

Jianbo Jiao

POSTDOCTORAL RESEARCHER

VGG & BioMedIA, University of Oxford

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Experience

BioMedIA and VGG, University of Oxford

Dec. 2018 - Present

COMPUTER VISION

Advised by Prof. **Alison Noble** & Prof. **Andrew Zisserman**

- Work on the EPSRC SeebiByte Project

Research Intern, Tencent AI Lab

Fall 2018

UNSUPERVISED/SELF-SUPERVISED REPRESENTATION LEARNING

Advised by Dr. **Linchao Bao**

- Leverage both semantic-level and pixel-level context for unsupervised visual representation learning.
- Design novel tasks for video representation learning.

Visiting Scholar, University of Illinois Urbana-Champaign (UIUC)

2017 - 2018

SEMANTIC SEGMENTATION, REPRESENTATION LEARNING

Advised by Prof. **Thomas S. Huang**

- Improve semantic segmentation by utilizing guidance from other modalities (e.g., depth).
- Investigate unsupervised representation learning from image priors, based on generative models.

City University of Hong Kong

2015 - 2018

3D VISION, IMAGE RESTORATION

Advised by Prof. **Qingxiong Yang** & Prof. **Rynson Lau**

- Depth estimation from stereo and single image, under even noisy conditions.
- Deep learning based image restoration, including denoising, super-resolution, etc.

Digital Media R&D Center, PKU

2012 - 2015

STEREO MATCHING, IMAGE-BASED 3D RECONSTRUCTION

Advised by Prof. **Ronggang Wang**

- Stereo matching algorithm with filtering-based cost aggregation and secondary disparity refinement.
- Multiview image based 3D reconstruction by structure from motion.

Undergraduate Research, SWJTU

Fall 2010 - Summer 2012

CONTENT-BASED IMAGE RETRIEVAL (CBIR)

Advised by Prof. **Xiao Wu**

- Develop CBIR system for online shopping. Responsible for research/development of texture- and shape-based retrieval algorithms.
- Outstanding research project of SWJTU

Education

City University of Hong Kong (CityU)

Fall 2015 - Fall 2018

PH.D. IN COMPUTER SCIENCE

- Research interests include computer vision, computer graphics, and machine learning.

Peking University (PKU)

Fall 2012 - Summer 2015

M.S. IN COMPUTER APPLIED TECHNOLOGY

- Research on 3D vision.
- Be recommended for admission eligibility.

Southwest Jiaotong University (SWJTU)

Fall 2008 - Summer 2012

B.ENG. IN COMPUTER SCIENCE AND TECHNOLOGY

- Mao Yi-sheng Honors Class.

Publications

Self-supervised Representation Learning for Ultrasound Video

Jianbo Jiao, Richard Droste, Lior Drukker, Aris Papageorghiou, Alison Noble

IEEE International Symposium on Biomedical Imaging (ISBI), 2020

When AWGN-based Denoiser Meets Real Noises

Yuqian Zhou, Jianbo Jiao, Haibin Huang, Yang Wang, Jue Wang, Honghui Shi, Thomas Huang

AAAI Conference on Artificial Intelligence (AAAI), 2020

Connecting Image Denoising and High-Level Vision Tasks via Deep Learning

Ding Liu, Bihan Wen, **Jianbo Jiao**, Xianming Liu, Zhangyang Wang, Thomas S. Huang

IEEE Transactions on Image Processing (TIP), 2020

Anatomy-Aware Self-supervised Fetal MRI Synthesis from Unpaired Ultrasound Images

Jianbo Jiao, Ana Namburete, Aris Papageorgiou, Alison Noble

International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI) Workshop (MLMI), Oral, 2019

Geometry-Aware Distillation for Indoor Semantic Segmentation

Jianbo Jiao, Yunchao Wei, Zequn Jie, Honghui Shi, Rynson Lau, Thomas S. Huang

IEEE Computer Society Conference on Computer Vision and Pattern Recognition (CVPR), 2019

Self-supervised Spatio-temporal Representation Learning for Videos by Predicting Motion and Appearance Statistics

Jiangliu Wang, **Jianbo Jiao**, Linchao Bao, Shengfeng He, Yunhui Liu, Wei Liu

IEEE Computer Society Conference on Computer Vision and Pattern Recognition (CVPR), 2019

Ground-Aware Point Cloud Semantic Segmentation for Autonomous Driving

Jian Wu, **Jianbo Jiao**, Qingxiong Yang, Zheng-Jun Zha, Xuejin Chen

ACM International Conference on Multimedia (ACMMM), Oral, 2019

Few-shot Breast Cancer Metastases Classification via Unsupervised Cell Ranking

Jiaojiao Chen, **Jianbo Jiao**, Shengfeng He, Guoqiang Han, Jing Qin

IEEE/ACM Transactions on Computational Biology and Bioinformatics, 2019

Stereoscopic Image Generation from Light Field with Disparity Scaling and Super-Resolution

Tao Yan, **Jianbo Jiao**, Wenxi Liu, Rynson Lau

IEEE Transactions on Image Processing (TIP), 2019

Referring Image Segmentation by Generative Adversarial Learning

Shuang Qiu, Yao Zhao, **Jianbo Jiao**, Yunchao Wei, Shikui Wei

IEEE Transactions on Multimedia (TMM), 2019

Look Deeper into Depth: Monocular Depth Estimation with Semantic Booster and Attention-Driven Loss

Jianbo Jiao, Ying Cao, Yibing Song, Rynson Lau

European Conference on Computer Vision (ECCV), 2018

Task-driven Webpage Saliency

Quanlong Zheng, **Jianbo Jiao**, Ying Cao, Rynson Lau

European Conference on Computer Vision (ECCV), 2018

Joint Image Denoising and Disparity Estimation via Stereo Structure PCA and Noise-Tolerant Cost

Jianbo Jiao, Qingxiong Yang, Shengfeng He, Shuhang Gu, Lei Zhang, Rynson W. H. Lau

International Journal of Computer Vision (IJCV), 2017

FormResNet: Formatted Residual Learning for Image Restoration

Jianbo Jiao, Wei-chi Tu, Shengfeng He, Rynson W. H. Lau

IEEE Conference on Computer Vision and Pattern Recognition (CVPR) Workshop (NTIRE), Oral, 2017

Delving into Salient Object Subitizing and Detection

Shengfeng He, **Jianbo Jiao**, Xiaodan Zhang, Guoqiang Han, Rynson W.H. Lau

International Conference on Computer Vision (ICCV), 2017

A Hand Pose Tracking Benchmark From Stereo Matching

Jiawei Zhang, **Jianbo Jiao**, Mingliang Chen, Liangqiong Qu, Xiaobin Xu, Qingxiong Yang

IEEE International Conference on Image Processing (ICIP), Oral, 2017

Color Image Guided Boundary-Inconsistent Region Refinement for Stereo Matching

Jianbo Jiao, Ronggang Wang, Wenmin Wang, Dagang Li, Wen Gao

IEEE Transactions on Circuits and Systems for Video Technology (TCSVT), 2015

Local Stereo Matching with Improved Matching Cost and Disparity Refinement

Jianbo Jiao, Ronggang Wang, Wenmin Wang, Shengfu Dong, Zhenyu Wang, Wen Gao

IEEE Multimedia, 2014

Cost-Volume Filtering-Based Stereo Matching with Improved Matching Cost and Secondary Refinement

Jianbo Jiao, Ronggang Wang, Wenmin Wang, Shengfu Dong, Zhenyu Wang, Wen Gao

IEEE International Conference on Multimedia and Expo (ICME), Oral, **Best Student Paper** candidate, 2014

Depth/Disparity Map Post-processing Method and Device

Jianbo Jiao, Ronggang Wang, Zhenyu Wang, Wenmin Wang, Wen Gao

US Patent, US10424075B2, 2019

Depth/Disparity Map Post-processing Method and Device

Jianbo Jiao, Ronggang Wang, Zhenyu Wang, Wenmin Wang, Wen Gao

Chinese Patent, **CN105517677B**, 2018

Radar disparity map optimization method, stereo matching optimization method and system for disparity map

Jianbo Jiao, Ronggang Wang, Zhenyu Wang, Wen Gao, Wenmin Wang, Shengfu Dong

Chinese Patent, **CN104680510B**, 2017

Autoencoder Learning Method, Device, Computer Equipment and Storage Medium

Jianbo Jiao, Linchao Bao, Yunchao Wei, Honghui Shi, Rynson Lau, Wei Liu, Thomas Huang

Chinese Patent App., **CN109948796A**, 2019

Autoencoder Training and Representation Extraction Method and Device

Jianbo Jiao, Linchao Bao, Yunchao Wei, Honghui Shi, Rynson Lau, Wei Liu, Thomas Huang

Chinese Patent App., **201910219343.X**, 2019

Depth/Disparity Map Post-processing Method and Device

Jianbo Jiao, Ronggang Wang, Zhenyu Wang, Wenmin Wang, Wen Gao

PCT Patent App., **WO2016176840A1**, 2018

Honors & Awards

Aug. 2019	Outstanding Reviewer	ICCV 2019
Jan. 2019	GPU Grant Award	NVIDIA Corporation
Apr. 2018	Outstanding Reviewer	Journal of Visual Communication and Image Representation
Aug. 2017	Outstanding Academic Performance Award	CityU
2017 - 2018	Research Tuition Scholarship	CityU
2015 - 2018	Hong Kong PhD Fellowship Scheme (Top scholarship for Hong Kong PhD)	RGC of Hong Kong
2015 - 2016	Chow Yei Ching School of Graduate Studies Entrance Scholarships	CityU
Jul. 2015	Outstanding Graduate Thesis of Peking University	PKU
Jul. 2015	Outstanding Graduate of Beijing	Beijing Municipal Education Commission
Jun. 2015	Outstanding Graduate of Peking University	PKU
Dec. 2014	National Scholarship (graduate student)	Ministry of Education of the P.R.C
Oct. 2014	"Innovation Award" of Peking University (Top 0.8%)	PKU
2014	Outstanding Scholarship	Cooperative Medianet Innovation Center
2014	Research Excellence Award, twice	Digital Media R&D Center, PKU
Dec. 2013	"Wu Si" Scholarship	PKU
Dec. 2013	Social Work Award	PKU
Nov. 2011	Medal of "Si Shi Yang Hua" (Highest personal honor of SWJTU)	SWJTU
Nov. 2010	National Scholarship (undergraduate student)	Ministry of Education of the P.R.C
2008 - 2012	Undergraduate Scholarships (each semester), Merit student	SWJTU

Teaching Experience

2015 - 2016	Certificate of Merit for good performance in <i>Teaching Students: First Steps</i>	Graduate Studies, CityU
Jan. 2017 - May 2017	Teaching Assistant Computer Graphics (CS4182/CS5182)	Department of Computer Science, CityU
Aug. 2016 - Jan. 2017	Teaching Assistant Multimedia Technologies and Applications (CS4185)	Department of Computer Science, CityU
Jan. 2016 - May 2016	Teaching Assistant Computer Vision for Interactivity (CS4187)	Department of Computer Science, CityU
Sep. 2015 - Jan. 2016	Teaching Assistant Computer Programming (CS2311)	Department of Computer Science, CityU
Mar. 2013 - Jun. 2013	Teaching Assistant Digital Media Software and System Development (04703920)	School of Electronic and Computer Engineering, PKU
Sep. 2012 - Jan. 2013	Teaching Assistant Fundamentals of Digital Media Technology (04713901)	School of Electronic and Computer Engineering, PKU

Professional Activities

Program Committee Member / Reviewer

- IEEE Computer Society Conference on Computer Vision and Pattern Recognition (CVPR) 2020
- European Conference on Computer Vision (ECCV) 2020
- AAAI Conference on Artificial Intelligence (AAAI) 2020
- International Joint Conferences on Artificial Intelligence (IJCAI) 2020
- IEEE International Conference on Computer Vision (ICCV) 2019
- IEEE Computer Society Conference on Computer Vision and Pattern Recognition (CVPR) 2019
- Medical Image Computing and Computer Assisted Interventions (MICCAI) 2019

- IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)
- IEEE Transactions on Image Processing (TIP)
- IEEE Transactions on Neural Networks and Learning Systems (TNNLS)
- IEEE Transactions on Multimedia (TMM)
- IEEE Transactions on Circuits and Systems for Video Technology (TCSVT)
- IEEE Transactions on Cybernetics
- IEEE Multimedia
- IEEE Signal Processing Letters
- Neurocomputing
- Journal of Visual Communication and Image Representation
- Computer Vision and Image Understanding
- Pacific Graphics 2018
- Computer Graphics Forum
- The Visual Computer: International Journal of Computer Graphics

Memberships

- IEEE Membership
- IEEE Young Professionals
- Pattern Analysis and Machine Intelligence, IEEE Computer Society Technical Committee on

Skills

Programming C/C++, Matlab, Python, etc.

Tools & Framework Proficient in PyTorch/Torch, MatConvNet and OpenCV. Experienced in QT, OpenMP, OpenGL, etc.