

Vishal Jayakumar

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TECHNICAL SKILLS

Languages: C/C++, Python, C#, HTML/CSS, SQL, R, Bash
Frameworks: .NET, Selenium, ROS, AWS
Tools: Docker, Git, GitHub, Jenkins, JIRA, Linux, Solidworks
Libraries: NumPy, PyTorch, Matplotlib, Pandas, Slash, Scikit-Learn

EXPERIENCE

Python Developer

September 2024 - December 2024

Burkett Statistical Consulting

- Used Pandas for data processing of utility meter data, producing a 90% smaller clean dataset
- Engineered features for EV load prediction and fitted numerous machine learning models achieving 80% accuracy
- Automated assembly line scheduling using Google OR-tools, Python and R, reducing manual effort and achieving a potential 5% reduction in paint costs by minimizing color switches and meeting all production constraints.

WiFi Software Testing

January 2024 - April 2024

Ford Motor Company

- Implemented and tested Python automation test scripts for in-vehicle WiFi connectivity modules extending test coverage to new hardware
- Conducted firmware testing of launch builds using Jenkins and used JIRA for reporting bugs in agile environment

Junior Data Scientist Intern

July 2023 – September 2023

Exponential Exchange

- Scraped price history of over 30 major market indices using Selenium and Python for data analysis
- Automated data migration from Google Sheets to Snowflake using Python, Google Apps Script and AWS
- Used Snowflake and SQL to compute correlations and created an interactive dashboard in Looker to visualize and compare the different indices

Software Lead & Researcher

September 2022 – Present

WATOnomous - University of Waterloo Autonomous Vehicle Design Team

- Co-authored [survey paper](#) on reinforcement learning based decision making schemes for autonomous vehicles
- Managed team of 10 members to develop mapping and localization solutions for autonomy stack

PROJECTS

WRO FE Self Driving Car Challenge | C++, Arduino, OpenCV

July 2023 - September 2023

- Built a custom LEGO and 3-D printed mini robot car chassis using multiple motors and sensors
- Programmed Arduino Nano using C++ to control the robot to autonomously navigate maze challenge using a camera for computer vision and multiple different sensors for robot localization

CADHub | C#, .NET, AWS Lambda & S3

July 2023 - October 2023

- Developed a full-stack application for simple CAD version management and file sharing
- Created a native windows application with WPF using C# and .NET in Visual Studio
- Created AWS lambda functions behind a secured API Gateway to allow front-end to download, upload and check file versions of CAD files stored AWS S3 buckets

Neural Network from Scratch | NumPy, Pandas, Scikit-Learn, Matplotlib

January 2022 - November 2022

- Derived, with linear algebra/calculus, equations for dense NN backpropagation using sigmoid activation function
- Implemented forward and back propagation using only Python and NumPy (for matrix multiplication)
- One-hot encoded predictions and target values using sci-kit learn, increasing the accuracy of the network by 30%

EDUCATION

University of Waterloo

Candidate for Bachelors in Computer Science, 3.92 GPA

Waterloo, Canada

Expected Graduation: 2027