Srijan Ray

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Education

Georgia Institute of Technology Atlanta, GA
Bachelor of Science in Computer Science *Aug 2023 – December 2026 (expected)*

- **GPA: 3.9/4.0**
- **Concentrations:** Artificial Intelligence and Modeling & Simulation
- **Relevant Coursework:** Intro to Aritificial Intelligence (Current), Design and Analysis of Algorithms, Robotics and Perception, Computer Organization and Programming, Data Structures and Algorithms, Linear Algebra

Experience

AI/Machine Learning/Software Engineering Intern May 2024 – present
Johns Hopkins University Applied Physics Laboratory *Laurel, MD*

- Developed Full-Stack Web App for coordinating distribution of therapeutic products for entire United States and Territories as part of project with HHS Coordination Operation and Response Element (HCORE) built with Vue, Python, and Postgres
- Assisted in development of High-Level Mission Dependency Modeling tool built with LLMs, Kotlin, and JavaFX
- Awarded Special Achievement Award for Outstanding Dedication and Positive Influence and Technical Expertise (Only given to 1 out of 100 interns)

Research Assistant June 2022 – Aug 2023
Johns Hopkins University Whiting School of Engineering *Baltimore, MD*

- Collaborated with a team of two graduate students and one undergraduate student to adapt and create new image processing libraries for other lab members in Barman Laboratory
- Adapted MATLAB Library of Quantitative Phase Imaging Analysis functions to Python actively used by lab
- Designed neural network for detection of radiation resistance in breast cancer cells given Maximum Intensity Projection
- Helped Lab Group to get awarded Oracle for Research Grant and collaborated with Oracle for Research Team
- Co-authored conference paper titled 'Explainable deep learning for aiding clinical applications of quantitative phase imaging' in SPIE Photonics West BiOS Conference 2024, Proc Vol 12852, Quantitative Phase Imaging X; 128520H

Research Assistant Summer 2019 – Summer 2021
Johns Hopkins Image Response Assessment Team *Baltimore, MD*

- Applied machine learning techniques using Python and TensorFlow for Image Segmentation and Classification
- Developed COVID-19 Case Prediction Model using Python and Neural-Prophet
- Applied K-Fold Cross Validation along with Metrics such as Precision, Recall, F1-Score, and Jaccard Score to design and better evaluate neural networks for Image Segmentation of Breast Cancer PET/CT Scans

Projects

Geographic Spatial Clustering for Observing Provider Equity | *Vue, FastAPI, Redis, Postgres, Docker* Summer 2024

- Performed high-level Data Analysis of US Provider network using data from Palantir Tiberius, Census Bureau, and Open Street Maps and stored cleaned data using Postgres and PostGIS
- Wrote FastAPI backend for querying Postgres database, applied Redis as a cache for accelerating data retrieval operations
- Developed Frontend using Vue 3, LeafletJS, and TailwindCSS for visualization of provider data and to determine what neighborhoods would be at risk/in need of therapeutic products in case of public health emergency

Machine Learning for Radiation Resistance Detection | *Oracle AutoML, TensorFlow* Jun 2022 – Aug 2023

- Applied Oracle's AutoML library for classification of cells in cell line being either susceptible to radiation, mildly resistant to radiation, and completely resistant to radiation
- Adapted ResNet-34 architecture for purpose of training neural networks on sarcoma cell line datasets using TensorFlow library, and analyzed neural network performance based on accuracy, loss, and f1-score metrics using Matplotlib, Seaborn, and Scikit-Learn
- Presented project at Student Learning Conference at Johns Hopkins Applied Physics Laboratory

Deep Learning Image Segmentation for Detecting Breast Cancer | *TensorFlow* Jun 2020 – Nov 2022

- Designed Convolutional Neural Network in Python using Tensorflow and Keras Libraries for Image Segmentation of 128 x 128 RGB Breast Cancer PET Images
- Wrote pipeline for importing all four large image datasets in using NumPy and OpenCV libraries through FTP server
- Trained Neural Network using Tensorflow and Keras Libraries and applied K-Fold cross validation for proper evaluation of network based on precision, recall, and f1-score metrics by using Matplotlib, Sci-Kit Learn, NumPy, and Keras Library
- Awarded 4th Place in Prestigious Regeneron ISEF Regional Science Fair in Math and Computer Science Category

Technical Skills

Languages: Python, Java, JavaScript, HTML/CSS, Kotlin, C, R, MATLAB
Frameworks and Databases: FastAPI, Django, VueJS, Svelte, AstroJS, React, NodeJS, PostgreSQL, PostGIS
Libraries: TensorFlow, Keras, NumPy, Sci-Kit Learn, Matplotlib, Pandas, GeoPandas, SQLAlchemy, OpenCV, Oracle AutoML