Hao ZHOU, Ph.D

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WORKING EXPERIENCE

Google DeepMind — May 2024 - present
Senior Software Engineer, Google DeepMind, research on computer vision algorithms and their applications.

Google Research — Aug. 2022 - May 2024
Senior Software Engineer, Google Research, research on computer vision algorithms and their applications.

Amazon Web Services, AI Lab — Sep. 2019 - Jul. 2022
Applied Scientist, AWS Rekognition, focus on research and developing machine learning and computer vision algorithms for AWS image and video analytical services.

EDUCATION

The University of Maryland - College Park (UMD) — Sep. 2013 - Aug. 2019
- Ph.D. Dept. of Computer Science
- Adviser: Prof. David W. Jacobs
- Area of Study: Computer Vision.
- Dissertation: Using CNNs to Understand Lighting Without Real Labeled Training Data.

The University of Hong Kong (HKU) — Sep. 2010 - Nov. 2012
- M.Phil. Dept. of Computer Science
- Adviser: Dr. Kwan-Yee K. Wong
- Area of Study: Computer Vision.
- Thesis: An efficient algorithm for face sketch synthesis using Markov weight fields and cascade decomposition method.

The University of Science and Technology of China (USTC) — Sep. 2006 - Jun. 2010
- B.Eng Dept. of Electronic Engineering and Information Science

PREVIOUS RESEARCH EXPERIENCE

Intern at Adobe Research — May - Aug. 2018
- Mentor: Sunil Hadap
- Topic: Deep portrait relighting.

Intern at Media Analytics group NEC Labs America — May - Aug. 2017
- Mentor: Quoc-Huy Tran and Manmohan Chandraker
- Topic: Learning affordance correspondence through human object interaction.

Intern at National ICT (NICTA) Australia — Jul. - Oct. 2015
- Mentor: Jose M. Alvarez and Fatih Porikli
- Topic: Compressing deep neural networks.

Research Assistant at The University of Hong Kong — Nov. 2012 - Jul. 2013
- Adviser: Dr. Kwan-Yee K. Wong
- Topic: Face sketch synthesis.

AREA CHAIR: ICLR 2025.

REFEREE

Journal:
- IEEE Transactions on Signal Processing.
- IEEE Transactions on Image Processing.
- IEEE Transactions on Medical Imaging.
- IEEE Robotics and Automation Letters.

- IEEE Transactions on Circuits and Systems for Video Technology.

Conference: ICCV, CVPR, ECCV, Neurips, AAAI, WACV, ACCV, SIGGRAPH, SIGGRAPH Asia, ICRA.

PUBLICATIONS IN
COMPUTER VISION

1. Xiaoyu Zhu, **Hao Zhou**, Pengfei Xing, Long Zhao, Hao Xu, Junwei Liang, Alexander Hauptmann, Ting Liu, Andrew Gallagher. Open-Vocabulary 3D Semantic Segmentation with Text-to-Image Diffusion Models. *European Conference on Computer Vision (ECCV)* , 2024.

2. Long Zhao, Nitesh B. Gundavarapu, Liangzhe Yuan, **Hao Zhou**, Luke Friedman, Rui Qian, Tobias Weyand, Yue Zhao, Rachel Hornung, David A. Ross, Huisheng Wang, Hartwig Adam, Mikhail Sirotenko, Shen Yan, Jennifer J. Sun, Florian Schroff, Ming-Hsuan Yang, Ting Liu and Boqing Gong. Videoprism: A Foundational Visual Encoder for Video Understanding. *International Conference on Machine Learning (ICML)*, 2024.

3. Rahul Duggal, **Hao Zhou**, Shuo Yang,Jun Fang, Yuanjun Xiong, Wei Xia. Towards Regression-Free Neural Networks for Diverse Compute Platforms. *European Conference on Computer Vision (ECCV)* , 2022.

4. Tianyue Cao, Yongxin Wang, Yifan Xing, Tianjun Xiao, Tong He, Zheng Zhang, **Hao Zhou**, Joe Tighe. PSS: Progressive Sample Selection for Open-World Visual Representation Learning. To appear in *European Conference on Computer Vision (ECCV)* , 2022.

5. Rahul Duggal, **Hao Zhou**, Shuo Yang, Yuanjun Xiong, Wei Xia, Zhuowen Tu, Stefano Soatto. Compatibility-aware Heterogeneous Visual Search. IEEE *International Conference on Computer Vision and Pattern Recognition (CVPR)*, 2021.

6. Koutilya PNVR, **Hao Zhou**, David Jacobs. SharinGAN: Combining Synthetic and Real Data for Unsupervised Geometry Estimation. IEEE *International Conference on Computer Vision and Pattern Recognition (CVPR)*, 2020.

7. **Hao Zhou**, Sunil Hadap, Kalyan Sunkavalli, David W Jacobs. Deep Single-Image Portrait Relighting. IEEE *International Conference on Computer Vision (ICCV)*, 2019.

8. **Hao Zhou**, Yu, Xiang, David W Jacobs. GLoSH: Global-Local Spherical Harmonics for Intrinsic Image Decomposition. IEEE *International Conference on Computer Vision (ICCV)*, 2019. (Oral)

9. **Hao Zhou***, Jin Sun*, Yaser Yacoob, David W Jacobs. Label Denoising Adversarial Network (LDAN) for Inverse Lighting of Face Images. IEEE *International Conference on Computer Vision and Pattern Recognition (CVPR^0)*, 2018. (spotlight, * means equal contribution)

10. Hui Ding, **Hao Zhou**, Shaohua Kevin Zhou, Rama Chellappa. A Deep Cascade Network for Unaligned Face Attribute Classification. *Association for the Advancement of Artificial Intelligence (AAAI)*, 2018. (spotlight)

11. Soumyadip Sengupta, **Hao Zhou**, Walter Forkel, Ronen Basri, Tom Goldstein, David W Jacobs. Solving Uncalibrated Photometric Stereo Using Fewer Images by Jointly Optimizing Low-rank Matrix Completion and Integrability. *Journal of Mathematical Imaging and Vision (JMIV)*, 2018.

12. **Hao Zhou**, Jose M. Alvarez, Fatih Porikli. Less is More: Towards Compact CNNs. *European Conference on Computer Vision (ECCV)*, 2016. (Spotlight)

13. **Hao Zhou**, Torsten Sattler, David W. Jacobs. Evaluating Local Features for Day-Night Matching. *European Conference on Computer Vision (ECCV)* , 2016. (workshop)

14. **Hao Zhou**, Zhanghui Kuang, Kwan-Yee K. Wong. Markov Weight Fields for Face Sketch Synthesis. IEEE *International Conference on Computer Vision and Pattern Recognition (CVPR)*, 2012.

15. Zhanghui Kuang, Dirk Schnieders, **Hao Zhou**, Kwan-Yee K. Wong, Yizhou Yu, Bo Peng. Learning Image-Specific Parameters for Interactive Segmentation. IEEE *International Conference on Computer Vision and Pattern Recognition (CVPR)*, 2012.

PUBLICATIONS IN OTHER FIELD	1. Hong Wei, **Hao Zhou**, Jagan Sankaranarayanan, Sudipta Sengupta, Hanan Samet. Delle: Detecting latest local events from geotagged tweets. Proceedings of the 3rd *ACM SIGSPATIAL International Workshop on Analytics for Local Events and News*, 2019.

2. Hong Wei, **Hao Zhou**, Jagan Sankaranarayanan, Sudipta Sengupta, Hanan Samet. Detecting latest local events from geotagged tweet streams. Proceedings of the 26th *ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems*, 2018.

3. Hong Wei, **Hao Zhou**, Jangan Sankaranarayanan, Sudipta Sengupta, Hanan Samet. Residual convolutional LSTM for tweet count prediction. Companion *Proceedings of the The Web Conference*, 2018.

TEACHING

Teaching Assistant, Dept. of Computer Science, UMD
- CMSC733 Computer Processing of Pictorial Information (Prof. David W. Jacobs)   Fall 2014
- CMSC426 Image Processing (Prof. David W. Jacobs)   Spring 2014
- CMSC131 Object-Oriented Programming I (Dr. Fawzi Emad and Dr. Evan Golub).   Fall 2013

Teaching Assistant, Dept. of Computer Science, HKU
- CSIS0259 Principles of Programming Languages (Dr. C.F. Chong).   Fall 2011
- CSIS0234A Computer and Communication Networks (Dr. T.C. Tam).   Spring 2011

HONORS & AWARDS

Dean's Fellowship, Dept. of CS, UMD	**2013, 2014**
Guanghua Scholarship	**2009**
Weining Gong Scholarship	**2008**
Outstanding Student Scholarship of USTC, Grade 1	**2007**