Ashish Jayamohan

(650)-229-4920 | ajayamohan@ucsd.edu

Summary:

- B.S. Computer Science, University of California San Diego (Graduation Date: Summer 2025)
- **Proficiency:** Python, Java, SQL, R, C++, Haskell, Azure, Git
- **Coursework:** Algorithms, Data Structures, Operating Systems, Linear Algebra, Databases, Computer Vision, Programming Languages Paradigm, Computability and Complexity, Systems Programming, Theory of Computation, Bioinformatics

Experience:

Software Engineering Intern, Startree September 2024 - December 2024

- Developed rule-based performance advisor that recommends optimal indexing and settings for Pinot clusters based on extracted query features
- Multiple commits on OSS Apache Pinot, worked on query optimizers and added valuable new features (added several indexable JSON transformation functions)

Software Engineering Intern, Surface Optics June 2024 - September 2024

- Developing an end-to-end application that allows reflectometer interoperability between FRED, Zemax, and BRDF coordinate systems.
- Added new control functionality to SOC-210 bidirectional reflectometer for extremas, scatter (BSDF), and transmittance scenarios (BTDF).
- Enhance Zemax-based interpolation to allow reflectometers to use fewer points of measurement.

Software Engineering Intern, Surface Optics June 2023 - September 2023

- Responsible for end-to-end execution of an optimization project – gathered consumer needs, understood system requirements, and defined a comprehensive engineering plan. Optimized devices for faster measurements and added support for new modes and formats of measurement.
- Implemented Zemax transformation to use 15% fewer points of measurement input, thus enabling high-precision prediction for more use cases. Changes resulted in similar time and cost reduction for the customer.
- Awarded ‘Best Technical Skills’ award out of 50 student interns from various companies at the UCSD Computer Science Engineering Internship Symposium.

Software Engineering Intern, SpendMend February 2021 - October 2023

- Worked to develop and maintain software that extracted information from medical invoices with minimal human intervention using OCR technology.
- Decreased number of outlier invoices flagged for human intervention by ~30%, saving company time.
- Introduced structured collaborative development practices, including integrating Git version control and establishing best practices for code reviews and deployments.
- Facilitated automated data extraction of over 700,000 invoices by the end of internship.

Student Researcher, UC San Diego April 2023 - present

- **Yonder Dynamics** - Part of the UCSD team competing in the Mars University Rover Challenge. Conducted experiments for detection of life in Martian soil through wet lab fluorescence spectroscopy. Designed and implemented a low-cost compact spectrometry system for biosignature identification. Built robust software testing and baseline framework in Python for spectrometer integrated into Robot Operating System (ROS).
- **Boolean Lab** - Worked on developing a low-cost tiny machine learning (TinyML) optimized device to effectively diagnose specific diseases from cytometric data. Developed a machine learning tool using Keras RetinaNet, Tensorflow, and QuPath for quantitative organoid detection and analysis.
- **Halpain Lab** - Developing a computational tool in Python that automatically identifies and quantifies dendritic spines from fluorescent images. Worked on large-throughput image analysis pipelines for identifying neuronal cells from MAP1b fluorescent images in FIJI/ImageJ.
- **Dorrestein Lab** - Building software in Python to predict spectrometric entropy from Molecular Assembly (MA) index, as well as studying the correlation between MA index and tandem Mass Spectrometry (MS/MS) data for more efficient data clustering

Publications:

- **Wet Lab Fluorescence Spectroscopy for Detection of Life in Martian Soil** - Patil, Johnson, Jayamohan, O’ Malley, Muruhuthasan (https://ashishjayamohan.github.io/files/general/poster.pdf)
- **Adding Zemax Transformation and Output Support for SOC-210** - Jayamohan (Technical Skills Award - UCSD CSE 197 Symposium) (https://ashishjayamohan.github.io/files/general/Jayamohan.Ashish.2023.pdf)
- **Implementation and Assessment of Teamwork in Computer Science Education** - Jayamohan, Cheuoua (https://makecscount.com/Jayamohan2021.pdf)