Eklavya Sarkar

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EDUCATION

MSc Data Science, *University of Bath* - *UK, Current Grade: 74%* **Oct 2018-Sept 2019**
- Thesis: Optimising Facial Information Extraction and Processing, *Grade: TBD*

BSc Computer Science, *University of Liverpool* - *UK, Grade: 70%* **2015-18**
- Thesis: Handwriting Clustering using Kohonen Neural Networks, *Grade: 90%*

PROFESSIONAL EXPERIENCE

European Organization for Nuclear Research (CERN) **July-Sept 2017**
Software Engineering and Data Analysis Intern *Geneva, CH*
- Refined efficiency of production code by implementing requested features and enhancements on Python scripts.
- Improved code used for testing detector in a quality control stand by adding an optional step-size argument feature.
- Published real-time gas levels of a mixer by writing C++ script to collect and send data to a shared server via an API

RESEARCH AND THESIS

***MSc* - Computer Vision: Facial Information Extraction and Processing**, *Grade: TBD* **June 2019-Present**
- Built end-to-end models to extract and process different facial information tasks from real-time images.
- Achieved 95% test accuracy on personal dataset with convolutional neural networks and hyper-parameter tuning.
- Optimised performance with deep learning best practices: data augmentation, batch-normalisation, cross validation.

***BSc* - Computer Vision: Kohonen Self-Organizing Maps**, *Grade: 90%* **April-June 2018**
- Implemented unsupervised machine learning neural network from ground up without using any specific ML library.
- Trained back-end model on 3 different open-source datasets to test neural network's efficiency and scalability.
- Developed front-end GUI for interactive data visualisation before and after clustering and dimensionality reduction.
- Wrote extensive thesis covering all aspects of project such as system design, algorithmic optimisation, scalability.

***TM* - Data Analysis: Exoplanets, Discoveries and Prospect**, *Grade: 6/6* **2012-13**
- Conducted literature review on Exoplanets, with inputs from Dr. Didier Queloz, **Nobel Laureate in Physics**, 2019.
- Showed correlations between possibly habitable planets and core laws of physics by analysing open-source datasets.
- Selected among top 2013 student scientific projects in Geneva, and invited to publicly present at an event at CERN.

ACADEMIC PROJECTS

Deep Reinforcement Learning: Flappy Bird **April 2018**
- Trained model to learn to play Flappy Bird using Deep Q-Learning, and surpassed human level performance.
- Implemented model with Experience Replay and Deep Deterministic Policy Gradients to develop optimal policy.

Natural Language Processing: Toxic Comment Classification **April 2018**
- Attempted to solve Kaggle competition while specifically striving for implementations beyond *off-the-shelf* ones.
- Compared different ML approaches as Log Regression, Decision Trees, LSTM with a baseline Naive-Bayes model.

Natural Language Processing: Open Information Relation Extraction **April 2018**
- Summarised large body of text by training a ML speech tag classifier for each input word using Glove word vectors.
- Optimised kitchen sink model by implementing features such as backtracking, Vertibi algorithm, Adam optimiser.

Android App Group Project **Feb-June 2017**
- Created dynamic full-stack Android food app, which analysed user data to suggest dishes based on past preferences.
- Focused on back-end by handling database, maintaining data pipelines and writing SQL queries for data retrieval.

SKILLS

- **Programming**: Proficient in Python. Previously used Java, Javascript, PHP, SQL, C++, CSS, HTML.
- **Frameworks**: TensorFlow, Keras, OpenCV, SkLearn, NumPy, Pandas, D3.js, Matplotlib, Seaborn, Flask.
- **Comfortable with**: Jupyter, Kaggle Kernels, xCode, Eclipse, Git, Unix.
- **Languages**: English, French, Hindi (fluent), German (working proficiency).

LEADERSHIP EXPERIENCE

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.