Jia Xue

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current GPA: 3.8

Education

Rutgers, The State University of New Jersey — New Brunswick, New Jersey
Ph.D degree in Electrical and Computer Engineering — *2014 – present*
Computer vision research advised by Professor Kristin J. Dana. Areas of expertise: computer vision, machine learning, optimization

University of Electronic Science and Technology of China — Chengdu, China
Bachelor degree in Electronic Computer Engineering — *2011 – 2014*

Publications

1. Jia Xue, Hang Zhang, Kristin Dana, and Ko Nishino. Differential angular imaging for material recognition. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2017

2. Hang Zhang, Jia Xue, and Kristin Dana. Deep TEN: Texture Encoding Network. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2017

Experience

Philips Research — Philips Research , North America
Research Intern — *Jun '17 – Sep '17*
Research Intern in the Philips Research , North America. Develop solutions for camera-based vitals monitoring of groups of people, making use of proprietary cutting-edge, world-leading contactless monitoring technology.

Computer Vision Lab — Rutgers University , New Brunswick
Research Assistant — *Mar '15 – present*
Research Assistant in the Computer Vision lab. Developed deep learning algorithms for material recognition. Implemented robotic collection procedure for a large-scale multiview outdoor material database.

Technical Innovation Competition — University of Electronic Science and Technology of China, China
Participant — *May '12 – Oct '12*
Participated in the Technical Creation Match with two team participants, developed obstacle avoidance car, use laser to detect obstacle in front of the car.

Selected Awards

Rutgers ECE Research Excellence Award — 2017
Graduate Assistant Professional Development Fund — 2017
UESTC University Scholarship — 2012, 2013, 2014

Projects

Material segmentation on satellite images — Computer Vision Lab
Research Assistant — *Nov '17 – Present*
This project will develop models and algorithms for material segmentation based on the radiometric information of a large-scale satellite dataset.

Seeing Surfaces: Actionable Surface Properties from Vision — Computer Vision Lab
Research Assistant — *Nov '17 – Present*
This project will develop models and algorithms for estimating actionable, physical properties of surfaces from their appearance for applications in scene understanding, robotic action planning, and efficient visual sensing. The research will address the fundamental question of how computer vision can anticipate the physical properties of a surface, laying the foundation for computational vision-for-action. The research activities are centered on four specific aims: 1) large-scale data collection

of actionable physical properties and appearance measurements of everyday surfaces, 2) derivation of prediction models for deducing physical properties from local surface appearance, 3) integration of global semantic context including object and scene information, and 4) development of efficient appearance-capture optics and hardware for use in novel physics-from-appearance sensing.

MatCam: A Camera that Sees Materials — Computer Vision Lab

Research Assistant — *Jan '15 – Nov '17*

This project develops the first material camera, or MatCam, that outputs a per-pixel label of object material and its properties that can be used in visual computing tasks. In the everyday real world there are a vast number of materials that are useful to discern including concrete, metal, plastic, velvet, satin, water layer on asphalt, carpet, tile, wood, and marble. A device for identifying materials has important implications in developing new technologies. For example, a mobile robot may use a MatCam to determine whether the terrain is grass, gravel, pavement, or snow in order to optimize mechanical control. In e-commerce, the material composition of objects can be tagged by a MatCam for advertising and inventory. The potential applications are limitless in areas such as robotics, digital architecture, human-computer interaction, intelligent vehicles and advanced manufacturing. Furthermore, material maps have foundational importance in nearly all vision algorithms including segmentation, feature matching, scene recognition, image-based rendering, context-based search, and object recognition and motion estimation. The camera brings material recognition to the broader scientific and engineering communities, in a similar way that depth cameras are currently used in many fields outside of computer vision.

Teaching

Sustainable Energy — Rutgers, New Brunswick

Teaching Assistant — *Sep '16 – present*

TA for Sustainable Energy with instructor Dr. Hana Godrich. This class demonstrates multi-disciplinary strategic thinking in a sustainable development context taking into account diverse constraints. Responsible for designing and grading student assignments and projects, answering student questions in office hours.

Programming Methodology — Rutgers, New Brunswick

Teaching Assistant — *Jan '16 – Jun '16*

TA for Programming Methodology with instructor Dr. Saman Zonouz. This class is the Basics of programming and data structures in C++. My responsibility is to design and grade student assignments and projects, answer student questions in office hour.

Programming Finance — Rutgers, Newbrunswick

Teaching Assistant — *Jun '15 – Dec '15*

Grader for Programming Finance class with instructor Dr. Shiyu Zhou. This class covers the fundamentals of object oriented programming and C++ with an emphasis in numerical computing and computational finance applications. Graded student assignments and projects.

Technical Profile

Language: Python, C/C++, Matlab, LuaJIT, Java, Javascript, Php

Operation Systems: Windows, Ubuntu, Mac OS

Computer Vision libraries: Tensorflow, Pytorch, Torch, MatConvNet, OpenCV, Pcl, iai-kinect2, kinect sdk v2, CytonViewer, pylon4