India
*Associate Software Engineer - II* — Jul 2020 – Jul 2022

- Led the design and improvement of user interfaces using ReactJs and Redux, customized to meet specific business needs. Presented comprehensive demos to the Business Team, showcasing implemented features effectively.
- Took charge of enhancing front-end microservice performance, resulting in faster page loading times and better data management with Redux. These efforts boosted the efficiency and responsiveness of the user interface in the Integrated Eligibility (IE) project, contributing significantly to its success over a one-year period.
- Managed the implementation of functional regression testing using Robot Framework and performed thorough performance testing of REST APIs with JMeter. Became known as an expert in handling complex features and was relied upon to address specific challenges. Ensured the quality and reliability of development servers in the Optum Medicaid Management Services (OMMS) project by executing and analyzing all test suites every two weeks for a year, thus ensuring the system's robustness and reliability.

**Electronics and Radar Development Establishment (LRDE), DRDO** — Bengaluru, India
*Trainee* — Jan 2020 – May 2020

- Led the development of an advanced Automatic Target Recognition solution for ships using state-of-the-art Deep Learning algorithms, resulting in improved accuracy and efficiency in ship identification.
- Engineered a sophisticated GAN framework with CNNs to extract features from ISAR images, significantly expanding the dataset and enhancing ship recognition accuracy.
- Implemented transfer learning techniques with the MobileNetV2 network for ship classification, achieving an impressive accuracy rate of 89.6%, showcasing proficiency in utilizing cutting-edge methodologies for superior results.
- Created a comprehensive dataset of ISAR images using ANSYS Electromagnetics SBR+ with 3-D ship models, ensuring authenticity and reliability for accurate representation of ship features.
- Authored and published a research paper titled "Classification of Ships using ISAR Images with a Combined Deep Transfer Learning and GAN Processing Framework" in the prestigious International Journal of Engineering Research & Technology (IJERT), providing valuable insights to the ship classification and recognition field.

**Wipro IISc Research Innovation Network (WIRIN), IISc** Bengaluru, India

*Project Intern* Jun 2019 – Jul 2019

- Enhanced system efficiency by implementing sequence-by-sequence batch augmentation for video frames, resulting in accelerated inference timing and increased frames per second for input video streams.
- Improved the performance and reliability of video segmentation processes by optimizing the existing segmentation algorithm and connecting with above algorithm. Reduced processing time and enhanced overall algorithm accuracy, contributing to overall system performance.

## PROJECTS

**Poultry Farms to Manage Depopulation Using Nash Equilibrium through MR Simulation**

*C#, Unity Engine* Sept 2023 – Dec 2023

- Formulated an innovative Nash Equilibrium strategy to optimize revenue generation for poultry farms. Utilized game-theoretical principles to improve management practices including vaccination timing, depopulation, and risk management.
- Developed a mixed reality simulation to train personnel and simulate different scenarios, enhancing decision-making skills and improving the overall effectiveness and profitability of the approach.

**Sudoku using Backtrack Search**

*Python, Flask, HTML, CSS* Feb 2023 – May 2023

- Developed a user-friendly Flask application for solving Sudoku puzzles, integrating advanced algorithms such as AC3 and Backtracking search, enabling users to tackle both predefined puzzles and custom inputs with ease.
- Implemented step-by-step solutions with clear color-coding and efficiently managed failed values using binary constraints in the AC-3 algorithm, enhancing user experience and facilitating successful puzzle resolution.

**Cryptocurrency Price Forecasting**

*Python, TensorFlow, Numpy, Pandas, Matplotlib* Sept 2022 – Dec 2022

- Collaborated with a team of three to develop neural networks for predicting cryptocurrency prices, employing an ablation study methodology to enhance model architectures and hyperparameters.
- Utilized data analysis from Binance Data Vision to identify optimal configurations, determining that a single layer of LSTM with 128 units yielded the most accurate predictions.
- Recognized the potential effectiveness of the 1D-CNN with LSTM architecture, particularly in scenarios where supplementary data streams, such as current news, thereby informing strategic decision-making for cryptocurrency trading.

**Class Attendance Application based on Facial Recognition and Cognitive Services**

*Android, Java, Azure Face API* Aug 2018 – Nov 2018

- Engineered an Android application to optimize the attendance-taking process for classes, implementing image recognition technology to automate attendance tracking through facial recognition.
- Seamlessly integrated the Azure cognitive services Face API with the application, ensuring precise identification of registered individuals, thereby enhancing efficiency and accuracy in attendance management.

**Detection of Common Plant Diseases using Convolutional Neural Network**

*Python, PyTorch, Numpy, Pandas, Scikit-Learn* Aug 2018 – Nov 2018

- Led the development of an innovative solution to address plant diseases by leveraging Convolutional Neural Network (CNN) technology. This solution detects diseases early and offers timely recommendations for weedicide application.
- Collaborated with a team of two to collect and preprocess the dataset. Constructed the classifier using CNN architecture, resulting in enhanced agricultural practices and increased crop yield through effective disease management.

## ACHIEVEMENTS

- Won the Creativity Award at the DS+AI Hackathon 2023 for the work towards the "Generating High-quality, Fine-scale Precipitation Dataset for the Great Lakes Region Building upon Existing Dataset". (https://sites.udel.edu/ai/dsai-summer-hackathon-2023/)
- Published a paper on "Face Aging Through Uniqueness Conserving by cGAN with Separable Convolution" in Sustainable Communication Networks and Application, Proceedings of ICSCN 2020.
- Secured the second place out of 30 participating teams in Hackathon (Blockchain Hackathon 2019) organized by NextGrids and powered by JUiNCUBATOR, a TBI supported by DST, Government of India and JAIN(Deemed-to-be-University).
  - Built a smart contract using Ethereum for verification of employee background check and deployed on to IBM Blockchain platform. To demonstrate, we developed a sample Angular website to perform the transactions.
- Secured the first place out of 50 participating teams in Hackathon (Stay Late And Code, 2019) organized by Amrita School of Engineering sponsored by General Electricals Healthcare.
  - Built a Machine Learning model for Speech Recognition (offline) with help of Recurrent Neural Network and implemented an Android Application using the same model's lite version for efficient computation as demo which could be implemented in medical appliances.
- A finalist (from 70 teams) in India Police Hackathon 2019 organized by Karnataka State Police at R. V. College of Engineering.
- A finalist (from 30 teams) in Hackathon (TECHATHLON 2018) organized by Curl Analytics in association with Coding Club of RVCE.

## VOLUNTARY WORK

- Served as the Website Manager for IGSA, overseeing the comprehensive redesign of the WordPress. Implemented enhancements to showcase upcoming events, student information and news, and curated photos and videos captured during events. Additionally, took a leadership role in planning and executing various events hosted by IGSA. sites.udel.edu/igsa/

## TRAINING AND CERTIFICATIONS

- Structuring Machine Learning Projects from Coursera. (2020) (Link: Certificate)
- Improving Deep Neural Networks: Hyperparameter Tuning, Regularization and Optimization from Coursera. (2020) (Link: Certificate)
- Neural Networks and Deep Learning from Coursera. (2020) (Link: Certificate)
- Machine Learning Basic Nanodegree from Udacity India. (2018) (Link: https://confirm.udacity.com/RSXCMEGL)
- Android Foundation Nanodegree II from Udacity India. (2018) (Link: https://confirm.udacity.com/HJP5C35N)