

Akash Sengupta

+44-7492-527-623 | as2562@cam.ac.uk | [LinkedIn](#) | [GitHub](#) | [Scholar](#)

EDUCATION

PhD in Computer Vision and Machine Learning

October 2019 - Present

University of Cambridge

- Supervisors: [Prof. Roberto Cipolla](#) and [Dr. Ignas Budvytis](#).
- Research interests: 3D human shape and pose estimation, probabilistic 3D reconstruction.

MEng. in Engineering

October 2015 - July 2019

University of Cambridge

- Specialisation in Information and Computer Engineering.
- Final Year Result: Honours with Distinction (1st Class), Rank: Top 5%.
- Awards: Jesus College Scholarship (2018, 2019), Jesus College Prize (2019), Best MEng. Project Presentation (Information Engineering, 2019).

SELECTED PUBLICATIONS

- A. Sengupta**, I. Budvytis and R. Cipolla. HuManiFlow: Ancestor-Conditioned Normalising Flows on $SO(3)$ Manifolds for Human Pose and Shape Distribution Estimation. **CVPR 2023**.
- A. Sengupta**, I. Budvytis and R. Cipolla. Hierarchical Kinematic Probability Distributions for 3D Human Shape and Pose Estimation from Images in the Wild. **ICCV 2021**. [\[ArXiv\]](#) [\[Code\]](#)
- A. Sengupta**, I. Budvytis and R. Cipolla. Probabilistic 3D Human Shape and Pose Estimation from Multiple Unconstrained Images in the Wild. **CVPR 2021**. [\[ArXiv\]](#)
- A. Sengupta**, I. Budvytis and R. Cipolla. Synthetic Training for Accurate 3D Human Pose and Shape Estimation in the Wild. **BMVC 2020**. [\[ArXiv\]](#) [\[Code\]](#)

EMPLOYMENT EXPERIENCE

Research Intern

April 2022 – July 2022

Microsoft Mixed Reality + AI Lab

Cambridge, UK

- Research towards real-time holistic human pose estimation (body + hands) from images using transformer-based models trained on synthetic data.
- Supervised by Dr. Sadegh Aliakbarian and Dr. Pashmina Cameron.

Machine Learning Intern

June 2018 – August 2018

Cambridge Quantum Computing

Cambridge, UK

- Applied deep reinforcement learning (DQN) to the qubit routing problem, which involved minimising the use of swap gates when running algorithms on topologically-constrained (i.e. nearest-neighbour) quantum architectures.
- Benchmarked reinforcement learning against traditional combinatorial optimisation methods (e.g. simulated annealing, genetic algorithms). Results are documented in [this preprint](#).
- Supervised by Dr. Steven Herbert.

Software Intern

Jun 2017 – August 2017

PragmatIC

Cambridge, UK

- Designed and implemented software for an integrated circuits testing rig.
- Front-end: GUI design with Python and PyQt, Back-end/database: MySQL

Software Intern

Jun 2016 – September 2016

PCCW Solutions

Hong Kong

- Implemented software (in C++) for sensors (GPS/Radio) on a drone to be used for testing and maintenance of instrument landing systems (ILS) at Hong Kong International Airport.

TECHNICAL SKILLS

Programming Languages: Proficient in Python, Working knowledge of MATLAB and C++.

Software Frameworks: PyTorch, NumPy, OpenCV, PyTorch3D, TensorFlow (working knowledge).