

Eklavya Sarkar

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EDUCATION

MSc Data Science, University of Bath - UK

Oct 2018-Sept 2019

Current Overall Grade: First Class (74%)

- Dissertation: Optimising Facial Information Extraction and Processing, Grade: TBD
- Selected Modules: Machine Learning I & II, Statistics, Reinforcement Learning, Applied Data Science

BSc Computer Science, University of Liverpool - UK

2015-18

Overall Grade: First Class (70%)

- Dissertation: Kohonen Self-Organizing Maps, Grade: 90%
- Selected Modules: Artificial Intelligence, Group Software Engineering, Complexity of Algorithms, Networks

PROFESSIONAL EXPERIENCE

European Organization for Nuclear Research (CERN)

July-Sept 2017

Software Engineering and Data Analysis Intern - Python, C++

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.
- 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

RESEARCH AND THESIS

Computer Vision: Facial Information Extraction and Processing - TensorFlow

June 2019-Present

- Achieved 95% test accuracy on facial recognition with convolutional neural networks and hyper-parameter tuning.
- Built separate models for tasks such as emotion classification before combining them all into an end-to-end models.
- Optimised performance with deep learning best practices: data augmentation, batch-normalisation, cross validation.

Computer Vision: Kohonen Self-Organizing Maps - NumPy

April-June 2018

Grade: 90%

- 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.

ACADEMIC PROJECTS

Deep Reinforcement Learning: Flappy Bird - TensorFlow

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 - Pandas

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 - NumPy

April 2018

Grade: 87%

- 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.

Group Android App Project - SQL, PHP, JavaScript, AJAX, jQuery

Feb-June 2017

Grade: 75%

- Created a dynamic Android food app, which analysed user's 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.
- Developed final App to a total of 30 different pages with approximately 200 lines of code for each view.

SKILLS

- **Languages:** Proficient in Python. Previously used Java, Javascript, PHP, C++, SQL, Tex, CSS, HTML.
- **Frameworks:** TensorFlow, SkLearn, NumPy, Pandas, Matplotlib, Seaborn, OpenCV, Flask, D3.js.
- **Comfortable with:** Jupyter, Kaggle Kernels, xCode, Eclipse, Git, Unix, Shell, Databases, Mattermost.
- **Spoken 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.