Songyou Peng | Curriculum Vitae

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Education

ETH Zurich — **Zurich, Switzerland**
PhD Student, Max Planck ETH Center for Learning Systems — *09/2019–present*
Supervisor: Prof. Marc Pollefeys & Prof. Andreas Geiger

Heriot-Watt University/University of Girona/University of Bourgogne
Erasmus Mundus M.Sc in Computer Visions and Robotics (VIBOT) — *09/2015–09/2017*
GPA: 17/20 (**rank 3/23**) **with distinction**
Thesis:"High Quality Shape from an RGB-D Camera Using Photometric Stereo"
Supervisor: Prof. Daniel Cremers

Xi'an Jiaotong University — **Xi'an, China**
B.Eng in Automation, focus: artificial intelligence — *08/2011–07/2015*
Cumulative GPA: 83.6/100, Major GPA: 87.4/100

Experience

Agency for Science, Technology and Research (A*STAR) — **Singapore**
Research Engineer, Institute for Infocomm Research — *10/2018–07/2019*
- Performed an independent research project on universal architecture for bad-weather image restoration.
- Worked on traffic flow prediction with gated spatial-temporal CNNs and graph CNNs.

Advanced Digital Sciences Center, UIUC — **Singapore**
Research Engineer, supervisor: Dr. Stefan Winkler, IEEE Fellow — *01/2018–03/2019*
Research in affective computing.
- Developed a facial emotion analysis SDK for a 2-million SGD project.
- Published an ACM MM demo paper and an IEEE Transactions on Affective Computing paper.
- Won 1st place in vision-only task and 2nd place in overall in OMG-Emotion Challenge 2018.

Technical University of Munich (TUM) — **Munich, Germany**
Master Thesis, supervisor: Prof. Daniel Cremers & Dr. Yvain Queau — *01/2017–07/2017*
Depth Super-Resolution using photometric techniques.
- Proposed three photometric methods to obtain high-resolution depths with fine geometric details.
- One TPAMI paper and one ICCVW paper.

INRIA — **Grenoble, France**
Research Intern, supervisor: Prof. Peter Sturm — *2016 & 2017 summer*
Research in camera calibration.
- Designed a calibration guidance system which interactively guides to optimal calibration images.
- One ICCV oral paper.

INMOTION Technologies CO., LTD — **Shenzhen, China**
Machine Vision Algorithm Intern — *07/2015–08/2015*
Research in person re-identication
- Approached accurate real-time person re-identification without facial information

Publications

Published

- **Songyou Peng**, Michael Niemeyer, Lars Mescheder, Marc Pollefeys, Andreas Geiger, "Convolutional Occupancy Networks". European Conference on Computer Vision (**ECCV**), 2020. (**Spotlight, top 5%**)
- Shaohui Liu, Yinda Zhang, **Songyou Peng**, Boxin Shi, Marc Pollefeys, Zhaopeng Cui, "DIST: Rendering Deep Implicit Signed Distance Function with Differentiable Sphere Tracing". IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2020.
- **Songyou Peng**, Peter Sturm, "Calibration Wizard: A Guidance System for Camera Calibration Based on Modelling Geometric and Corner Uncertainty". International Conference on Computer Vision (**ICCV**), 2019. (**Oral**)
- **Songyou Peng***, Bjoern Haefner*, Alok Verma*, Yvain Quéau, Daniel Cremers, "Photometric Depth Super-Resolution". IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**), 2019. (∗ equal contribution)
- Le Zhang, **Songyou Peng**, Stefan Winkler, "PersEmoN: A Deep Network for Joint Analysis of Personality, Emotion and Their Relationship". IEEE Transactions on Affective Computing (**TAFFC**), 2019. (IF: 6.29)
- **Songyou Peng**, Le Zhang, Stefan Winkler, Marianne Winslett, "Give Me One Portrait Image, I Will Tell You Your Emotion and Personality". ACM Multimedia Conference (**ACM MM**), 2018. Demo paper.
- **Songyou Peng**, Bjoern Haefner, Yvain Quéau, Daniel Cremers, "Depth Super-Resolution Meets Uncalibrated Photometric Stereo". International Conference on Computer Vision Workshops (**ICCVW**), 2017.

Pre-Print

- **Songyou Peng**, Chiyu "Max" Jiang, Yiyi Liao, Marc Pollefeys, Andreas Geiger, "Shape As Points: A Differentiable Poisson Solver", 2021.
- Christian Reiser, **Songyou Peng**, Yiyi Liao, Andreas Geiger, "KiloNeRF: Speeding up Neural Radiance Fields with Thousands of Tiny MLPs", 2021.
- Michael Oechsle, **Songyou Peng**, Andreas Geiger, "UNISURF: Unifying Neural Implicit Surfaces and Radiance Fields for Multi-View Reconstruction", 2021.

Fellowships & Awards

- Max Planck ETH Center for Learning Systems PhD Fellowship, 2019 – 2022
- 1st in vision-only task and 2nd in overall in OMG-Emotion Recognition Challenge, 2018
- EU Erasmus+ mobility grant, awarded by European Union Commission, 2016 & 2017
- Excellent bachelor thesis (top 5% of all graduates), XJTU , 2015
- 1st in Search and Rescue Robot Challenge, California State University, USA, 2010
- 2nd in Trinity College Fire Fighting Home Robot Contest, Connecticut, USA, 2010
- 2nd in RoboCup Junior China Qualification Trial, Suzhou, China, 2007

Teaching

Teaching Assistant at ETH Zurich

- [252-0579-00L] 3D Vision (Lecturer: Marc Pollefeys) Spring 20
- [263-5904-00L] Deep Learning for Computer Vision: Seminal Work Spring 20

Teaching Assistant at University of Tübingen

- [ML-4103] Deep Learning (Lecturer: Andreas Geiger) Winter 20/21