Alan Savio Paul

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Education

MSc. Computer Science **Sept 2021 – Sept 2024**
ETH Zürich, Switzerland
Major: **Machine Intelligence**

- Research-centered program with a focus on deep learning and 3D computer vision.
- **Master Thesis**: Improving 2D Map-Based Visual Localization.

BSc. Artificial Intelligence & Computer Science **Sept 2017 – May 2021**
The University of Edinburgh, UK

- Graduated with First Class Honours
- **Thesis**: Developing Tools for Audio-Visual Speech Recognition. Supervisors: Peter Bell, Ondrej Klejch. Thesis | Code

Research Interests

Intersection of **Deep Learning** and **3D Computer Vision**
3D Geometry, Visual Localization, Monocular Depth and Normal Estimation, Feature Detection, Image Matching, Uncertainty Estimation

Graduate Courses

Deep Learning: Probabilistic AI, Advanced Machine Learning, Advanced Topics in Machine Learning (Seminar), Machine Learning and Pattern Recognition
Computer Vision: 3D Vision, Computer Vision
Deep Learning + Computer Vision: Machine Perception, Computational Intelligence Lab, Deep Learning for Autonomous Driving, Deep Learning for Computer Vision: Seminal Work, Hands-on Self-Driving Cars with Duckietown
Others: Cloud Computing Architecture, Information Security Lab, Advanced Databases

Selected Research Projects

Improving 2D Map-Based Visual Localization **2024**

- Master Thesis at the Computer Vision and Geometry (CVG) group.
- Supervisors: Paul-Edouard Sarlin, Zador Pataki, Prof. Marc Pollefeys.
- Designed a neural network that leverages distant visual cues for accurate localization of a single image on OpenStreetMap and Satellite maps, beating SOTA by 20% Recall @ 20m.
- Built a scalable hierarchical localization technique to efficiently localize a single image on a 2000 sq. m. large 2D map.

Leveraging Misaligned RGB-D data for Training Monocular Depth Estimation **2023**

- Research in Computer Science module at Computer Vision and Geometry (CVG) group. Supervisors: Zuria Bauer and Mihai Dusmanu.
- Developed a fully-differentiable end-to-end method that aligns widely available misaligned RGB-D datasets during training for monocular depth estimation.

Deep Single Image Camera Calibration Thesis | Code **2023**

- Semester Thesis at CVG group. Supervisors: Paul-Edouard Sarlin and Rémi Pautrat.
- Developed a deep learning method to predict extrinsic (roll and tilt) and intrinsic (focal length and distortion) camera parameters from a single image.
- Released the first open-source codebase, and pretrained weights for this task.

Activity Recognition for Spinal Cord Injury Patients Published Paper @ IEEE/SICE **2022**

- Research done as a Research Assistant at Spinal Cord Injury & Artificial Intelligence Lab, ETH Zürich. Supervisor: Diego Paez-Granados.
- Used convolutional neural networks to recognize activities of daily living of wheelchair patients from videos taken by a GoPro.

COLMAP-SLAM Report | Code **2022**

- 3D Vision course project. Supervisor: Paul-Edouard Sarlin (CVG group).
- Built a Visual Odometry system using components of COLMAP's Structure from Motion pipeline.

Human Motion Prediction Report **2022**

- Machine Perception course project
- Implemented various neural network architectures, losses, and training strategies and studied their effects on predicting human motion.

Work Experience

[Incoming] Research & Development Intern, Niantic, London **Jan 2025 – Jul 2025**

- I will be working on exciting large-scale 2D and 3D localization and mapping problems for Augmented Reality applications.
- Supervisors: Filipe Gaspar, Victor Adrian Prisacariu.

Research Intern, Disney Research Studios Zürich **Jun 2023 – Sep 2023**

- Researched image super-resolution methods. Supervisor: Abdelaziz Djelouah.
- Improved training pipelines with distributed training and code refactors.

Research Assistant, *SCAI Lab, ETH Zürich* **Mar 2022 – Jun 2023**

- Collected and analyzed time-series data from cameras and multiple wearable sensors worn by Spinal Cord Injury (SCI) patients to improve the prognosis of post-SCI functional disorders and diseases.

Research Assistant, *The University of Edinburgh* **Jun 2021 – Sep 2021**

- Researched Audio-Visual Speech Recognition methods at the Centre for Speech Technology Research. Supervisors: Peter Bell, Ondrej Klejch.

- Experimented with tracking lip motion and using it along with audio input to make speech recognition more robust.

Software Engineering Intern, *IBM, UK* **Jun 2020 – Sep 2020**

- Developed a vision-based method to distinguish between tigers in Marwell Zoo (UK), recognize their daily activities, and detect anomalies in their behaviours.

Teaching Assistant, *The University of Edinburgh* **Sep 2019 – Apr 2021**

- Supported teaching staff in running Informatics courses: Foundations of Data Science, Software Engineering, Algorithms and Data Structures, Reasoning and Agents.

Software Engineer, *Student+ Technologies* **Oct 2019 – Jun 2020**

- Worked in a 3-person startup to build a community app for university students.

Software Engineering Intern, *Blockchain.com, London* **Jun 2019 – Sep 2019**

- Designed an automated system for customer email template creation and translation.
- Solved notification issues for the crypto wallet mobile application.

Awards

- 1st Place at IoT Challenge, Edinburgh [2020]
- Awarded £500 entrepreneurial grant by the University of Edinburgh for starting a Computer Vision–based startup [2020]
- Awarded £400 entrepreneurial grant by the University of Edinburgh for solving the bicycle theft problem in Edinburgh [2020]
- 1st Place at MLH Local Hack Day, Edinburgh [2019]
- 2nd Place in the Facebook Challenge at HackUPC, Barcelona [2019]
- Finalist at HackZürich, Zürich [2019]
- Outstanding Student of the Year Award (1/110 students) [2017]
- Graduated High School with Rank 1 in Mathematics (97%) [2017]

Leadership & Volunteering

- Director of Hack the Burgh 2020 (Hackathon with 200 participants), Edinburgh
- Organizer of Hack the Burgh 2018 and 2019, Edinburgh
- Informatics Peer Assisted Learning Scheme Leader
- Head Boy and Vice Head Boy (High School) 2015-2017