Danfei Xu

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Research Interests Computer Vision, Robot Learning

Education

Stanford University, Stanford, CA

Ph.D. in Computer Science, (September 2015 - present)

Columbia University, New York, NY

B.S. in Computer Science, *magna cum laude*, (May 2015)

Research Experience

Ph.D. Candidate, Stanford University (Stanford, CA) 2015-
- Ph.D. candidate in the Stanford Vision and Learning Lab, co-advised by Professor Silvio Savarese and Professor Fei-Fei Li.

Research Intern, Zoox Inc. (Menlo Park, CA) Summer 2017
- PointFusion: Deep Sensor Fusion for 3D Bounding Box Estimation

Research Intern, Autodesk Research. (San Francisco, CA) Summer 2016
- Generative design with deep reinforcement learning

Research Assistant, Columbia University (New York, NY) 2013-2015
- Model-Driven Feedforward Prediction for Manipulation of Deformable Objects

Research Intern, CMU Robotics Institute (Pittsburgh, PA) Summer 2013, 2014
- Topometric localization on a road network

Preprints

Huang DA., Nair S., **Xu, D.**, Zhu, Y., Garg, A., Savarese, S., Fei-Fei L., Niebles, JC., Neural Task Graphs: Generalizing to Unseen Tasks from a Single Video Demonstration, *arXiv preprint 1807.03480* 2018.

Conference Publications

Xu, D., Nair S., Zhu, Y., Garg, A., Gao, J., Fei-Fei L., Savarese, S., Neural Task Programming: Learning to Generalize across Hierarchical Tasks, *International Conference on Robotics and Automation (ICRA)* 2018.

Xu, D., Anguelov, D., Jain, A., PointFusion: Deep Sensor Fusion for 3D Bounding Box Estimation, *Conference on Computer Vision and Pattern Recognition (CVPR)* 2018.

Pirk, S., Diamanti, O., Thibert, B., **Xu, D.** and Guibas, L., 2017, September. Shape-aware spatio-temporal descriptors for interaction classification. *IEEE International Conference on Image Processing* (ICIP), 2017.

Xu, D., Zhu, Y., Choy, B., Fei-Fei, L., Scene Graph Generation by Iterative Message Passing, *Conference on Computer Vision and Pattern Recognition (CVPR)* 2017.

Choy, B., **Xu, D.**, Gwak, J., Chen, K., Savarese, S., 3D-R2N2: A Unified Approach for Single and Multi-view 3D Object Reconstructionl, *European Conference on Computer Vision (ECCV)* 2016.

Li, Y., Hu, X., **Xu, D.**, Yue, Y., Grinspun, E. and Allen, P.K., 2016, May. Multi-sensor surface analysis for robotic ironing. *International Conference on Robotics and Automation* (ICRA), 2016.

Li, Y., Yue, Y., **Xu, D.**, Grinspun, E. and Allen, P.K., 2015, September. Folding deformable objects using predictive simulation and trajectory optimization. *IEEE/RSJ International Conference on Intelligent Robots and Systems* (IROS), 2015.

Li, Y., **Xu, D.**, Yue, Y., Wang, Y., Chang, S., Grinspun, E., Allen, P., Recognition, Regrasping, and Unfolding of Deformable Object using Predictive Thin Shell Model, *IEEE International Conference on Robotics and Automation (ICRA)* 2015.

Xu, D., Badino, H., Huber, D., Topometric localization on a road network, *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)* 2014.

Xu, D., Loeb, G.E., Fishel, J.A., Tactile identification of objects using Bayesian exploration, *IEEE International Conference on Robotics and Automation (ICRA)* 2013.

Journal Publications

Li, Y., Wang, Y., Yue, Y., **Xu, D.**, Case, M., Chang, S.F., Grinspun, E. and Allen, P.K., Model-Driven Feedforward Prediction for Manipulation of Deformable Objects. *IEEE Transactions on Automation Science and Engineering.*, 2018.

Honors and Awards

- Outstanding Undergraduate Researcher Award 2015
  - Computing Research Association
- Theodore R. Bashkow Award (Excellence in independent research)
  - Department of Computer Science, Columbia University

Teaching

- CS231N: Convolutional Neural Networks for Visual Recognition — Spring 2018
  Teaching Assistant — Stanford University
- CS231A: Computer Vision, From 3D Reconstruction to Recognition — Winter 2018
  Teaching Assistant — Stanford University
- COMS 4121: Computing Systems for Data Science — Spring 2015
  Teaching Assistant — Columbia University

Service

- Reviewer: CVPR, ECCV, 3DV, ICRA, IROS, IJRR, TPAMI