Eklavya Sarkar

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EDUCATION

MSc Data Science with Placement, *University of Bath* **Oct 2018-Present**
- Relevant Modules: Statistics, Machine Learning I & II, Reinforcement Learning, Neural Computing

BSc Computer Science, *University of Liverpool* **2015-18**
Overall Grade: First Class *Liverpool, UK*
- Relevant Modules: Software Engineering, Networks, Complexity of Algorithms, Efficient Sequential Algorithms
- Dissertation: Kohonen Self-Organizing Maps, *Grade: 90%*

PROFESSIONAL EXPERIENCE

CERN, CMS Experiment - Python, C++, CERN's ROOT **July-Sept 2017**
Software Development and Data Analysis Intern *Geneva, CH*
- Refined efficiency of production code by implementing requested features and enhancements on existing scripts
- Improved code used for testing detector in a quality control stand by adding an optional step-size argument feature
- Created method for configuring detector's electrical state with custom values by employing a Python dictionary
- Published real-time gas levels of a mixer by writing C++ script to collect and send data to a shared server via an API

ACADEMIC PROJECTS

Kohonen Self-Organizing Maps - EMNIST Dataset, Python, Flask, D3.Js, Bootstrap, HTML5 **2017-18**
Grade: 90%
- Implemented unsupervised machine learning neural network from ground up without using any specific ML library
- Trained back-end model on 3 open-source datasets of various dimensions to cluster data using Kohonen's algorithm
- Developed front-end GUI for interactive data visualization before and after clustering and dimensionality reduction
- Wrote 200 pages thesis covering all aspects of project such as system design, algorithmic optimization, scalability

Exoplanets: Discoveries and prospects **2012-13**
Grade: 6.0/6.0
- Conducted literature review on Exoplanets, with inputs from Dr. Didier Queloz, co-discoverer of the first exoplanet
- Showed correlations between possibly habitable planets and core laws of physics by analyzing open-source dataset
- 50 page report selected among top 2013 student scientific projects in Geneva canton, and invited to present at a public 'Science Sharing' event at CERN.

IT PROJECTS

Group Android App Project - SQL, PHP, JavaScript, AJAX, jQuery, CSS, HTML **Feb-June 2017**
Grade: 75%
- Created Scran, a dynamic Android food app, which analyzed user's data to suggest dishes based on past preferences
- Managed group and project by chairing meetings, reviewing deadlines, and making decisions based on progress
- Focused on back-end by handling database, maintaining data pipelines and writing SQL queries for data retrieval
- Developed final App to a total of 30 different pages with approximately 200 lines of code for each view

Robotics - Java, LeJOS **Sept 2017-Jan 18**
Grade: 76%
- Implemented autonomous exploration, mapping, navigation and object detection on robot using Java's LeJOS
- Reduced computational time complexity by a magnitude by implementing an A* search algorithm for pathfinding

Moving Average Filter - C++, LabView, MatLab **Feb-June 2014**
Grade: 5.5/6
- Designed structure on LabView to create a filtering mechanism to remove random noise from sinusoidal plots
- Automated LabView to have C++ generate the signal and noise, and Matlab display the filtered and unfiltered states

SKILLS

- **Languages**: Python, Javascript, Java, PHP, C++, SQL, Tex, CSS, HTML.
- **Frameworks/libraries**: NumPy, Pandas, Matplotlib, Bootstrap, D3.js, jQuery, AJAX, Flask, LeJOS.
- **Softwares**: Jupyter, Xcode, IntelliJ IDEA, Eclipse, Matlab, MySQLWorkbench, LabVIEW, Mathematica.
- **Comfortable with**: Git, Linux (SLC6, Xfce, Ubuntu), Unix, Shell, Emacs, Databases.
- **Spoken Languages**: English, French, Hindi (fluent), German (working proficiency)

EXTRA-CURRICULAR

President, Dover Court Hall Students Committee, University of Liverpool **2017-18**
- Elected President of Dover Court Hall Committee by ballot vote majority to represent 270 students
- Enhanced residents' experience by taking charge of implementing and managing events throughout the year
- Led 10 member committee through generating team vision, chairing weekly meetings, and gathering feedback