SIDDHARTH SRIVASTAVA

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Education

Imperial College London Sep 2023 - Sep 2024
MSc Advanced Computing *London, United Kingdom*

- Modules: Machine Learning for Imaging, Statistical Information Theory, Deep Learning, Computer Vision, Reinforcement Learning, Introduction to Machine Learning, Computational Neurodynamics;
- MSc Dissertation in Machine Learning: 'Physics-informed Factor Graphs for Resting-State Whole-Brain Modelling'

University of Warwick Sep 2020 - Jul 2023
BSc (Honours) Computer Science - First Class *Coventry, United Kingdom*

- Modules: Functional Programming, Algorithms, Advanced Computer Architecture, Computational Physics, Electrical and Electronic Circuits, Machine Learning, Neural Computing;
- First Class Honours (20/21, 21/22, & 22/23)
- Dissertation titled: 'Tools for augmentation of training data' - 82% overall.

Overseas Family School Aug 2018 - May 2020
International Baccalaureate Diploma *Singapore*

- 43/45 IB Diploma points (Higher Level Mathematics, Physics, Economics)

Experience

The Trade Desk July 2023 - September 2023
Software Engineering Intern - Connected TV Inventory *London, United Kingdom*

The Trade Desk is one of the world's largest demand side platforms powering programmatic advertising.

- Engineered a data processing pipeline to analyse data from **AWS S3** into **Vertica** on an hourly basis to calculating ad metrics for podded advertisements, using **Apache Airflow**, **Apache Spark**, **SQL** and **Databricks**;
- Designed a **Grafana** dashboard connected to **Vertica** to display the calculated metrics as an internal tool for the CTV engineers;

American Express June 2022 - August 2022
Technology Engineer Internship - Global Commercial Services *London, United Kingdom*

- Collaborated in a group of 6 interns and 3 full time engineers on a software project, following the **Scrum** methodology;
- Designed and engineered a micro-services based web application to facilitate data migration between the old FXIP platform to the new Global Pay platform; built using **Kotlin**, **Spring Boot**, **React**, **PostgreSQL** and **Apache Kafka**;
- Implemented containerization using **Docker** to isolate the services and databases into their own containers, facilitating a streamlined deployment to production.

Warwick Moto June 2022 - July 2023
Lead Mathematical Modelling & Software Engineer *University of Warwick*

Warwick Moto is a student-led engineering team to build fully-electric race-spec superbike.

- Lead a team of 4 software engineers to develop advanced **particle swarm optimisation** scripts using **MATLAB** and **Simulink** to minimise lap times and maximise efficiency of a virtual model bike, achieving the optimal gear ratio for the next-generation superbike;
- Engineered and developed a new frontend for the Warwick Moto website using **Typescript** and **React**, increasing marketability of the product and improving external relations;
- Faciliated the transition of the code and models to **GitHub Enterprise** and enforced code standards and SOPs.

Mathematical Modelling & Control Systems Engineer *November 2020 - June 2023*

- Designed algorithms in **Python** to compute an elevation cycle for the Isle of Man circuit using geographical data and a drive cycle;
- Engineered a 3 degree of freedom vehicle model in **Simulink** using the vehicle dynamics blockset to simulate longitudinal and lateral movement of the bike;
- Developed an algorithm to convert waypoint data of any racetrack into a steering cycle to simulate the running of a bike on a track;
- Programmed a new Electronic Control Unit with two CAN channels based on the Embed E400 Automative Controller using **Simulink** and **CANalyzer**;
- Implemented contactor sequencing to ensure safe startup, state transitions and shut down for the motor and inverter on the bike.

Primrose Hill Surgery June 2021 - August 2021
Administrator & IT Support *London*

- Utilized **Pandas** and **NumPy** to perform data analysis on vaccination data at the local vaccination site to enable equitable allocation of funds;
- Performed searches on **EMIS** to sort patients based on criterion to provide specialised care;
- Operated the NHS e-referral service to refer patients to hospitals for advanced care;
- Volunteered at the local vaccination site as a vaccinator to administer over **1000** COVID-19 jabs;
- Coordinated the IT response to manage the **Palantir Foundry** vaccine ordering platform and Outcomes for Health Point of Care system to ensure smooth operations.

Publications

Controlling the layout of synthetic tissue images: a dual cGAN approach for bioimage augmentation
Submitted to International Symposium on Biomedical Imaging 2024

- Developed a novel image processing pipeline to augment a dataset of tissue images, using conditional GANs and traditional image processing techniques, developed using **PyTorch**, **NumPy**, **skimage** and **ImageJ**.

Skills

Languages: Python, Java, HTML, CSS, JavaScript, PHP, SQL, MATLAB, Simulink, Kotlin, PostgreSQL. LaTeX
Frameworks/Tools: matplotlib, numpy, scipy, pandas, Flask, React, React Native, Beautiful Soup, Tensorflow, Keras, PyTorch