

## Fanyi Xiao

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### CONTACT INFORMATION

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### RESEARCH INTERESTS

My research interests lie in computer vision. I am also broadly interested in all AI/machine learning topics that could help achieve better visual perception for machines. I have research experiences in object recognition/detection, visual attributes and video data modelling. Currently, I am particularly interested in *mining* weakly supervised dataset for the purpose of exploring, organizing, and harvesting useful information that could help improve various vision tasks.

### EDUCATION

**University of California Davis, Computer Science Dept.**, Davis, CA, USA

Ph.D. student, Computer Science

- Advisor: Prof. Yong Jae Lee

**Carnegie Mellon University, Robotics Institute**, Pittsburgh, PA, USA

M.S., Robotics, 2014

- Advisors: Prof. Martial Hebert and Prof. Yaser Sheikh
- Thesis: *Model Recommendation for Large Scale Exemplar-based Object Detection*

**Central South University, Computer Science Department**, Changsha, China

B.S., Computer Science, 2012

- Thesis: *Facial Expression Analysis with Active Appearance Model*

### PUBLICATIONS

- [1] Fanyi Xiao and Yong Jae Lee. Track and segment: An iterative unsupervised approach for video object proposals. In *Computer Vision and Pattern Recognition (CVPR)*, 2016. (Spotlight presentation).
- [2] Krishna Singh, Fanyi Xiao, and Yong Jae Lee. Track and transfer: Watching videos to simulate strong human supervision for weakly-supervised object detection. In *Computer Vision and Pattern Recognition (CVPR)*, 2016.
- [3] Fanyi Xiao and Yong Jae Lee. Discovering the spatial extent of relative attributes. In *International Conference on Computer Vision (ICCV)*, 2015. (Oral presentation).
- [4] Fanyi Xiao and Martial Hebert. Efficient model evaluation with bilinear separation model. In *Winter Conference on Applications of Computer Vision (WACV)*, 2015.
- [5] Fanyi Xiao, Martial Hebert, Yaser Sheikh, Yair Movshovitz-Attias, Mei Chen, and Denver Dash. Runtime model recommendation for exemplar-based object detection. Technical report, Robotics Institute, Carnegie Mellon University, 2014.
- [6] Zhiding Yu, Chunjing Xu, Deyu Meng, Fanyi Xiao, Wenbo Liu, and Jianzhuang Liu. Transitive distance clustering with k-means duality. In *International Conference on Computer Vision and Pattern Recognition (CVPR)*, 2014.
- [7] Iljoo Baek, Taylor Stine, Denver Dash, Fanyi Xiao, Yaser Ajmal Sheikh, Yair Movshovitz-Attias, Mei Chen, Martial Hebert, and Takeo Kanade. Physical querying with multi-modal sensing. In *Winter Conference on Applications of Computer Vision (WACV)*, 2014.

AWARDS	<ul style="list-style-type: none"> <li>• Graduate Fellowship, UC Davis, 2015</li> <li>• AWS Research Grant (\$10000), Amazon Web Services, Inc., 2015</li> <li>• Graduate Research Assistantship, CMU, 2013-2014</li> <li>• Excellent Undergraduate Thesis, CSU, 2012</li> <li>• Top Grade Scholarship (University-wide highest honor, 0.8%), CSU, 2010</li> <li>• Sunward Scholarship (0.4%), Sunward Corporation, 2010</li> <li>• National Scholarship (1%), Ministry of Education of China, 2009</li> <li>• 1st Grade Scholarship (6%), CSU, 2009</li> </ul>
EXPERIENCE	<p><b>Disney Research</b>, Pittsburgh, PA</p> <p><i>Summer Intern</i> <span style="float: right;"><b>June 2016 - Sept 2016</b></span></p> <ul style="list-style-type: none"> <li>• Work with Dr. Leonid Sigal on weakly supervised vision-language alignment problem. [In Submission]</li> </ul> <p><b>University of California Davis</b>, Davis, CA</p> <p><i>Graduate Student Researcher</i> <span style="float: right;"><b>Sept 2014 - Present</b></span></p> <ul style="list-style-type: none"> <li>• Design of a video object proposal algorithm, which takes a video as input, to output proposals that are either object-like or having distinct motion against the background. [CVPR 2016]</li> <li>• Development of a <i>visual attribute mining</i> algorithm which takes the dataset with image-level relative attribute annotation as the input to automatically discover visual elements corresponding to semantic attributes. [ICCV 2015]</li> </ul> <p><b>Carnegie Mellon University</b>, Pittsburgh, PA</p> <p><i>Graduate Research Assistant</i> <span style="float: right;"><b>Sept 2012 - June 2014</b></span></p> <ul style="list-style-type: none"> <li>• Proposed the <i>Bilinear Separation Model</i> to approximate the exemplar models with low-rank estimators which are learnt by optimizing a task-specific max-margin formulation. [WACV 2015]</li> <li>• Development of a framework which uses <i>collaborative filtering</i> to recommend object detection models for testing images during runtime to avoid exhaustive search, thus scale up the exemplar-based object detection. [CMU TR 2014]</li> </ul> <p><b>Intel Science and Technology Center</b>, Pittsburgh, PA</p> <p><i>Student Researcher</i> <span style="float: right;"><b>Sept 2012 - Aug 2013</b></span></p> <ul style="list-style-type: none"> <li>• Development of a multi-modal sensing retailing assistant named “Marvin”. Lead developer of the visual recognition module. [WACV 2014]</li> </ul> <p><b>Central South University</b>, Changsha, China</p> <p><i>Undergraduate Senior Thesis</i> <span style="float: right;"><b>Sept 2011 - June 2012</b></span></p> <ul style="list-style-type: none"> <li>• Implementation and analysis of a facial expression classification system based on the Active Appearance Model (AAM) representation.</li> </ul>
GRADUATE COURSES	<ul style="list-style-type: none"> <li>• CMU: Computer Vision / Machine Learning / Convex Optimization Math Fundamentals for Robotics / Learning-based Methods in Vision Mechanics of Manipulation</li> <li>• UC Davis: Visual Recognition / Semantics of Programming Languages</li> </ul>
SKILLS	<ul style="list-style-type: none"> <li>• Programming: Python, C/C++, Lua, MATLAB, Java</li> <li>• Misc: Torch7, Caffe, LINUX, L<sup>A</sup>T<sub>E</sub>X</li> </ul>
SERVICE	<ul style="list-style-type: none"> <li>• Reviewer, Winter Conference on Applications of Computer Vision (WACV), 2015-2017</li> </ul>