Patrick Kage

patrick@ka.ge | +1 860 816 0578 | ka.ge

SKILLS

LANGUAGES
(Computer)
Python
HTML
CSS/Sass/SCSS
Javascript
C/C++
Rust
Java
Assembly (MIPS)
SQL
Haskell

FRAMEWORKS
(Selected)
Node.js/Express
Flask
FastAPI
SQLite
Postgres/PostGIS
React.js
Redux + React-Redux
Svelte
Vue.js
Vanilla JS
Jest.js
Three.js
SFML (C++)
SciPy/NumPy
SKLearn
PyTorch

TOOLS
(Selected)
Docker/Kubernetes
AWS
(Neo)Vim
Linux (systems prog.)
Final Cut Pro
Adobe Photoshop
Adobe Illustrator
G Suite
MS Office (esp. Excel)

LANGUAGES
(Human)
English (Native)
Polish (Fluent)
Mandarin (Intermediate)

EDUCATION

UNIVERSITY OF EDINBURGH | PhD, Artificial Intelligence
2022 — Present | Artificial Intelligence and its Applications Institute, Edinburgh, Scotland, UK

- Working on creating robust classification models under semi-supervised and weakly-supervised regimes.
- Created course materials and provided teaching support for the "Artificial Intelligence and Storytelling" class at UoE's Edinburgh Futures Institute.

UNIVERSITY OF EDINBURGH | BSc.(H) Artificial Intelligence & C.S., 1st Class
2017 — 2021 | Edinburgh, Scotland, UK

- Honours project dissertation on novel methods for detecting latent class fragmentation with deep neural classifier explanatory methods, publication version available on ArXiv (2107.01657).

EXPERIENCE

SPACERAKE | Sr. Scientist
2022 – Present | Cambridge, MA, US / Remote

- Generating insights from satellite imagery with AI at scale. Working extensively with geospatial intelligence solutions.
- Writing SBIRs (& other proposal vehicles) for stakeholders within the Dept. of Defense.

NASA JET PROPULSION LABORATORY | Soft. Eng. Affiliate
Summers 2016, 2017, 2018, 2019 | Pasadena, CA, US

- 2016, 2017 — Worked in JPL's 397-F/M (Ops Lab/Human Interfaces Group) to develop mission formulation software (the Integrated Modeling Environment) to support of Team X and Xc's model-based systems engineering modernization initiatives. Specific focus on modeling propulsion systems and on creating a flexible plugin system. Resulting project made part of JPL's long-term strategic plan.
- 2018, 2019, 2020 — Developed CODEX, a first-pass data analytics framework for scientific data from JPL/external missions through the Machine Learning and Instrument Automation (MLIA) group. Focused on the frontend, leading a major refactor adding unit testing, removing bad practice code, writing documentation, transitioning the data model to use immutable.js + Redux, load optimization under large datasets with automatic downsampling, robust concurrency. Additionally, wrote a static analysis toolkit to aid refactoring of poorly written and undocumented codebases in Javascript.

AURORA FLIGHT SCIENCES | Soft. Eng. Intern
December 2016 – May 2017 | Cambridge, MA, USA

- Developed flight/ground station software and hardware for upcoming micro- satellite missions, focusing on software systems engineering.
- Worked on the Deformable Mirror Demonstration mission (DeMi) cubesat flight and ground software, a joint project with MIT Space Telecommunications Astronomy and Radiation Lab (STARLab).

MASSACHUSETTS INST. OF TECHNOLOGY | Research Assistant
Summer 2015, December 2016 – May 2017 | Cambridge, MA, USA

- Summer 2015 — Developed ground/flight software for MIT Space Telecommunications, Astronomy, and Radiation Lab (STAR Lab)'s microsatellite project (MiRaTA), as well as working remotely on JPL mission formulation software.
- 2016-2017 — Created visualization software to model satellite constellations to support ongoing research at STARLab. Represented STARLab and MIT professionally at the MIT Industry Liaison Conference in Vienna, Austria.