Shuai Chen

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EDUCATION

DPhil in Engineering Science (3D Computer Vision @ Active Vision Lab) — Sep 2020-2024
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

Computer Vision/Machine Learning. Proven track record of developing AI algorithms for real-time mobile platforms and embedded systems, including image super-resolution, semantic segmentation, video stabilization, and more. Currently pursuing a DPhil with a focus on camera relocalization and neural rendering.

PUBLICATIONS

[1] **S Chen**, Z Wang, V A Prisacariu. Direct-PoseNet: Absolute Pose Regression with Photometric Consistency. International Conference on 3D Vision (*3DV*), 2021
[2] C Li, L Song, **S Chen**, R Xie, W Zhang. Deep Online Video Stabilization using IMU Sensors. IEEE Transactions on Multimedia (*TMM*), 2022
[3] **S Chen**, X Li, Z Wang, V A Prisacariu. DFNet: Enhance Absolute Pose Regression with Direct Feature Matching. European Conference on Computer Vision (*ECCV*), 2022
[4] **S Chen**, Y Bhalgat, X Li, J Bian, K Li, Z Wang, V A Prisacariu. Refinement for Absolute Pose Regression with Neural Feature Synthesis. ArXiv, 2023
[5] Two more papers are under review.

ACADEMIC SERVICES

Reviewer – ECCV 2022, CVPR 2023, ICCV 2023, ICRA 2024

EMPLOYMENT

- **Part-time Research Intern,** *Niantic Inc, London* — **Jul 2023- Present**
- **Senior AI Algorithm Engineer, Team Leader,** *Huawei Technologies, China* — **2018-Jul 2020**
- **AI Algorithm Engineer,** *Huawei Technologies, China* — **Jan 2017-2018**

AI Video Stabilization (AIS) — **Feb 2018- Jul 2020**
- Developed real-time AI-based video stabilization algorithm, **achieving No.1 scores on DxOMark in 2019 and 2020**, and delivered as **Top-selling features** for numerous Huawei flagship smartphones.
- Led the development of a face-centric video stabilization algorithm using face landmarks and IMU for front-camera videography.
- Co-designed a 2-stage EIS method with a novel camera ISP pipeline that reduced memory and power consumption by 30%+ while surpassing previous SOTA performance.

5D Video Temporal Noise Reduction — **Feb 2018-May 2020**
- Developed a real-time video noise reduction algorithm with multi-frame and IMU, **achieving No.1 on the DxOMark** 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.

Multi-frame Super-resolution/Camera Zoom **Sep 2017-Feb 2018**

- Developed a real-time multi-frame fusion-based super-resolution algorithm that incorporates super-resolution, de-nosing, and sharpening tasks, became a part of **top selling features** on Huawei flagship phones P20 series and **obtained No.1 score on DxOMark** mobile camera zoom evaluation.
- Implemented Face SR algorithm with GAN and face components-aware discrimination losses.

Single-frame Super-resolution/Camera Zoom **Jan 2017-Sep 2017**

- Developed **industry-first** deep learning-based SR algorithm for mobile camera zoom, became one of **the top-selling features** on Huawei flagship phones Mate10 series & Honor V10.

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.

- **Software Verification Engineer,** *Huawei Technologies, China* **Aug 2016-Dec 2016**

- Developed Android Boot automation testing environment in Python, which was used across all product lines of Huawei mobile phones.

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

PATENTS

- US Patent 20,200,334,789: Image Processing Method and Device
- US Patent 20,220,180,485: 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
- WO Patent WO/2022/121796: Image Processing Method and Electronic 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 out of 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