Zhile Ren

CONTACT INFORMATION

Georgia Institute of Technology
School of Interactive Computing
Atlanta, GA, 30332

Tel: +1-401-573-5921
E-mail: jrenzhile@gmail.com
http://cs.brown.edu/people/zr1/

RESEARCH INTERESTS

Computer vision: 3D visual scene understanding, 3D stereo and optical flow
Computer graphics: Image manipulation/synthesis

EDUCATION

Brown University, Providence, RI

Ph.D., Computer Science Deaprtment, 2013 – 2018

Advisor: Erik Sudderth
Thesis: Semantic Three-Dimensional Understanding of Dynamic Scenes

Zhejiang University, Hangzhou, China

B.S. in Statistics, Department of Mathematics, 2009 – 2013

APPOINTMENTS

Georgia Institute of Technology (GaTech), School of Interactive Computing

Postdoctoral Fellow with **Dhruv Batra**, **Devi Parikh**, **Irfan Essa** Sept 2018 – present

- 3D scene understanding, robotics

Brown University, Computer Science Department

Research Assistant with **Erik Sudderth** Feb 2014 – 2018

- 3D object detection and layout prediction with RGB-Depth camera **(CVPR 2016)**
- 3D object detection with latent support surfaces **(CVPR 2018)**

Research Assistant with **James Hays** Sept 2013 – Feb 2014

- Attribute-based image editing **(SIGGRAPH 2014)**

NVIDIA Research, Visual Computing group June – Sept 2016/2017

Research Intern with **Deqing Sun**, **Orazio Gallo**, **Ming-Hsuan Yang** and **Jan Kautz**

- Semantic scene flow prediction for autonomous vehicles **(3DV 2017)**
- Learning multi-frame optical flow using deep neural networks **(ECCV Workshop 2018)**

Microsoft Research, Interactive Visual Media group June – Sept 2015

Research Intern with **Dr. Sing Bing Kang** and **Dr. Johannes Kopf**

- Image completion and shadow removal

National Laboratory of Pattern Recognition, Beijing, China March – Jul 2013

Research Intern with **Prof. Huai-Yu Wu**

- Agglomerative clustering algorithms for 3D mesh segmentation

Toyota Technological Institute at Chicago (TTIC), Chicago, IL Jul – Oct 2012

Research Intern with **Prof. Greg Shakhnarovich**

- Agglomerative clustering algorithms for natural image segmentation **(CVPR 2013)**

PUBLICATIONS

[1] **A Fusion Approach for Multi-Frame Optical Flow Estimation**
Zhile Ren, Orazio Gallo, Deqing Sun, Ming-Hsuan Yang, Jan Kautz, Erik Sudderth
ECCV Workshop: What is optical flow for? **(ECCV Workshop 2018)**

[2] **3D Object Detection with Latent Support Surfaces**
Zhile Ren, Erik Sudderth
IEEE Computer Vision and Pattern Recognition **(CVPR 2018)**

[3] **Cascaded Scene Flow Prediction using Semantic Segmentation**
Zhile Ren, Deqing Sun, Jan Kautz, Erik Sudderth
International Conference on 3D Vision **(3DV 2017)** oral presentation, top 7%

[4] **3D Object Detection and Layout Prediction using Clouds of Oriented Gradients**
Zhile Ren, Erik Sudderth
IEEE Computer Vision and Pattern Recognition **(CVPR 2016)** oral presentation, top 3%

[5] **Robust Graph SLAM in Dynamic Environments with Moving Landmarks**
Lingzhu Xiang, **Zhile Ren**, Mengrui Ni, Chad Jenkins
International Conference on Intelligent Robots and Systems **(IROS 2015)**

[6] **Transient Attributes for High-Level Understanding and Editing of Outdoor Scenes**
Pierre-Yves Laffont, **Zhile Ren**, Xiaofeng Tao, Chao Qian, James Hays
ACM Transactions on Graphics **(SIGGRAPH 2014)**

[7] **Image Segmentation by Cascaded Region Agglomeration**
Zhile Ren, Greg Shakhnarovich
IEEE Computer Vision and Pattern Recognition **(CVPR 2013)**

INVITED TALKS

Semantic Three-Dimensional Understanding of Dynamic Scenes

- Research Seminar in **Amazon Rekognition**, July 2018
- Research Seminar in **Microsoft AI & Research**, May 2018
- Computer Vision Seminar in **MIT**, May 2018
- Computer Vision Seminar in **UC San Diego**, May 2018
- Machine Learning Seminar in **Georgia Tech**, Apr 2018
- AI/ML Seminar Series in **UC Irivine**, Apr 2018

Cascaded Scene Flow Prediction using Semantic Segmentation

- International Conference on 3D Vision **(3DV)**, Oct 2017
- Visual Computing Group in **NVIDIA Research**, Oct 2017
- Computer Vision Group Seminar in **UC Irvine**, Oct 2017
- New England Computer Vision Workshop at **Boston University**, Nov 2016

Cascaded Models for Three-Dimensional Scene Understanding

- Image and Video Computing (IVC) Seminar at **Boston University**, Dec 2016

3D Object Detection and Layout Prediction using Clouds of Oriented Gradients

- IEEE Conference on Computer Vision and Pattern Recognition **(CVPR)**, June 2016
- Machine Learning Lunch Seminar at **NVIDIA Research**, June 2016
- Data-driven Computer Vision (CSCI 2951T) at **Brown University**, Mar 2016
- New England Computer Vision Workshop at **UMass Amherst**, Nov 2015

Image Segmentation by Cascaded Region Agglomeration

- Midwest Vision Workshop at **UIUC**, Sept 2012

PROFESSIONAL SERVICES

Journal/Conference Reviewer

- Computer Vision and Image Understanding **(CVIU)**
- IEEE Transactions on Pattern Analysis and Machine Intelligence **(TPAMI)**
- ACM Transactions on Graphics (TOG)

- IEEE International Conference on Computer Vision **(ICCV)** 2015, 2017
- IEEE Conference on Computer Vision and Pattern Recognition **(CVPR)** 2016-18
- European Conference on Computer Vision **(ECCV)** 2016, 2018
- Asian Conference on Computer Vision **(ACCV)** 2016, 2018
- British Machine Vision Conference **(BMVC)** 2017
- International Conference on Learning Representations **(ICLR)** 2019

Departmental Service

- Organizer of Brown University Machine Learning Reading Group **(MLRG)** 2015-17

TEACHING EXPERIENCE

Teaching Assistant

- CSCI2420: Probablistic Graphical Models, Brown University, Fall 2016.
- CSCI1450: Introduction to Probability and Computing, Brown University, Spring 2015.

MEDIA COVERAGE

Transform Your Photos with a Magic Word. In **IEEE Spectrum**, Oct 2014.

Don't Like the Weather in Your Photos? Now You Can Change It. In **NBC News**, Aug 2014

Photo editing algorithm changes weather, seasons automatically. In **Brown News**, Aug 2014