

# Akash Sengupta

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

## EDUCATION

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### 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

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**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. Probabilistic Estimation of 3D Human Shape and Pose with a Semantic Local Parametric Model. **BMVC 2021**.

**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

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### 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. Sadeh 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

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

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