JOEL GABRIEL GRIMMER

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EDUCATION

University of Bristol, United Kingdom
Master of Engineering (MEng) Computer Science with Study Abroad, September 2019 – July 2023
Classification: First Class with Honours
University of Copenhagen, Denmark (Year of Study Abroad)
Year 1 of 2-year Master of Science (MSc) in Computer Science, September 2021 – July 2022

EXPERIENCE

Software Engineer (Intern)
Byrd (Run coaching start-up), Bristol (Remote), UK, July 2021
- Refactored core data structures including user run history and run goals. Implemented an experiential goals system to analyse user data for unique achievements such as longest run, time of day, lunar cycle, alongside other similar metrics.

Software Engineer (Intern)
Byrd (Run coaching start-up), Bristol (Remote), UK, June 2020 – August 2020
- Developed core front end app features using Dart and the Flutter framework, including the settings view, run goal views, and user onboarding flow.
- Wrote local application interactions with the backend Firebase platform, including integrations for Cloud Firestore, Firebase Authentication, and Cloud Functions.

PROJECTS

Master's Thesis: Deep Behavioural Action Recognition for European Roe Deer in the Wild
University of Bristol, 2023
- Developed the first deep learning behaviour recognition model designed specifically for camera trap footage of Roe deer, using a brand-new dataset, with the aim of detecting a set of basic behaviours.
- Tested the performance trade-offs of different video recognition backbones and investigated the effectiveness of different fusion strategies when using a multiple stream model architecture.

Early Diagnosis of Septic Patients with Machine Learning
University of Bristol, 2023
- Investigated a variety of approaches to time series analysis of patient data, including XGBoost and LSTM models.
- Contrasted the effectiveness of different data imputation and feature extraction techniques.

Deep Learning-based Automatic Music Genre Classification
University of Bristol, 2022
- Replicated a research paper on CNN-based music genre classification from MEL spectrogram information.
- Improved upon the performance of the paper's models using an inception network architecture.

Analysis of Deep Neural Networks as Models of the Brain
University of Bristol, 2022
- Investigated the biological relevance of the backpropagation algorithm with respect to the brain.
- Applied an information theory analysis to Deep Neural Networks, in particular investigating how network layers can be represented as Markov chains, the Shannon entropy of input image properties, and the entropy of an autoencoder network.

Collaborative Filtering and Content-Based Recommender Systems for News Stories
University of Copenhagen, 2022
- Contrasted Neighbourhood and Latent Factor based Collaborative Filtering techniques.
- Contrasted TD-IDF vectorisation and pretrained word embeddings for content-based recommender systems.

SKILLS

Tools: PyTorch, CUDA, NumPy, Pandas, Matplotlib / Seaborn, Scikit-learn, XGBoost
Deep Learning: Action Recognition, Video Analysis, Object Recognition, Image Segmentation, Recurrent Neural Networks, Deep Q-Learning
Machine Learning: KNN, VC analysis, PCA analysis, Support Vector Machines (SVM), Collaborative Filtering, NLP Online Learning (Stochastic and adversarial multiarmed bandits), Reinforcement Learning (MDPs, Monte Carlo Methods, Dynamic programming, Temporal Difference Learning)