KUN HE

Meta Reality Labs ⋄ Redmond, WA 98052
Web: https://kunhe.github.io/

PROFESSIONAL EXPERIENCE

Research Scientist, Meta Reality Labs 10/2018 - present
Meta Platforms Inc. (formerly Facebook Inc.) *Redmond, WA, USA*

· Hand tracking for interactions in Virtual Reality and Augmented Reality.
· Research in pose estimation, action recognition, and active learning.

Research Intern, Honda Research Institute USA 05/2017 - 08/2017
Host: Dr. Yan Lu *Mountain View, CA, USA*

· Used deep neural networks to improve local feature matching in low-level computer vision pipelines.

Research Intern, Disney Research 09/2013 - 12/2013 and 06/2015 - 08/2015
Host: Dr. Lenoid Sigal *Pittsburgh, PA, USA*

· Object recognition with structured prediction, and visual speech synthesis using machine learning.

EDUCATION

Ph.D. in Computer Science Boston University, Boston, MA 2018
Dissertation: Learning Deep Embeddings by Learning to Rank

M.Sc. in Computer Science Boston University, Boston, MA 2013
Thesis: Stochastic Functional Descent for Learning Support Vector Machines

B.Eng. in Computer Science and Technology Zhejiang University, Hangzhou, China 2010
Thesis: A Real-Time Feature Tracking System on Desktop Environment

PATENTS

Feature Descriptor Matching
Kun He and Yan Lu
US Patent No. 10997746 B2

Data Storage and Retrieval System Using Online Supervised Hashing
Stan Sclaroff, Fatih Çakir, and Kun He
US Patent No. 10990626 B2

PUBLICATIONS

Peer-Reviewed Journal Publications:

[J1] Predicting Foreground Object Ambiguity and Efficiently Crowdsourcing the Segmentation(s)
Danna Gurari, Kun He, Bo Xiong, Jianming Zhang, Mehrnoosh Sameki, Suyog Dutt Jain, Stan Sclaroff, Margrit Betke, and Kristen Grauman
International Journal of Computer Vision (IJCV), 2018

[J2] Hashing with Mutual Information
Fatih Çakir*, Kun He*, Sarah Adel Bargal, and Stan Sclaroff (**equal contribution*)
IEEE Transactions on Pattern Recognition and Machine Intelligence (TPAMI), 2019

Peer-Reviewed Conference Publications:

[C1] Scale Resilient, Rotation Invariant Articulated Object Matching
Hao Jiang, Tai-Peng Tian, Kun He, and Stan Sclaroff
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), June 2012

[C2] Parameterizing Object Detectors in the Continuous Pose Space
Kun He, Leonid Sigal, and Stan Sclaroff
European Conference on Computer Vision (ECCV), September 2014

[C3] MIHash: Online Hashing with Mutual Information
Fatih Çakir*, Kun He*, Sarah Adel Bargal, and Stan Sclaroff (**equal contribution*)
IEEE International Conference on Computer Vision (ICCV), October 2017

[C4] Hashing as Tie-Aware Learning to Rank
Kun He, Fatih Çakir, Sarah Adel Bargal, and Stan Sclaroff
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), June 2018

[C5] Local Descriptors Optimized for Average Precision
Kun He, Yan Lu, and Stan Sclaroff
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), June 2018

[C6] Hashing with Binary Matrix Pursuit
Fatih Çakir, Kun He, and Stan Sclaroff
European Conference on Computer Vision (ECCV), September 2018

[C7] Multilevel Vision and Language Integration for Text-to-Clip Retrieval
Huijuan Xu, Kun He, Bryan A. Plummer, Leonid Sigal, Stan Sclaroff, and Kate Saenko
The Thirty-Third AAAI Conference on Artificial Intelligence (AAAI), January 2019

[C8] Generalized Majorization-Minimization
Sobhan Naderi Parizi, Kun He, Reza Aghajani, Stan Sclaroff, and Pedro Felzenszwalb
International Conference on Machine Learning (ICML), June 2019

[C9] Deep Metric Learning to Rank
Fatih Çakir*, Kun He*, Xide Xia, Brian Kulis, and Stan Sclaroff (**equal contribution*)
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), June 2019

[C10] Assembly101: A Large-Scale Multi-View Video Dataset for Understanding Procedural Activities
Fadime Sener, Dibyadip Chatterjee, Daniel Shelepov, Kun He, Dipika Singhania, Robert Wang, and Angela Yao
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), June 2022

[C11] Rethinking the Data Annotation Process for Multi-view 3D Pose Estimation with Active Learning and Self-Training
Qi Feng, Kun He, He Wen, Cem Keskin, and Yuting Ye
IEEE Winter Conference on Applications of Comptuer Vision (WACV), January 2023

PROFESSIONAL ACTIVITIES AND SERVICES

PhD Thesis Examining Committee Member

- Tai-Yin Chiu, University of Texas at Austin, 2022
  Thesis title: *Lightweight Model for Content-Style Balanced Photorealistic Style Transfer.*

Journal Reviewer

- IEEE Transactions on Pattern Recognition and Machine Intelligence (TPAMI)
- IEEE Transactions on Multimedia (T-MM)
- IEEE Transactions on Neural Networks and Learning Systems (TNNLS)
- International Journal of Computer Vision (IJCV)
- Elsevier Computer Vision and Image Understanding (CVIU)
- PLOS ONE

Conference Program Committee / Reviewer

- Neural Information Processing Systems (NeurIPS)
- International Conference on Machine Learning (ICML)
- IEEE Conference on Computer Vision and Pattern Recognition (CVPR)
- IEEE International Conference on Computer Vision (ICCV)
- European Conference on Computer Vision (ECCV)

· AAAI Conference on Artificial Intelligence (AAAI)
· Annual Conference of the North American Chapter of the Association for Computational Linguistics (NAACL-HLT)
· Asian Conference on Computer Vision (ACCV)
· IEEE Winter Conference on Applications of Computer Vision (WACV)
· IEEE Connected and Automated Vehicles Symposium (CAVS)
· IEEE International Conference on Advanced Video and Signal-Based Surveillance (AVSS)

INVITED PRESENTATIONS

· The Thirty-Third AAAI Conference on Artificial Intelligence (AAAI): 2019
· IEEE Conference on Computer Vision and Pattern Recognition (CVPR): 2012, 2018, 2019, 2022
· IEEE International Conference on Computer Vision (ICCV): 2017
· European Conference on Computer Vision (ECCV): 2014, 2018
· Doctoral Consortium at IEEE CVPR 2018
· New England Computer Vision Workshop: 2016, 2017
· Brown University, Computer Vision Seminar, 2014