

# Yu Xiang

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CONTACT INFORMATION	Assistant Professor Department of Computer Science The University of Texas at Dallas 800 W. Campbell Road, Richardson, TX 75080	<a href="mailto:yu.xiang@utdallas.edu">yu.xiang@utdallas.edu</a> <a href="http://yuxng.github.io/">http://yuxng.github.io/</a> Google Scholar GitHub
LAB	Intelligent Robotics and Vision Lab	<a href="https://labs.utdallas.edu/irvl/">https://labs.utdallas.edu/irvl/</a>
RESEARCH INTERESTS	Robotics, Computer Vision, Machine Learning, Deep Learning	
EDUCATION	<b>University of Michigan</b> , Ann Arbor, Michigan, USA Ph.D. in Electrical Engineering: Systems Dissertation: 3D Object Representations for Recognition Advisor: Prof. Silvio Savarese	Sep 2010 – Dec 2015
	<b>Fudan University</b> , Shanghai, China M.S. in Computer Science Dissertation: Graphic Models for Semantic Context Modeling in Automatic Image Annotation Advisor: Prof. Xiangdong Zhou	Sep 2007 – Jul 2010
	<b>Fudan University</b> , Shanghai, China B.S. in Computer Science	Sep 2003 – Jul 2007
EXPERIENCE	<b>The University of Texas at Dallas</b> , Richardson, Texas, USA <i>Assistant Professor</i>	Aug 2021 – present
	<b>NVIDIA Research</b> , Seattle, Washington, USA <i>Senior Research Scientist</i>	Jun 2018 – Jul 2021
	<b>NVIDIA Research</b> , Seattle, Washington, USA <i>Postdoctoral Researcher</i>	Jan 2018 – May 2018
	<b>University of Washington</b> , Seattle, Washington, USA <i>Postdoctoral Researcher</i> <ul style="list-style-type: none"><li>• Advisor: Prof. Dieter Fox</li></ul>	Aug 2016 – Dec 2017
	<b>Stanford University</b> , Stanford, California, USA <i>Postdoctoral Researcher</i> <ul style="list-style-type: none"><li>• Advisor: Prof. Silvio Savarese</li></ul>	Jan 2016 – Jul 2016
	<b>Stanford University</b> , Stanford, California, USA <i>Visiting Student Researcher</i> <ul style="list-style-type: none"><li>• Advisor: Prof. Silvio Savarese</li></ul>	Sep 2013 – Dec 2015
	<b>NEC Laboratories America, Inc.</b> , Cupertino, California, USA <i>Summer Research Intern</i> <ul style="list-style-type: none"><li>• Department: Media Analytics</li></ul>	Jun 2015 – Sep 2015 May 2014 – Aug 2014
PUBLICATIONS	<ol style="list-style-type: none"><li><b>FewSOL: A Dataset for Few-Shot Object Learning in Robotic Environments</b> Jishnu Jaykumar P, Yu-Wei Chao, <b>Yu Xiang</b> In <i>arXiv</i>, 2022.</li><li><b>NeuralGrasps: Learning Implicit Representations for Grasps of Multiple Robotic Hands</b> Ninad Khargonkar, Neil Song, Zesheng Xu, Balakrishnan Prabhakaran, <b>Yu Xiang</b> In <i>Conference on Robot Learning (CoRL)</i>, 2022.</li><li><b>Few-shot Single-view 3D Reconstruction with Memory Prior Contrastive Network</b> Zhen Xing, Yijiang Chen, Zhixin Ling, Xiangdong Zhou, <b>Yu Xiang</b> In <i>European Conference on Computer Vision (ECCV)</i>, 2022.</li></ol>	

4. **TALISMAN: Targeted Active Learning for Object Detection with Rare Classes and Slices using Submodular Mutual Information**  
 Suraj Kothawade, Saikat Ghosh, Sumit Shekar, **Yu Xiang**, Rishabh Iyer  
 In *European Conference on Computer Vision (ECCV)*, 2022.
5. **HandoverSim: A Simulation Framework and Benchmark for Human-To-Robot Object Handovers**  
 Yu-Wei Chao, Chris Paxton, **Yu Xiang**, Wei Yang, Balakumar Sundaralingam, Tao Chen, Adithyavairavan Murali, Maya Cakmak and Dieter Fox  
 In *International Conference on Robotics and Automation (ICRA)*, 2022.
6. **Hierarchical Policies for Cluttered-Scene Grasping with Latent Plans**  
 Lirui Wang, Xiangyun Meng, **Yu Xiang** and Dieter Fox  
 In *IEEE Robotics and Automation Letters (RA-L)*, 2022.
7. **iCaps: Iterative Category-level Object Pose and Shape Estimation**  
 Xinke Deng\*, Junyi Geng\*, Timothy Bretl, **Yu Xiang** and Dieter Fox (\*equal contribution)  
 In *IEEE Robotics and Automation Letters (RA-L)*, 2022.
8. **RICE: Refining Instance Masks in Cluttered Environments with Graph Neural Networks**  
 Christopher Xie, Arsalan Mousavian, **Yu Xiang** and Dieter Fox  
 In *Conference on Robot Learning (CoRL)*, 2021.
9. **Goal-Auxiliary Actor-Critic for 6D Robotic Grasping with Point Clouds**  
 Lirui Wang, **Yu Xiang** and Dieter Fox  
 In *Conference on Robot Learning (CoRL)*, 2021.
10. **DexYCB: A Benchmark for Capturing Hand Grasping of Objects**  
 Yu-Wei Chao, Wei Yang, **Yu Xiang**, Pavlo Molchanov, Ankur Handa, Jonathan Tremblay, Yashraj Narang, Karl Van Wyk, Umar Iqbal, Stan Birchfield, Jan Kautz and Dieter Fox  
 In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2021.
11. **RGB-D Local Implicit Function for Depth Completion of Transparent Objects**  
 Luyang Zhu, Arsalan Mousavian, **Yu Xiang**, Hammad Mazhar, Jozef van Eenbergen, Shoubhik Debnath and Dieter Fox  
 In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2021.
12. **Learning Composable Behavior Embeddings for Long-horizon Visual Navigation**  
 Xiangyun Meng, **Yu Xiang** and Dieter Fox  
 In *IEEE Robotics and Automation Letters (RA-L)*, 2021.
13. **Unseen Object Instance Segmentation for Robotic Environments**  
 Christopher Xie, **Yu Xiang**, Arsalan Mousavian and Dieter Fox  
 In *IEEE Transactions on Robotics (T-RO)*, 2021.
14. **PoseRBPF: A Rao-Blackwellized Particle Filter for 6D Object Pose Tracking**  
 Xinke Deng, Arsalan Mousavian, **Yu Xiang**, Fei Xia, Timothy Bretl and Dieter Fox  
 In *IEEE Transactions on Robotics (T-RO)*, 2021.
15. **Learning RGB-D Feature Embeddings for Unseen Object Instance Segmentation**  
**Yu Xiang**, Christopher Xie, Arsalan Mousavian and Dieter Fox  
 In *Conference on Robot Learning (CoRL)*, 2020.
16. **Manipulation Trajectory Optimization with Online Grasp Synthesis and Selection**  
 Lirui Wang, **Yu Xiang** and Dieter Fox  
 In *Robotics: Science and Systems (RSS)*, 2020.
17. **LatentFusion: End-to-End Differentiable Reconstruction and Rendering for Unseen Object Pose Estimation**  
 Keunhong Park, Arsalan Mousavian, **Yu Xiang** and Dieter Fox  
 In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2020.
18. **Scaling Local Control to Large-Scale Topological Navigation**  
 Xiangyun Meng, Nathan Ratliff, **Yu Xiang** and Dieter Fox  
 In *International Conference on Robotics and Automation (ICRA)*, 2020.

19. **Self-supervised 6D Object Pose Estimation for Robot Manipulation**  
Xinke Deng, **Yu Xiang**, Arsalan Mousavian, Clemens Eppner, Timothy Bretl and Dieter Fox  
In *International Conference on Robotics and Automation (ICRA)*, 2020.
20. **The Best of Both Modes: Separately Leveraging RGB and Depth for Unseen Object Instance Segmentation**  
Christopher Xie, **Yu Xiang**, Arsalan Mousavian and Dieter Fox  
In *Conference on Robot Learning (CoRL)*, 2019.
21. **PoseRBPF: A Rao-Blackwellized Particle Filter for 6D Object Pose Tracking**  
Xinke Deng, Arsalan Mousavian, **Yu Xiang**, Fei Xia, Timothy Bretl and Dieter Fox  
In *Robotics: Science and Systems (RSS)*, 2019.
22. **Object Discovery in Videos as Foreground Motion Clustering**  
Christopher Xie, **Yu Xiang**, Dieter Fox and Zaid Harchaoui  
In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2019.
23. **Neural Autonomous Navigation with Riemannian Motion Policy**  
Xiangyun Meng, Nathan Ratliff, **Yu Xiang** and Dieter Fox  
In *International Conference on Robotics and Automation (ICRA)*, 2019.
24. **Deep Object Pose Estimation for Semantic Robotic Grasping of Household Objects**  
Jonathan Tremblay, Thang To, Balakumar Sundaralingam, **Yu Xiang**, Dieter Fox and Stan Birchfield  
In *Conference on Robot Learning (CoRL)*, 2018.
25. **DeepIM: Deep Iterative Matching for 6D Pose Estimation**  
Yi Li, Gu Wang, Xiangyang Ji, **Yu Xiang** and Dieter Fox  
In *European Conference on Computer Vision (ECCV)*, 2018 **-Oral**.
26. **PoseCNN: A Convolutional Neural Network for 6D Object Pose Estimation in Cluttered Scenes**  
**Yu Xiang**, Tanner Schmidt, Venkatraman Narayanan and Dieter Fox  
In *Robotics: Science and Systems (RSS)*, 2018.
27. **Recurrent Autoregressive Networks for Online Multi-Object Tracking**  
Kuan Fang, **Yu Xiang**, Xiaocheng Li and Silvio Savarese  
In *IEEE Winter Conference on Applications of Computer Vision (WACV)*, 2018.
28. **DA-RNN: Semantic Mapping with Data Associated Recurrent Neural Networks**  
**Yu Xiang** and Dieter Fox  
In *Robotics: Science and Systems (RSS)*, 2017.
29. **Subcategory-aware Convolutional Neural Networks for Object Proposals and Detection**  
**Yu Xiang**, Wongun Choi, Yuanqing Lin and Silvio Savarese  
In *IEEE Winter Conference on Applications of Computer Vision (WACV)*, pp. 924–933, 2017.
30. **Anticipating Accidents in Dashcam Videos**  
Fu-Hsiang Chan, Yu-Ting Chen, **Yu Xiang** and Min Sun  
In *Asian Conference on Computer Vision (ACCV)*, pp. 136–153, 2016 **-Oral**.
31. **ObjectNet3D: A Large Scale Database for 3D Object Recognition**  
**Yu Xiang**, Wonhui Kim, Wei Chen, Jingwei Ji, Christopher Choy, Hao Su, Roozbeh Mottaghi, Leonidas Guibas and Silvio Savarese  
In *European Conference on Computer Vision (ECCV)*, pp. 160–176, 2016 **-Spotlight Oral**.
32. **Pose Estimation Errors, the Ultimate Diagnosis**  
Carolina Redondo-Cabrera, Roberto López-Sastre, **Yu Xiang**, Tinne Tuytelaars and Silvio Savarese  
In *European Conference on Computer Vision (ECCV)*, pp. 118–134, 2016.
33. **Deep Metric Learning via Lifted Structured Feature Embedding**  
Hyun Oh Song, **Yu Xiang**, Stefanie Jegelka and Silvio Savarese  
In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, pp. 4004–4012, 2016 **-Spotlight Oral**.

34. **Learning to Track: Online Multi-Object Tracking by Decision Making**  
**Yu Xiang**, Alexandre Alahi and Silvio Savarese  
 In *International Conference on Computer Vision (ICCV)*, pp. 4705–4713, 2015 **-Oral**.
35. **Data-Driven 3D Voxel Patterns for Object Category Recognition**  
**Yu Xiang**, Wngun Choi, Yuanqing Lin and Silvio Savarese  
 In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, pp. 1903–1911, 2015 **-Oral**.
36. **A Coarse-to-Fine Model for 3D Pose Estimation and Sub-category Recognition**  
 Roozbeh Mottaghi, **Yu Xiang** and Silvio Savarese  
 In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, pp. 418–426, 2015.
37. **Monocular Multiview Object Tracking with 3D Aspect Parts**  
**Yu Xiang\***, Changkyu Song\*, Roozbeh Mottaghi and Silvio Savarese (\*equal contribution)  
 In *European Conference on Computer Vision (ECCV)*, pp. 220–235, 2014.
38. **Beyond PASCAL: A Benchmark for 3D Object Detection in the Wild**  
**Yu Xiang**, Roozbeh Mottaghi and Silvio Savarese  
 In *IEEE Winter Conference on Applications of Computer Vision (WACV)*, pp. 75–82, 2014.
39. **Object Detection by 3D Aspectlets and Occlusion Reasoning**  
**Yu Xiang** and Silvio Savarese  
 In *IEEE Workshop on 3D Representation and Recognition (3dRR)*, pp. 530–537, 2013.
40. **Object Co-detection**  
 Sid Yingze Bao, **Yu Xiang** and Silvio Savarese  
 In *European Conference on Computer Vision (ECCV)*, vol. 7572, pp. 86–101, 2014.
41. **Estimating the Aspect Layout of Object Categories**  
**Yu Xiang** and Silvio Savarese  
 In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, pp. 3410–3417, 2012.
42. **Semantic Context Modeling with Maximal Margin Conditional Random Fields for Automatic Image Annotation**  
**Yu Xiang**, Xiangdong Zhou, Zuotao Liu, Tat-Seng Chua and Chong-Wah Ngo  
 In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, pp. 3368–3375, 2010.
43. **Learning Contextual Metrics for Automatic Image Annotation**  
 Zuotao Liu, Xiangdong Zhou, **Yu Xiang** and Yan-Tao Zheng  
 In *Advances in Multimedia Information Processing - PCM*, vol. 6297, pp. 124–135, 2010.
44. **A Revisit of Generative Model for Automatic Image Annotation using Markov Random Fields**  
**Yu Xiang**, Xiangdong Zhou, Zuotao Liu, Tat-Seng Chua and Chong-Wah Ngo  
 In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, pp. 1153–1160, 2009.
45. **Adaptive Model for Web Image Semantic Automatic Image Annotation**  
 Hongtao Xu, Xiangdong Zhou, **Yu Xiang** and Baile Shi  
 In *Journal of Software (in Chinese)*, vol. 21, no. 9, pp. 2183–2195, 2009.
46. **Exploiting Flickr’s Related Tags for Semantic Annotation of Web Images**  
 Hongtao Xu, Xiangdong Zhou, **Yu Xiang** and Baile Shi  
 In *ACM International Conference on Image and Video Retrieval (CIVR)*, no. 46, 2009.
47. **Automatic Web Image Annotation via Web-Scale Image Semantic Space Learning**  
 Hongtao Xu, Xiangdong Zhou, Lan Lin, **Yu Xiang** and Baile Shi  
 In *Advances in Data and Web Management*, vol. 5446, pp. 211–222, 2009.

TEACHING

**CS 6301 Special Topics in Computer Science: Introduction to Robot Manipulation and Navigation**, University of Texas at Dallas, Dallas, Texas, USA Fall 2022

**CS 6384 Computer Vision**, University of Texas at Dallas, Dallas, Texas, USA Spring 2022

	<b>CS 6334 Virtual Reality</b> , University of Texas at Dallas, Dallas, Texas, USA	Fall 2021
	<b>Artificial Intelligence</b> , University of Washington, Seattle, Washington, USA <i>Guest Lectures</i> for Prof. Dieter Fox	2017
	<b>Computer Vision</b> , University of Washington, Seattle, Washington, USA <i>Guest Lecture</i> for Prof. Linda Shapiro	2017
	<b>Computer Vision</b> , Stanford University, Stanford, California, USA <i>Guest Lectures</i> for Prof. Silvio Savarese	2016
	<b>The C Programming Language</b> , Fudan University, Shanghai, China <i>Teaching Assistant</i>	Sep 2009 – Jan 2010
STUDENT MENTORSHIP	Current PhD Students: Jikai Wang, PhD Student, University of Texas at Dallas Shivvrat Arya, PhD Student, University of Texas at Dallas Ninad Arun Khargonkar, PhD Student, University of Texas at Dallas Jishnu Jaykumar Padalunkal, PhD Student, University of Texas at Dallas Qifan Zhang, PhD Student, University of Texas at Dallas Sai Haneesh Allu, PhD Student, University of Texas at Dallas	Aug 2021 – present Aug 2021 – present Nov 2021 – present Aug 2021 – present Jan 2022 – present Aug 2022 – present
	Current Master Students: Kamalesh Palanisamy, Master Student, University of Texas at Dallas Abhishek Rajendra Prasad, Master Student, University of Texas at Dallas Aaditya Arunkumar Khant, Master Student, University of Texas at Dallas Priyanshi Shah, Master Student, University of Texas at Dallas	Aug 2021 – present Aug 2021 – present Jan 2022 – present Jan 2022 – present
	Current Undergraduate Students: Charles Averill, Undergraduate Student, University of Texas at Dallas Cole Salvato, Undergraduate Student, University of Texas at Dallas Zesheng Xu, Undergraduate Student, University of Texas at Dallas Gagan Bhat, Undergraduate Student, University of Texas at Dallas Tam Arnett, Undergraduate Student, University of Texas at Dallas Willie Chalmers III, Undergraduate Student, University of Texas at Dallas Shreya Kuntumalla, Undergraduate Student, University of Texas at Dallas Scott Pedley, Undergraduate Student, University of Texas at Dallas	Aug 2021 – present Aug 2021 – present Aug 2021 – present Jan 2022 – present May 2022 – present May 2022 – present August 2022 – present August 2022 – present
	Current Minor Students: Neil Song, High School Student, St. Mark's	May 2021 – present
	Past Students and Interns: Dhruvi Sonani, Master Student, University of Texas at Dallas Jocelyn Heckenkamp, Undergraduate Student, University of Texas at Dallas Lirui Wang, Master Student, University of Washington	Jan 2022 – May 2022 Oct 2021 – Jan 2022 Sep 2017 – Jul 2021
	NVIDIA Research Internship Program: Xiangyun Meng, PhD Student, University of Washington Luyang Zhu, PhD Student, University of Washington Xinke Deng, PhD Student, UIUC Keunhong Park, PhD Student, University of Washington Corinne Jones, PhD Student, University of Washington Raluca Scona, PhD Student, Edinburgh Center for Robotics Fei Xia, PhD Student, Stanford University Rui Wang, PhD Student, TUM Christopher Xie, PhD Student, University of Washington	2021 2020 2018, 2019 2019 2019 2019 2018 2018 2018
AWARDS AND HONORS	One of the 12 Best Papers in ECCV Selected for a IJCV Special Issue University of Washington CSE Postdoc Research Award ICCV Doctoral Consortium Travel Award	2018 2016 2015

PROFESSIONAL  
SERVICE

## Associate Editor

- IEEE Robotics and Automation Letters (RA-L)
- International Conference on Intelligent Robots and Systems (IROS)

Oct 2021 – present  
2022

## Area Chair

- Conference on Robot Learning (CoRL)

2022

## Journal Reviewer

- International Journal of Robotics Research (IJRR)
- IEEE Robotics and Automation Letters (RA-L)
- IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)
- International Journal of Computer Vision (IJCV)
- Computer Vision and Image Understanding (CVIU)
- IEEE Transactions on Circuits and Systems for Video Technology (TCSVT)
- IEEE Transactions on Multimedia (TMM)
- IEEE Transactions on Signal Processing (TSP)

## Conference Reviewer

- Robotics: Science and Systems Conference (RSS)
- IEEE International Conference on Robotics and Automation (ICRA)
- International Conference on Intelligent Robots and Systems (IROS)
- IEEE International Conference on Robot and Human Interactive Communication (ROMAN)
- IEEE Conference on Computer Vision and Pattern Recognition (CVPR)
- International Conference on Computer Vision (ICCV)
- European Conference on Computer Vision (ECCV)
- Asian Conference on Computer Vision (ACCV)
- British Machine Vision Conference (BMVC)
- International Conference on 3D Vision (3DV)
- Neural Information Processing Systems (NIPS)

## Program Chair

- The Visual Learning and Reasoning for Robotics Workshop at RSS, 2021

## Program Chair

- The 3D Vision and Robotics Workshop at CVPR, 2021

## Program Chair

- The Visual Learning and Reasoning for Robotic Manipulation Workshop at RSS, 2020

## Program Chair

- 5th International IEEE Workshop on 3D Representation and Recognition at ICCV, 2015

## Program Committee

- 4th International IEEE Workshop on 3D Representation and Recognition at ICCV, 2013

## Tutorial Organizer

- 3D Object Geometry from Single Image Tutorial at International Conference on 3D Vision, 2016

## TALKS

1. **Closed-loop 6D Robotic Grasping of Unseen Objects**  
Texas Regional Robotics Symposium, UT Austin, 4/29/2022.
2. **6D Robotic Grasping of Unseen Objects**  
Electronics and Telecommunications Research Institute, South Korea, 8/19/2021.
3. **Perceive, Plan, Act and Learn: Towards Intelligent Robots in Human Environments**  
UNC, 2/24/2021; UT Dallas, 3/16/2021.
4. **Learning RGB-D Feature Embeddings for Unseen Object Instance Segmentation**  
In NVIDIA Research, Seattle, Washington, 10/12/2020.
5. **PoseRBPF: A Rao-Blackwellized Particle Filter for 6D Object Pose Tracking**  
In University of Washington, Seattle, Washington, 9/27/2019.

6. **Object Perception for Robot Manipulation**  
In Toyota Research Institute, Cambridge, Massachusetts, 7/12/2019.
7. **PoseCNN: A Convolutional Neural Network for 6D Object Pose Estimation in Cluttered Scenes**  
In Robotics: Science and Systems (RSS), CMU, Pittsburgh, Pennsylvania, 6/26/2018.
8. **Perceiving the 3D World from Images and Videos**  
In Nvidia Research, Redmond, Washington, 11/07/2017; University of Michigan, 3/15/2018.
9. **3D Object Recognition and Scene Understanding from RGB-D Videos**  
In GRASP Lab at University of Pennsylvania, 10/11/2017; Microsoft Research, Redmond, 10/17/2017; Vision Lab at Stanford University, 10/23/2017.
10. **3D Object Recognition and Scene Understanding**  
In Mitsubishi Electric Research Laboratories, Boston, Massachusetts, 7/14/2017.
11. **DA-RNN: Semantic Mapping with Data Associated Recurrent Neural Networks**  
In Robotics: Science and Systems, Massachusetts Institute of Technology, Massachusetts, 7/13/2017.
12. **Subcategory-aware Convolutional Neural Networks for Object Proposals and Detection**  
In IEEE Winter Conference on Applications of Computer Vision, Santa Rosa, California, 3/29/2017.
13. **Tutorial on 3D Object Recognition**  
In International Conference on 3D Vision, Stanford University, 10/28/2016.
14. **3D Object Representations for Recognition**  
In Carnegie Mellon University, 3/28/2016; University of Toronto, 4/4/2016; Massachusetts Institute of Technology, 4/12/2016; University of California, Berkeley, 4/21/2016; University of Illinois at Urbana-Champaign, 5/5/2016; University of Washington, 5/31/2016.
15. **3D Object Detection and Pose Estimation**  
In the 1st International Workshop on Recovering 6D Object Pose in conjunction with ICCV, Santiago, Chile, 12/17/2015.
16. **Learning to Track: Online Multi-Object Tracking by Decision Making**  
In International Conference on Computer Vision, Santiago, Chile, 12/16/2015.
17. **Data-Driven 3D Voxel Patterns for Object Category Recognition**  
In IEEE Conference on Computer Vision and Pattern Recognition, Boston, Massachusetts, 06/08/2015.
18. **Monocular Multiview Object Tracking with 3D Aspect Parts**  
In the 1st Stanford-SNU Workshop on Automated Driving, Stanford University, 02/24/2015.
19. **Beyond PASCAL: A Benchmark for 3D Object Detection in the Wild**  
In IEEE Winter Conference on Applications of Computer Vision, Steamboat Springs, Colorado, 03/24/2014.
20. **Object Detection by 3D Aspectlets and Occlusion Reasoning**  
In the 4th International IEEE Workshop on 3D Representation and Recognition in conjunction with ICCV, Sydney, Australia, 12/08/2013.
21. **Estimating the Aspect Layout of Object Categories**  
In Midwest Vision Workshop, University of Illinois at Urbana-Champaign, 09/21/2012.

#### FUNDING

1. Perceptually-enabled Task Guidance, DARPA, co-PI, 10/01/2021 – 09/30/2025

#### SKILLS AND LANGUAGES

Programming Languages: Python, C/C++, CUDA  
 Libraries: PyTorch, Tensorflow, OpenCV, OpenGL, ROS  
 Operating Systems: Linux, Windows and Mac OS X  
 Languages: English, Chinese