Thomas Kane

Scientific Software Developer

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About

Software Developer with eight years of experience working in Science. I am adept in programming Python and Rust applications in scientific contexts, and I also have recent experience in full-stack development with FastAPI, Svelte, and other technologies. I have thrived in interdisciplinary teams, bridging the gap between research and software engineering. I am passionate about developing high-quality, scalable software solutions that advance scientific discovery, improve healthcare outcomes, or have a positive societal impact.

Technologies

Languages: Python · Rust · TypeScript · JavaScript · Matlab
Frameworks/Tools: Git · Docker · AWS · Linux · Svelte · FastAPI · OpenCV · NumPy · Pandas
Software: ImageJ · Onshape · Photoshop · Illustrator

Employment

Scientific Consultant · Self-employed (Janssen Pharmaceuticals) Oct 2024 - Present

- Developing novel tests to assess ocular function used in a worldwide phase 3 gene therapy clinical trial.
- Teaching internationally to teams of health professionals to perform this new assessment to ensure excellent scientific standards for the outcome of the trial.

Scientific Software Developer · Self-employed (UCL Institute of Ophthalmology) Sep 2022 - Sep 2024

- Developed python applications for scientists to improve data collection, processing, and analyses.
- Assisted with scientific strategy for a multitude of research projects in vision science and gene therapy.
- In charge of the entire development pipeline. Some libraries commonly used were OpenCV, CellPose, and DeepLabCut, and some use of Rust and Arduino language.

Senior Research Scientist · UCL Institute of Ophthalmology/Moorfields Eye Hospital Apr 2017 - Oct 2022

- Primarily responsible for operation and maintenance of Adaptive Optics Scanning Light Ophthalmoscope (AOSLO), a state of the art ophthalmoscope that allows in vivo imaging of cells in the retina. In 2021 my team built an entirely new AOSLO from scratch.
- Calibrated the device, processed and analysed images, and developed new software to help better interpret novel data. In this role I first became proficient in Python.
- Named author on 23 publications, have my own first authorship in Ophthalmic Genetics, and presented at ARVO 2019.

Education

University College London | MSci Grad Jan 2015

Medical Physics

Research project: “Estimating Core Temperature Using Computer Vision Techniques in Matlab to Screen for Infectious Diseases”.

Selected Projects

GUI for analysing medical images with Python · github.com/thomasmichaelkane/ao_cropper

GUI using Python Imaging Library for processing and analysis of medical images.

Pairwise ranking with FastAPI and Svelte · github.com/thomasmichaelkane/ventr

An app to pairwise rank companies for venture capitalists using an ELO system. Built with FastAPI, MySQL, and SvelteKit.

Enigma CLI with Rust · github.com/thomasmichaelkane/enigma_cli

Command line interface enigma machine cipher device, with functional rotors and plugboard, and ascii animation, and hosted on DockerHub

Selected Publications

[23 Publications, 356 Citations, h-index: 10] ·

· Kane T., et al. (2022) Photoaversion in inherited retinal diseases: clinical phenotypes, biological basis, and qualitative and quantitative assessment

· Georgiou M., Kane T., et al. (2020) Prospective Cohort Study of Childhood-Onset Stargardt Disease: Fundus Autofluorescence Imaging, Progression, Comparison with Adult-Onset Disease, and Disease Symmetry

· Georgiou M., Singh N., Kane T., et al. (2020) Photoreceptor structure in GNAT2-associated achromatopsia

Certifications & Conferences

AWS Certified Cloud Practitioner Jul 2025

Amazon Web Services · Expires: Jul 2028

UCL RITS & DiRAC Artificial Intelligence Bootcamp 2021

Attended at University College London

ARVO Annual Meeting 2019 Vancouver

Presented at The Association for Research in Vision and Ophthalmology