Xinshuo Weng

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GitHub: https://www.github.com/xinshuoweng
Google Scholar: https://scholar.google.com/citations?user=dthSEsoAAAAJ&hl=en

Research Interests

Fields: Computer Vision, Machine Learning, Robotics, Multimedia

Topics: 3D Vision, Autonomous Driving, Video Analysis, Generative Modeling, Reinforcement Learning

Education

Carnegie Mellon University, Ph.D. in Robotics, School of Computer Science, **GPA: 4.0/4.3**	Aug 2018 – Present
Carnegie Mellon University, M.S. in Computer Vision, School of Computer Science, **GPA: 4.1/4.3**	Aug 2016 – Dec 2017
Wuhan University, B.S. in Electrical Engineering, **GPA: 3.9/4.0, Ranking: 2**	Sep 2012 – Jun 2016
University College Dublin, Exchange Program in Computer Science, **GPA: 4.1/4.2**	Jan 2016 – May 2016

Research Experience

Carnegie Mellon University, Ph.D. Research Associate with Kris Kitani	Aug 2018 – Present
Oculus Research Pittsburgh (now Facebook Reality Lab), Research Engineer with Yaser Sheikh	Feb 2018 – Aug 2018
Carnegie Mellon University, M.S. Research Associate with Kris Kitani	Aug 2016 – Dec 2017
Facebook, Research Intern with Shoou-I Yu	May 2017 – Aug 2017
The Johns Hopkins University, Student Visiting Researcher with Alan Yuille	Jun 2016 – Aug 2016
Wuhan University, Undergraduate Student Researcher with Lei Yu	Dec 2013 – Jun 2016
Shanghai Baolong Automotive Corporation, Research Intern	Jun 2015 – Oct 2015

Awards and Honors

Qualcomm Innovation Fellowship Abstract Selection, selected as one of 115 candidates in the world	2020
Microsoft Research Ada Lovelace Fellowship Nomination, nominated as one of three candidates in CMU RI	2019
Google PhD Fellowship Nomination, nominated as one of two candidates in CMU RI	2019
Outstanding Graduate Award, Wuhan University (3%)	2016
Wuhan University Scholarship (4%)	2013, 2015, 2016
CSC (China Scholarship Council) Scholarship (1%)	2015
Yang Gui Scholarship (4%), Wuhan University	2015
Undergraduate Research Fellowship, Wuhan University (3%)	2014, 2015
China National Scholarship (1%)	2014

Conference Publications

(1) Monocular 3D Object Detection with Pseudo-LiDAR Point Cloud
Xinshuo Weng, Kris Kitani
*IEEE International Conference on Computer Vision (**ICCV**) Workshops, 2019*
PDF | Code | Demo | Poster | Slides | BibTex

(2) Learning Spatio-Temporal Features with Two-Stream Deep 3D CNNs for Lipreading
Xinshuo Weng, Kris Kitani
*British Machine Vision Conference (**BMVC**), 2019*
PDF | Code | Demo | Poster | Slides | BibTex

Updated on January 1, 2020.

(3) Forecasting Time-to-Collision from Monocular Video: Feasibility, Dataset, and Challenges
Aashi Manglik, **Xinshuo Weng**, Eshed Ohn-Bar, Kris Kitani
*IEEE/RSJ International Conference on Intelligent Robots and Systems (**IROS**), 2019*
PDF | Code | Demo | Poster | Slides | BibTex

(4) GroundNet: Monocular Ground Plane Normal Estimation with Geometric Consistency
Yunze Man, **Xinshuo Weng**, Xi Li, Kris Kitani
*ACM International Conference on Multimedia (**ACM-MM**), 2019*
PDF | Code | Demo | Poster | Slides | BibTex

(5) Supervision-by-Registration: An Unsupervised Approach to Improve the Precision of Facial Landmark Detectors
Xuanyi Dong, Shoou-I Yu, **Xinshuo Weng**, Shi-En Wei, Yi Yang, Yaser Sheikh
*Computer Vision and Pattern Recognition (**CVPR**), 2018*
PDF | Code | Demo | Poster | Slides | BibTex

(6) Rotational Rectification Network: Enabling Pedestrian Detection for Mobile Vision
Xinshuo Weng, Shangxuan Wu, Fares Beainy, Kris Kitani
*IEEE Winter Conference on Applications of Computer Vision (**WACV**), 2018*
PDF | Code | Demo | Poster | Slides | BibTex

PRE-PRINTS

(7) GNNMOT: Graph Neural Network for Joint 2D and 3D Online Multi-Object Tracking
Xinshuo Weng, Yongxin Wang, Yunze Man, Kris Kitani
Under Review
PDF | Code | Demo | Poster | Slides | BibTex

(8) Advancing 3D Multi-Object Tracking: Evaluation Metrics and A Baseline
Xinshuo Weng, Jianren Wang, Yunze Man, David Held, Kris Kitani
Under Review
PDF | Code | Demo | Poster | Slides | BibTex

(9) Unified Detection and Tracking Framework with Graph Neural Network
Yongxin Wang, **Xinshuo Weng**, Kris Kitani
Under Review
PDF | Code | Demo | Poster | Slides | BibTex

(10) Learning Clothing Color Invariant Representations for Person Re-Identification
Yu-Jhe Li, **Xinshuo Weng**, Kris Kitani
Under Review
PDF | Code | Demo | Poster | Slides | BibTex

(11) Scene Point Cloud Forecasting
Jianren Wang, **Xinshuo Weng**, Zhaoyuan Fang, David Held, Kris Kitani, Nick Rhinehart
Under Review
PDF | Code | Demo | Poster | Slides | BibTex

(12) Inertial-Visual Pedestrian Identification
Xi Sun, **Xinshuo Weng**, Kris Kitani
Under Review
PDF | Code | Demo | Poster | Slides | BibTex

(13) Supervision by Registration and Triangulation for Landmark Detection
Xuanyi Dong, Yi Yang, Shih-En Wei, **Xinshuo Weng**, Yaser Sheikh, Shoou-I Yu
In Submission to T-PAMI
PDF | Code | Demo | Poster | Slides | BibTex

(14) A Baseline for 3D Multi-Object Tracking
Xinshuo Weng, Kris Kitani
arXiv:1907.03961, 2019
PDF | Code | Demo | Poster | Slides | BibTex

(15) Deep Reinforcement Learning for Autonomous Driving
Sen Wang, Daoyuan Jia, **Xinshuo Weng**
arXiv:1811.11329, 2018
PDF | Code | Demo | Poster | Slides | BibTex

(16) CyLKs: Unsupervised Cycle Lucas-Kanade Network for Landmark Tracking
Xinshuo Weng, Wentao Han
arXiv:1811.11325, 2018
PDF | Code | Demo | Poster | Slides | BibTex

(17) Image Labeling with Markov Random Fields and Conditional Random Fields
Shangxuan Wu, **Xinshuo Weng**
arXiv:1811.11323, 2018
PDF | Code | Demo | Poster | Slides | BibTex

(18) Visual Compiler: Synthesizing a Pedestrian Pose Estimator from a Single Image
Namhoon Lee, **Xinshuo Weng**, Vishnu Naresh Boddeti, Yu Zhang, Fares Beainy, Kris Kitani, Takeo Kanade
arXiv:1612.05234, 2016
PDF | Code | Demo | Poster | Slides | BibTex

INTELLECTUAL PROPERTY

(19) Monocular 3D Object Detection with Pseudo-LiDAR Point Cloud
Xinshuo Weng, Kris Kitani
Awarded on August 29, 2019 by CMU

(20) 2.5D Worker Detection and Tracking in Construction Sites
Xinshuo Weng, Kris Kitani
Awarded on August 29, 2019 by CMU

(21) A Baseline for 3D Multi-Object Tracking
Xinshuo Weng, Kris Kitani
Awarded on August 28, 2019 by CMU

PROFESSIONAL ACTIVITY

Journal Reviewer

T-CSVT (Transactions on Circuits and Systems for Video Technology	2018
MTA (Multimedia Tools and Applications)	2019

Conference Reviewer

CVPR (Computer Vision and Pattern Recognition)	2018, 2019, 2020
ECCV (European Conference on Computer Vision)	2020
ICCV (International Conference on Computer Vision)	2019
AAAI (Association for the Advancement of Artificial Intelligence)	2020
ICRA (International Conference on Robotics and Automation)	2020
WACV (Winter Conference on Applications of Computer Vision)	2020
ACCV (Asian Conference on Computer Vision)	2018

Research Mentoring

Yongxin Wang (CMU MSCV). Co-authored paper submissions with Yongxin	2019
Yu-Jhe (Jack) Li (CMU Intern). Co-authored a paper submission with Jack	2019
Jianren Wang (CMU Intern). Co-authored paper submissions with Jianren	2019
Xi Sun (CMU MSR). Co-authored a paper submission with Xi	2019
Aashi Manglik (CMU MSR, now at Microsoft). Co-authored IROS 2019 paper with Aashi	2019
Yunze Man (CMU Intern, now MSR at CMU). Co-authored ACM-MM 2019 paper with Yunze	2018

Teaching

Computer Vision (16-385), CMU,	Fall 2019
Geometry-Based Methods in Computer Vision (16-822), CMU	Fall 2018

University Acitivity

MSCV (Master of Science in Computer Vision) Admission Committee, CMU RI	2019, 2020

Invited Talks

Wuhan University, Image and Signal Processing Lab, Wuhan, Hubei, China	2019
CMU R-PAD (Robots Perceiving and Doing) Lab, Pittsburgh, Pennsylvania, USA	2018