Nichol Rodrigues, M.S.

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SUMMARY

Robotics and Autonomous Systems graduate engineer with expertise in various fields like data engineering, machine learning, and reinforcement learning. Equipped with a strong foundation in mechanical engineering and has since developed and applied other skills like data analytics, programming and robotics. Adept at problem-solving, learning on the job and teamwork, and seeking to employ this expertise and perspective to brand new learning opportunities in a data engineering role.

TECHNICAL SKILLS

Programming: Python, C, C++, MATLAB, Linux Bash scripting, UIPath, Allen Bradley PLC (RSLogix), HTML/CSS, Javascript, Git
Data Analytics: R, SQL, Tableau, Pandas, Plotly, Data Visualization
Machine Learning (ML): Tensorflow, Pytorch, Computer Vision (OpenCV)
Mechanical Skills: Control Systems, Robotics System Modeling, 3D Printing, Mechanical Design, Finite Element Analysis (FEA)
Process and Project Skills: Lean Six Sigma, DMAIC, Statistical Process Control, Continuous Improvement
Design, Modeling and Simulation: SOLIDWORKS (2D and 3D), Revit, CATIA v5, Fusion 360, Ansys Workbench, ROS, Eagle

EDUCATION

Master of Science, Robotics and Autonomous Systems (Mechanical and Aerospace Engineering) **Jan 2021 – Dec 2022**
Arizona State University, Tempe, AZ GPA: 3.8/4
Relevant Coursework: Control Systems, Robotics System Modeling, Finite Elements for Engineers, Project Management

Bachelor of Engineering, Mechanical Engineering **Jun 2015 – May 2019**
Don Bosco Institute of Technology, Mumbai, India GPA: 7.04/10
Relevant Coursework: Computer-Aided Design and Manufacturing, Mechatronics, Database Management Studies, Thermodynamics

Google Data Analytics Specialization **August 2024**
Google, Coursera
Skills Obtained/Enhanced: SQL, Tableau, R, Data Visualization, Problem-solving

Lean Six Sigma Certification (White Belt) **April 2024**
The Council for Six Sigma Certification (CSSC)
Skills Obtained/Enhanced: Mechanical Engineering, Statistical Process Control, Continuous Improvement

BIM Fundamentals **April 2024**
National Taiwan University, Coursera
Skills Obtained/Enhanced: Autodesk Revit, Architecture, Civil Engineering, Mechanical Engineering

Robotics: Perception **April 2024**
University of Pennsylvania, Coursera
Skills Obtained/Enhanced: Computer Vision, Pose Estimation, Random Sample Consensus, MATLAB

Machine Learning Specialization **April 2023**
Stanford University/DeepLearning.AI, Coursera
Relevant Coursework: Applied Machine Learning, Deep Learning, Python, Neural Networks, Tensorflow

WORK EXPERIENCE

Shoptaki, Remote: Reinforcement Learning Traffic Control System Developer **Feb 2023 – Jan 2024**

- Spearheaded endeavors to design a reinforcement learning-based automation for a traffic control system for any road network to reduce traffic congestion by at least 60% and redirect traffic in case of emergencies.
- Took ownership of composing and modifying functionality based on research through technical documentation to develop an efficient reinforcement learning model for optimal traffic control over a network with 100 intersections.
- Developed code in Python and operated root cause analysis with computer hardware with modules such as pygame, SUMO and OpenStreetMap API to simulate real neighborhoods to visualize and reduce simulated traffic in 4 different kinds of networks.

Multi-Agent Reinforcement Learning for Navigation and Exploration **Aug 2022 – Dec 2022**

- Constructed a multi-robot environment in ROS simulated in Gazebo testing for reinforcement learning between 3 agents in an unknown environment for navigation and exploration.
- Tested and extended functionality to enable independent control of Turtlebot model robots for use in reinforcement learning.
- Studied and analyzed code for simulation in OpenAI Gym and assisted in adapting to implement reinforcement learning algorithms.

Arizona State University Financial Aid and Scholarship Services, Tempe, AZ: Webform Design Assistant **May 2022 – Dec 2022**

- Created and corrected templates for creation of webforms on the platform for different departments and academic years throughout the university improving productivity across 4 campuses state-wide.
- Implemented version control and tracking software like Jira to maintain quality of the webforms throughout their creation cycle and between project teams.

Multi-Robot Object Transport Using Potential Field and Symmetric Formation Control **Aug 2021 – Dec 2021**

- Led a team of 4 students to devise a method for multi-robot systems to achieve synchronous transport of items.
- Created a framework of operation of collaborative autonomous robots in search and rescue operations.
- Adapted the mathematical model of the multi-robot system for 6 robots in a MATLAB-based simulator ensuring formation control during transport.