

Jack Pellen-Pickersgill

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I'm a developer and teacher with a proven understanding of machine learning and AI. I thrive in challenging, collaborative environments, especially those which provide opportunities for exploring new tools and technologies. I have good research skills having worked on several highly technical projects as well as excellent Python proficiency and experience working in an agile setting.

Languages

Python SQL Erlang/Elixir Elm React JavaScript HTML/CSS Prolog PDDL Java C#
Bash R Matlab Rust

AI and Machine Learning

Reinforcement Learning Natural Language Processing Time Series Analysis Azure AI Services
SAT/CSP AI Planning Deep Learning Agent Based Modelling Clustering
Evolutionary Game Theory

Tools and Libraries

Numpy Postgres SvelteJS Matplotlib Regex PyTest Open Telecom Protocol Vim/VimScript
Flask SQLite Pandas Azure Linux LaTeX Z3 Hypothesis Cargo

Methodologies

Scrum/Agile Distributed Systems Version Control Unit Testing Cloud Services RESTful APIs
Data Viz. Documentation

Work Experience

- **STEM Foundation Programming Teacher** - Royal Holloway University, 2022-24
 - Took on a more leading role running Python programming labs for first year STEM students of mixed backgrounds.
 - Responsibilities also include monitoring student wellbeing, holding pastoral seminars and offering one-to-one sessions for students who need extra help.
- **Computer Science Teaching Assistant** - Royal Holloway University, 2021-24
 - Helped teach several Masters courses on a range of topics including Databases, Programming, Statistics and Machine Learning.
- **Software Engineering Placement** - Royal Holloway University, Summer 2021
 - Worked with a fellow graduate to investigate the feasibility of transitioning our first year robotics course to an open source software platform.
- **Undergraduate Research Placement** - Royal Holloway University, Summer 2019
 - Worked in a small team investigating the use of Blockchain technology for supply chain management and carbon tracking.
- **Sales Assistant** - Maplin Electronics, 2016-2017
 - Customer facing role selling consumer electronics ranging from multimedia devices and domestic appliances to discrete components.

Education

- **PhD Student, Distributed and Intelligent Computing Environments Laboratory, 2022-23** - Royal Holloway University of London
 - Worked on formalising and implementing Multi-Agent simulations such as distributed task negotiation and evolutionary game theoretic models. Also studied single and multi agent learning tasks. Chose to withdraw due to a change in personal circumstances.
 - **MSc Artificial Intelligence (Distinction), 2021-22** - Royal Holloway University of London
 - Masters Thesis entitled "AI Planning using SAT/SMT and Bounded Model Checking", deriving a perspective of planning tasks as satisfiability problems which could then be encoded and solved by an off the shelf DPLL based solver like Z3. Awarded yearly Outstanding Project.
 - Distributed Systems, studied the fundamental principles of distributed computing networks including Elixir/OTP implementation of the consensus algorithms Paxos.
 - Data Analysis, intensive course covering wide array of Machine Learning techniques using R, Matlab and Python. Implemented ML algorithms such as AHC, Linear Regression and Random Forests from first principles.
 - **First Class Hons. BSc Computer Science, 2018-21** - Royal Holloway University of London
 - Worked as a team of 8 on a fullstack web development project following agile methodology, awarded best team.
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Projects

- **BigMagnet**, Python - 2024
 - Python tool for querying and aggregating code datasets. Handles pagination and concurrent execution of large request queries before downloading and extracting relevant files.
 - Originally intended to be used for generating a large Rust dataset for LLM tuning then extended to handle a range of search query parameters.
 - **WAMM (WhatsApp Markov Models)**, Python - 2022
 - Trains a word level n-gram Markov Model using raw WhatsApp chat history data. Handles both the cleaning and parsing of large history files and statistical analysis of extracted data.
 - **QBert**, Elm, Python - 2020
 - Experiments in Multi-Agent task-fulfilment with queueing situated in physical 2d space.
 - Python model which simulates the model and produces log files which can then be parsed by browser based visualizer tool written in Elm.
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Hobbies and Interests

- **Music**, I've been playing bass for just over a decade and have been part of several large and small groups.
 - **Sport**, I play football, cycle and have recently started bouldering. When it comes to watching sport I mostly follow football but also try to keep up with rugby union, F1 and baseball.
 - **Gaming**, I love playing games with friends be it tabletop or virtual.
 - **Puzzles**, I enjoy puzzles in all their forms. I'm a devout Wordler and Rubik's Cube speedsolver with a PB time of 13.5s.
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