Shangjie Xue

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Education

Massachusetts Institute of Technology (MIT), Cambridge, MA — Sept. 2018 - present

Master of Science in *Nuclear Eng.* and *Electrical Eng. & Computer Sci.* (dual degree)

Peking University (PKU), Beijing, China — July 2018

Bachelor of Science in *Physics*

Experience

Research Assistant — Sept. 2019 - Present

Department of NSE, Massachusetts Institute of Technology — *Advisor: Lin-Wen Hu, Mingda Li*

- Research on machine learning-based approach for inverse problem and adaptive sampling for environmental radiation monitoring.

Research Intern — June 2020 - Dec. 2020

Uber ATG, San Francisco — *Supervisor: Raquel Urtasun, Shenlong Wang*

- Photorealistic image synthesis for self-driving car research.
- Shadow synthesis via image-based rendering and machine learning based illumination estimation.

Undergraduate Researcher — 2015 – 2018

School of Physics, Peking University — *Advisor: Yuan Li*

- Studies on disorder induced phase transition in Charge-Density-Wave system via neutron scattering;
- Studied on topological magnon in antiferromagnetic compounds via inelastic neutron scattering.

Visiting Student Researcher — Summer 2017

Department of Physics, Massachusetts Institute of Technology — *Supervisor: Riccardo Comin*

- Studied on mesoscopic charge order domain dynamics via X-ray photon correlation spectroscopy (XPCS).
- Studied on temperature dependence of the lattice dynamics in Charge-Density-Wave system via Raman spectroscopy .

Selected Publications

- Y. Chen* F. Rong*,S. Duggal* S. Wang, X. Yan, S. Manivasagam, **S. Xue**, E. Yumer, R. Urtasun†, GeoSim: Photorealistic Image Simulation with Geometry-Aware Compositionfor Self-Driving, **CVPR** 2021 (Oral), **arxiv:2101.06543**.
- L. Yue*, **S. Xue***, J. Li*, C. Mazzol, F. Zheng, L. Wang, J. Feng, S. B. Wilkins, R. Comin† and Y. Li†,"Distinction between pristine and disorder-perturbed charge density waves in $ZrTe_3$", **Nature Communications** 11, no. 1 (2020): 1-8.
- W. Yao*, C. Li*, L. Wang*, **S. Xue**, Y. Dan, K. Iida, K, Kamazawa, K. Li, C. Fang†, Y. Li†, "Topological spin excitations observed in a three-dimensional antiferromagnet", **Nature Physics** 14, no. 10 (2018): 1011-1015.

(* : Equal contribution, † : Corresponding author)

Skills

- Programming: Python, C/C++, Matlab

- Tools/Software: ROS, PyTorch, Tensorflow, Keras, GTSAM, DRAKE, Arduino, PyQt, Blender, SolidWorks, LaTeX

Selected Awards and Honors

- **"Manson Benedict"** Fellowship at MIT 2018 - 2019
- **"Merit Student Award"** at Peking University 2015 & 2016
- **"Wei Lin"** Scholarship at Peking University 2016
- **"Tung OOCL"** Scholarship at Peking University 2015
- **"Meritorious Winner"** in Mathematical Contest in Modeling (MCM) 2015