

RUICHI YU

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Education

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| Ph.D. in Computer Science | | <i>Sept. 2015 - Dec 2018</i> |
| University of Maryland, College Park | GPA : 4.0/4.0 | - Advisor: Prof. Larry S. Davis |
| M.S. in Computer Science | | <i>Sept. 2013 - Dec. 2014</i> |
| Columbia University, New York | GPA : 4.159/4.0 | - Advisor: Prof. Shih-Fu Chang |
| B.E. in Information Engineering | | <i>Sept. 2009 - Jul. 2013</i> |
| Southeast University, China | GPA : 3.9/4.0 | - Advisor: Prof. Wei Xu |

Research Interests

- **Computer Vision and Machine Learning.** My research interest includes deep learning applied on tracking (data association and state estimation), visual recognition (in image, video and 3D point cloud), depth estimation, language and vision, weakly supervised learning and deep network compression.

Experience

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| Senior Software Engineer, Tech Lead , Waymo, Mountain View, CA | <i>Present</i> |
| Working on ML based object detection, classification, tracking and multi-sensor fusion with Lidar, Radar and Camera. | |
| Research Assistant , University of Maryland, College Park, MD | <i>Sep 2016 - Dec 2018</i> |
| <i>Duties:</i> Conduct computer vision related research. | |
| Software Engineer Intern , Waymo, Mountain View, CA | <i>June 2018 - Aug 2018</i> |
| <i>Duties:</i> Develop software for self-driving cars. | |
| Research Intern , Comcast Applied Artificial Intelligence Research, Washington, DC | <i>May 2017 - May 2018</i> |
| <i>Duties:</i> Conduct research on surveillance video action recognition. | |
| Research Intern , IBM T. J. Watson Research Center, Yorktown, NY | <i>May 2016 - Aug 2016</i> |
| <i>Duties:</i> Conduct research on deep networks compression and acceleration. | |
| Teaching Assistant , University of Maryland, College Park, MD | <i>Sep 2015 - May 2016</i> |
| <i>Duties:</i> Assist instructors of courses to grade homework and hold office hours. | |
| Data Scientist Co-Op , Apple Inc., Sunnyvale, CA | <i>Apr 2015 - Aug 2015</i> |
| <i>Duties:</i> Develop software for anomaly detection. | |
| Teaching Assistant , Columbia University, New York, NY | <i>Jan 2014 - Dec 2014</i> |
| <i>Duties:</i> Assist instructors of courses to grade homework and hold office hours. | |
| Infrastructure and Software Intern , AllianceBernstein L.P., New York, NY | <i>June 2014 - Aug 2014</i> |
| <i>Duties:</i> Develop web services to support efficient data query. | |

Selected Publications

- Wei-Chih Hung, Henrik Kretzschmar, Tsung-Yi Lin, Yuning Chai, **Ruichi Yu**, Ming-Hsuan Yang, Dragomir Anguelov **SoDA: Multi-Object Tracking with Soft Data Association**. Anonymous conference submission. 2021
- **Ruichi Yu**, Hongcheng Wang, Ang Li, Jingxiao Zheng, Vlad I. Morariu, Larry S. Davis, **Representing Videos based on Scene Layouts for Recognizing Agent-in-Place Actions**. IEEE International Conference on Computer Vision (**ICCV**). 2019
- Jingxiao Zheng, **Ruichi Yu**, Jun-Cheng Chen, Boyu Lu, Carlos Castillo, Rama Chellappa, **Uncertainty Modeling of Contextual-Connection between Tracklets for Unconstrained Video-based Face Recogni-**

- tion. IEEE International Conference on Computer Vision (**ICCV**). 2019
- Shiyi Lan, **Ruichi Yu**, Gang Yu, Larry S. Davis, **Modeling Local Geometric Structure of 3D Point Clouds using Geo-CNN**. IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2019
 - Mingfei Gao, Ang Li, **Ruichi Yu**, Vlad I. Morariu, Larry S. Davis, **C-WSL: Count-guided Weakly Supervised Localization**. European Conference on Computer Vision (**ECCV**), 2018.
 - **Ruichi Yu**, Ang Li, Chun-Fu Chen, Jui-Hsin Lai, Vlad I. Morariu, Mingfei Gao, Xintong Han, Ching-Yung Lin, Larry S. Davis, **NISP: Pruning Networks using Neuron Importance Score Propagation**. IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2018 [**Spotlight**].
 - Mingfei Gao, **Ruichi Yu**, Ang Li, Vlad I. Morariu, Larry S. Davis, **Dynamic Zoom-in Network for Fast Object Detection in Large Images**. IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2018.
 - Xintong Han, Zuxuan Wu, Zhe Wu, **Ruichi Yu**, Larry S. Davis, **VITON: An Image-based Virtual Try-on Network**. IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2018 [**Spotlight**].
 - **Ruichi Yu**, Hongcheng Wang, Larry S. Davis, **ReMotENet: Efficient Relevant Motion Event Detection for Large-scale Home Surveillance Videos**. IEEE Winter Conference on Applications of Computer Vision (**WACV**), 2018.
 - **Ruichi Yu**, Ang Li, Vlad I. Morariu, Larry S. Davis, **Visual Relationship Detection with Internal and External Linguistic Knowledge Distillation**. IEEE International Conference on Computer Vision (**ICCV**), 2017.
 - Ang Li, Jin Sun, Joe Yue-Hei Ng, **Ruichi Yu**, Vlad I. Morariu, Larry S. Davis, **Generating Holistic 3D Scene Abstractions for Text-based Image Retrieval**. IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2017.
 - **Ruichi Yu**, Xi Chen, Vlad I. Morariu, Larry S. Davis, **The Role of Context Selection in Object Detection**. British Machine Vision Conference (**BMVC**), 2016 [**ORAL**].
 - **Ruichi Yu**, Jui-Hsin Lai, Shun-Xuan Wang, Ching-Yung Lin, **Brain Neuron Network Extraction and Analysis of Live Mice from Imaging Videos**. International Journal of Multimedia Data Engineering and Management (**IJMDEM**) 8(3): 1-20, 2017.
 - Jui-Hsin Lai, **Ruichi Yu**, Ching-Yung Lin, **Neuron Activity Extraction and Network Analysis on Mouse Brain Videos**. IEEE International Symposium on Multimedia (**ISM**) 2016.
 - **Ruichi Yu**, Shuguan Yang, Guifan Li, Sambit Sahu, Ching-Yung Lin, **Mobile App Connecting People based on Personality Detection and Image Perception Analysis**. IEEE International Symposium on Multimedia (**ISM**) 2014.
 - **Ruichi Yu**, Binbin Dai, Wei Xu, **Enhanced Multiuser Scheduling Using Modified SLNR Metric with Outdated Partial CSI**. International Conference on Wireless Communications and Signal Processing (**WCSP**) 2012.

Patent

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- Chun-Fu CHEN, Jui-Hsin LAI, Ching-Yung LIN, Guangnan YE, Ruichi YU **Pruning Redundant Neurons and Kernels of Deep Convolutional Neural Networks**. Patent number: 20190122113, Type: Application, Filed: October 19, 2017, Publication date: April 25, 2019
 - Hongcheng Wang, Rui Min, Hong Li, Ruichi Yu **Methods and Systems for determining object activity within a region of interest**. Patent number: 20190318171, Type: Application, Filed: March 14, 2019, Publication date: October 17, 2019
 - Junhua Mao, Congcong Li, Alper Ayvaci, Chen Sun, Kevin Murphy, Ruichi Yu **Object Action Classification For Autonomous Vehicles**. Patent number: 20200125112, Type: Application, Filed: October 22, 2018, Publication date: April 23, 2020

- Ruichi Yu, Hongcheng Wang **Relevant motion detection in video**. Patent number: 20200125112, Type: Application, Filed: October 22, 2018, Patent number: 10861168, Type: Grant, Filed: September 7, 2018, Date of Patent: December 8, 2020

Skills

- **Programming Languages:** C++, Python, Java, C, MATLAB
- **Operating Systems:** Linux, Windows, MacOS
- **Tools:** Tensorflow, OpenCV, Caffe, Torch/Pytorch

Professional Service

- Journal/Conference Program Committee Member or Reviewer: TPAMI, IJCV, CVPR, NIPS, ECCV, ICML, ICCV, UAI, IJCAI, ACCV.