Samuel Overington

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I am a passionate CV / ML research engineer with experience creating static and dynamic image recognition models, including dynamic hand gesture recognition. I am searching for opportunities to join an R&D team to help find solutions and innovate within the field.

Skills

Languages: Python, C++, C#, TypeScript, SQL, Bash, HTML, LaTeX

ML / AI Tools: PyTorch, TensorFlow, Keras, image processing, OpenCV, segmentation, object detection, transfer learning

Tools: Git, CLI scripting, Python packaging, Jenkins, Github Actions, PyTest, Pandas, Django, Flask, Docker, Linux, macOS, systemd

Education

2017 – 2020: **Bsc Physics** (2:1)
Queen Mary University of London, London, UK

2016 – 2017: **Access to Science Dimploma** (Distinction) *Tower Hamlets College*, London, UK

2003 – 2007: **Bachelor of Fine Arts (Photography)**
Victorian College of the Arts, Melbourne, Australia

Experience

Dimension Studio, London UK, Nov 2023 – Present.

Software Engineer - Machine Learning and Research (Nov 2023 - Jun 2025)
Senior Software Engineer - Machine Learning and Research (Jun 2025 - Present)

Applying state-of-the-art machine learning and computer vision research to push the boundaries of virtual production. Key projects include:

Live human matting project for Omega at Paris Olympic Games 2024: Developed and deployed an ML-based pipeline for a live activation with 300+ captures/renders per day, enabling audience to virtually race alongside Olympic athletes, captured by 4 cameras. Using machine learning, footage was aligned, segmentated, rendered and uploaded as a user shareable video. The pipeline integrates:

- Pre- and post-processing functions for precise time alignment for use with camera selection, editing, compositing and rendering.
- ML based compositing function removing background from human in video, with moving background (no green-screen) and compositing them onto pre-rendered virtual backgrounds.

Semantic segmentation and matting pipeline for virtual production: Leading the development of an automated segmentation pipeline to generate high-quality alpha mattes from raw footage for virtual production. Key achievements:

- Leveraged vision-language models such as BLIP2, GroundingDINO and SAM2 for text-to-object prompting, object detection and segmentation.
- Integrated zero-shot text-to-mask segmentation methods and refined outputs using generative AI models to create precise, production-ready alpha mattes.
- Optimised the output for compositing tools like Nuke and Resolve by creating Cryptomatte files, streamlining the post-production process.

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Expedia, London UK, Feb 2022 – Nov 2023.

Machine Learning Engineer (Growth Marketing & Technology - meta-bidding team) Cross-functional team maintaining & growing big data platform running ML prediction pipelines for meta bidding & business intelligence on AWS infrastructure. I was MLE on several key projects, including:

- Architecting and implementing centralised QA asset, unifying several handcrafted functions performing same algorithm on different platforms. This was also used as PoC for building out a unified meta-function store, and as the first step in breaking apart our monolithic platform application into modular form
- Migrating legacy code w/ linear process into AirFlow DAGs, enabling step tables, concurrent processing, and code quality improvements

Arm, Cambridge UK, November 2020 – Jan 2022.

Graduate Engineer (Nov 2020 - Apr 2021)
Software Engineer, Machine Learning Group (Apr 2021 - Jan 2022)

I took part in the arm graduate rotation programme, which exposed me to a variety of different projects and teams within the machine learning group. I chose specific teams and projects to work on to develop my skills in machine learning, computer vision and embedded systems.

- **ML Research team, *Bayesian DeepLearning for CV***: (2 months) Lead researcher, exploring and implementing Bayesian DeepLearning models for pixel level image segmentation, and optimising for Arm hardware IP.
  - Explore model architectural changes for performance optimisations of DeepLabV3
  - Deep dive into Bayesian DeepLearning methods with a model implementation for pixel segmentation.
- **Applied ML team, *Dynamic hand gesture recognition, and visual wake words*** (8 months): Lead research engineer conducting a literature review of models and datasets, training and optimizing a video understanding model for gesture recognition, and implementing a data generator pipeline using OpenCV for large video datasets. Applying state-of-the-art techniques to enhance performance on low-power, IoT, and embedded Arm IP.
- **ML Tooling Team, *IPSS-ML (IP Selection Sandbox for ML applications)*** (4 months): Part of the team developing a middle-ware application to simulate and test ML applications on accelerated (NPU) and regular (M/A class processors) Arm IP using fast- and cycle-models.

Deimos Space UK, Harwell, Oxfordshire, July – Sept 2019. *Computer Vision and Machine Learning research intern* - Built object detection model using neural networks for earth observation data, to detect and differentiate between biodiversity types (Python, TensorFlow and Keras)

Yobota, London, Jun – Sep 2018. *Software Engineer intern* - Developed PoC integration API for OpenBanking using Django / DRF / Oauth 2.0

Selected freelance

June 2016 – 2020: **Stillnessinyoga**, Remote, The Netherlands - *Web developer / Digital content development*

2013 – 2015: **LVSC**, London - *Web developer* Several projects including VCS Assist, London For All. Designed and coded the community website for publishing a blog and news articles. Later created a business directory, for users to publicise their projects