Jack Pay

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EDUCATION

University of Manchester — Sept 2021 - Jun 2024
Bachelor of Science - Computer Science
- Second Year: 82%
- Completed courses: Machine Learning, Intro to AI, Visual Computing, Software Engineering

Winstanley College — Sept 2019 - May 2021
A*A*A*
- Studied Computer Science, Mathematics and Further Mathematics

TECHNICAL SKILLS

- **Proficient With**: Python, Java, Trello, Confluence, Git, OpenCV
- **Exposure to**: Markdown, Docker, Pytorch, Jira, Azure, HTML, C, C++, Databricks

EXPERIENCE

SeeChange Technologies — Jun 2023 - Sept 2023
Machine Learning Intern
- Trained **Deep Learning models** for feature extraction, feature vector gallery generation and distance classification
- Hosted a presentation to different teams and **senior leadership**, explaining the experiments, models and results developed
- Designed a configurable, extensible and **automated data generation pipeline** to create labelled samples, for training
- Produced a Python script for **cleaning training data** which included 8 configurable & optional cleaning methods such as **interframe-similarity** and **variance of Laplacian** for blur
- Developed a smart gallery generation pipeline that employed **varying clustering algorithms**, such as **KMeans** and **DBSCAN**, to automatically find cluster outliers in high dimensional space

SeeChange Technologies — Jun 2022 - Sept 2022
Platform Intern
- Selected out of **97** other applicants to design a disaster recovery system for the entire company
- Implemented a system to backup and regularly test the restoration of the entire company's **GitLab** repositories, Atlassian **Jira** boards and Atlassian **Confluence** automatically using a **CI pipeline**, schedules and AWX
- Employed the **Robot Framework**, **Python**, **Azure** and **Datadog** to make a collection of tests to monitor resource use of AI edge compute devices and to test the APIs created by the company
- Wrote comprehensive **Markdown** documentation and collected data for a **deep learning** algorithm for item recognition
- Attended all **agile ceremonies** (such as sprint planning, daily scrums, reviews and retrospectives), provided input to user stories and tasks, and delivered demonstrations of work completed

PERSONAL PROJECTS

Face Recognition & Completion — Apr 2023 - May 2023
- Applied **regularised least squares** and **gradient descent** to train models for **face recognition** for a small set of people
- Plotted, analysed and visualised results using a **confusion matrix** and basic metrics
- Trained, using **one-hot encoding** and **k-fold cross validation**, a model to complete the faces of individuals, given half of a face

News Article Classification — Mar 2023 - Apr 2023
- Engineered a K-nearest neighbours algorithm for news article **classification**, with a Juypter Notebook
- Implemented both the distance classification methods of **Euclidean distance** and **Cosine similarity**, accurately concluding that the latter performed better for the type of data
- Overcame an issue with the **sparsity of data**, utilising Scipy's sparse matrices to perform 1000s of matrix multiplication calculations **minutes compared to hours**
- Performed **hyperparameter selection**, accurately deducing the best value for K in KNNs

Horizon Detection — Mar 2023 - Apr 2023
- Applied **Canny Edge detection**, and a set of filtering methods, to accurately localise on the horizon within images
- Employed **C++** and the **OpenCV library** in order to analyse images and draw the calculated location of horizons

EventLite — Feb 2023 - May 2023
- Lead a team of **7** students to design a website, using **Java**, **Spring** and an **MVC** architecture, that advertised local events
- Created **tickets** and **GitLab issues** weekly to sychronise and better implement new features whilst avoiding regression
- Introduced **valid Git workflow patterns** and branch naming conventions, and frequently reviewed other's code

Stendhal Fixes — Oct 2022
- Lead a team of **7** students to fix issues on an older version of the **open source** game **Stendhal** using **Java** and **Eclipse**
- Employed **JUnit** to edit unit tests from a suite containing over **2100** tests and followed an **issue driven** work methodology
- Managed **standup** meetings with other students to synchronise and scheduled meetings to merge changes

LEADERSHIP AND AWARDS

PASS Leader — Sept 2022 - Jun 2023
- Arranged tutoring sessions with **3** other PASS leaders as part of the Peer Assisted Study Sessions scheme
- Mentored a group of **13** students from lower years, advised on preparing CVs and assisted in revising degree content

Deputy Head Boy of Standish Community High School — Sept 2019 - Jun 2019
- Managed a team of prefects to performing roles around the school and arranged events to keep morale during exam season