Shuai Chen

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EDUCATION

DPhil in Engineering Science (Active Vision Lab) Sep 2020-Now
University of Oxford, Oxford
M.S in Electrical Engineering May 2016
University of Southern California, Los Angeles, CA GPA 3.89/4.0
B.S in Electrical Engineering May 2015
University of Southern California Los Angeles, CA Major GPA 3.80/4.0, Cumulative GPA 3.64/4.0

RESEARCH INTERESTS

Proven track record of developing commercially successful AI features on smartphone platforms and embedded systems. Delivered multiple industry leading computational photography, videography and computer vision algorithms in AI cameras. Currently pursuing a DPhil with a focus in 3D vision, neural rendering, and Generative AI.

EMPLOYMENT

- **Senior Research Scientist** **Apr 2025-Now**
  Niantic Spatial, London
  - 3D computer vision research.

- **Research Scientist Intern** **Jul 2024-Jan 2025**
  Meta, Sunnyvale
  - Research on generative AI/Multi-modal LLMs for video and multimodal applications.

- **Research Scientist Intern** **Jul 2023- Apr 2024**
  Niantic Inc, London
  - Delivered **1 CVPR Highlight paper (top 11.9%)**, **1 ECCV Oral paper (top 2.3%)**, and **1 patent** on camera localization and 3D vision.

- **Senior AI Algorithm Engineer, Team Leader** **Aug 2016-Jul 2020**
  Huawei Technologies, Beijing

AI Video Stabilization (AIS) Feb 2018- Jul 2020
- Developed industry-leading real-time AI-based video stabilization algorithms **(DxOMark #1 in 2019 & 2020)**, deployed as **Top-selling features** for most of Huawei/Honor smartphone series, including flagship series Honor 20, Mate30, Mate Xs, P40, Mate40, etc.
- Developed a face-centric video stabilization algorithm via face landmarks and IMUs for front-camera videography.
- Designed 2-stage EIS method with Huawei's proprietary ISP pipeline, reducing memory and power consumption by 30%+ while outperforming other leading industry competitors.
- Led the R&D of AIS + AI Zoom fusion for camera photography, which became a **key selling feature** in Huawei flagship smartphones.

5D Video Temporal Noise Reduction Feb 2018-May 2020
- Delivered real-time 5D temporal denoising algorithm on Huawei flagship P40, **achieving DxOMark #1** in front camera 4K video de-noising, and delivered as a **top-selling feature for low-light videography** on Huawei flagship P40 series.

Face Attribute & Facial Landmark Detection Feb 2018-Apr 2019

- Supervised 40+ real-time on-device face attribute classification algorithms and an occlusion-aware facial landmark detection algorithm, surpassed the 2018 SOTA results and delivered to products.

Camera Zoom & Super-resolution Jan 2017-Feb 2018

- Developed the industry's first smartphone deep leaning-based single- and multi-frame SR algorithms, combining super-resolution, denoising, and sharpening,
- Deployed as part of **top-selling features on Huawei flagship** Mate10, Honor V10, and P20 series.
- Achieved **#1 on DxOMark** camera zoom evaluation.
- Delivered GAN-based Face SR algorithm for AI-enhanced selfies.

Image Semantic Segmentation/Selfie Portrait Segmentation Jan 2017-May 2017

- Developed a **top-selling feature** on Huawei flagship phones/tablets for portrait segmentation in Selfie Mode.

- **Engineer Intern,** *CITIC Pacific Mining, Perth* **Jul 2012-Aug 2012**
- **Engineer Intern,** *Motorola Mobility, Tianjin* **May 2012-Jul 2012**

ACADEMIC SERVICES

Conference reviewer: CVPR (2023/24), ECCV (2022/24), ICCV (2023/25), ICRA (2024), 3DV (2024), NeurIPS (2025)
Journal reviewer: RA-L (2024/25)

PUBLICATIONS

- C Liu, **S Chen**, Y Bhalgat, S Hu, Z Wang, M Cheng, V Prisacariu, T Braud, "GSLoc: Efficient Camera Pose Refinement via 3D Gaussian Splatting", ICLR 2025
- X Ma*, Y Bhalgat*, B Smart*, **S Chen**, X Li, J Ding, J Gu, D Z Chen, S Peng, J Bian, P Torr, M Pollefeys, M Nießner, I D Reid, A Chang, I Laina, V Prisacariu, "When LLMs step into the 3D World: A Survey and Meta-Analysis of 3D Tasks via Multi-modal Large Language Models", ArXiv 2024
- E Brachmann, J Wynn, **S Chen**, T Cavallari, Á Monszpart, D Turmukhambetov, V Prisacariu, "Scene Coordinate Reconstruction: Posing of Image Collections via Incremental Learning of a Relocalizer", ECCV (**Oral**) 2024
- **S Chen**, T Cavallari, V Prisacariu, E Brachmann, "Map-Relative Pose Regression for Visual Re-Localization", CVPR (**Highlight**) 2024
- **S Chen**, Y Bhalgat, X Li, J Bian, K Li, Z Wang, V Prisacariu. "Neural Refinement for Absolute Pose Regression with Feature Synthesis", CVPR 2024
- C Liu, **S Chen**, Y Zhao, H Huang, V Prisacariu, T Braud. "HR-APR: APR-agnostic Framework with Uncertainty Estimation and Hierarchical Refinement for Camera Relocalisation", ICRA 2024
- **S Chen**, X Li, Z Wang, V Prisacariu, "DFNet: Enhance Absolute Pose Regression with Direct Feature Matching", ECCV 2022
- C Li, L Song, **S Chen**, R Xie, W Zhang, "Deep Online Video Stabilization using IMU Sensors", IEEE Transactions on Multimedia (TMM) 2022
- **S Chen**, Z Wang, V Prisacariu, "Direct-PoseNet: Absolute Pose Regression with Photometric Consistency", 3DV 2021

PATENTS

- US Patent 19,038,488: Map-Relative Pose Regression for Visual Relocalization
- US Patent 20,200,334,789: Image Processing Method and Device

- US Patent 20,220,180,485: Image Processing Method and Electronic Device
- US Patent 20,240,037,708: Image Processing Method and Electronic Device
- WO Patent WO/2021/013,139: Image Processing Method and Device
- WO Patent WO/2022/206,605: Method for Determining Target Object, and Photographing Method and Device
- CN Patent 113,572,948: Video Processing Method and Video Processing Device
- CN Patent 113,660,408: Video Shooting Anti-shake Method, Device

INVITED TALKS

- Invited Talk at Huawei Future AI Camera ISP Workshop. May 2020
- Invited Host at Huawei Global AI Workshop - Day 1. January 2019
- Invited Talk at Huawei Executive Management Team. May 9, 2018.
- Invited Talk at Huawei Beijing Research Center Annual Conference. January 27, 2018.

HONORS

- Huawei UK Ph.D. Fellowship (£100,000), 2021-2023
- Fast-track Promotion Plan for Outstanding Employees, Huawei Technologies 2017-2020
- CBG Hero Medal Award, Huawei Technologies, 2019
- Handset Product Line President Award of 2018, Huawei Technologies, 2019
- 2nd Prize Winner 2018 Huawei Beijing Research Center AI Hackathon, Huawei Technologies, 2018
- Top-10 Distinguished Engineer of the Year (10/9000 employees), Huawei Beijing Research Center, 2017
- Distinguished New Employee Award, Huawei Technologies, 2017
- Grand Final 2016 Hackathon, Huawei Beijing Research Center, 2016
- Alpha Lambda Delta National Honor Society, University of Southern California