Ziyu Zhang

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EMPLOYMENT

Snap Inc., Santa Monica, CA

- Research Engineer — Jun 2017 – Present
  - Main Projects: Client-side Deep Learning Inference, Visual Tagging, Interactive/Semantic Segmentation
  - Side Projects: Feed Ranking, Sketch to Emoji, Sketch-based Emoji Retrieval
  - Recognition: Recipient of Selective Annual Bonus

EDUCATION

Northwestern University, Evanston, IL

- Master of Science in Computer Science — Sep 2016 – Jun 2017
  - GPA: 3.9/4.0
  - Research Area: Generative Modeling
  - Advisor: Prof. Alexander Schwing

University of Toronto, Toronto, ON

- Master of Science in Computer Science — Sep 2014 – Jun 2016
  - GPA: 3.9/4.0
  - Research Areas: Instance Segmentation, Object Detection
  - Advisors: Prof. Raquel Urtasun, Prof. Sanja Fidler
  - Thesis: Instance-level Segmentation with CNNs and Densely Connected MRFs

Tsinghua University, Beijing, China

- Bachelor of Engineering in Electronic Information Science and Technology — Sep 2009 – Jun 2013
  - GPA: 91/100
  - Thesis Advisor: Prof. Hongtao Li
  - Thesis: A Study on Optimal Design of Freeform Optical Surfaces
- Minor in Economics — Sep 2010 – Jun 2013

PUBLICATIONS

[5] Ishan Deshpande, Ziyu Zhang and Alexander Schwing, "Generative Modeling Using the Sliced Wasserstein Distance," in ***CVPR 2018***

[4] Unnat Jain*, Ziyu Zhang* and Alexander Schwing, "Creativity: Generating Diverse Questions Using Variational Autoencoders," in ***CVPR 2017 Spotlight***. (* indicates equal contributions.)

[3] Ziyu Zhang, Sanja Fidler and Raquel Urtasun, "Instance-level Segmentation for Autonomous Driving with Deep Densely Connected MRFs," in ***CVPR 2016***.

[2] Xiaozhi Chen, Kaustav Kundu, Ziyu Zhang, Huimin Ma, Sanja Fidler and Raquel Urtasun, "Monocular 3D Object Detection for Autonomous Driving," in ***CVPR 2016***.

[1] Ziyu Zhang*, Alexander Schwing*, Sanja Fidler and Raquel Urtasun, "Monocular Object Instance Segmentation and Depth Ordering with CNNs," in ***ICCV 2015***. (* indicates equal contributions.)

INVITED TALKS

- **Baidu Institute of Deep Learning** — Oct 2016
- **Apple** — Mar 2016

RESEARCH EXPERIENCE

Northwestern University, Evanston, IL

- Researcher — Sep 2016 – Jun 2017
  - Research Area: Generative Modeling
  - Advisor: Prof. Alexander Schwing
  - Project 1: Visual Question Generation with Variational Autoencoders. We proposed a framework based on variational autoencoders for proposing natural, novel and diverse questions given an image.
  - Project 2: Sketch to Image. We proposed a framework based on generative adversarial networks which generates a photorealistic bird image given a user-provided sketch.
  - Project 3: Generative Modeling Using the Sliced Wasserstein Distance. We proposed a much more stable alternative to generative adversarial networks for generative modeling, and achieved competitive results on various datasets, including MNIST, CIFAR-10, CelebA and LSUN.

University of Toronto, Toronto, ON

- Graduate Research Assistant — Sep 2014 – Jun 2016
  - Research Areas: Instance Segmentation, Object Detection

- Advisors: Prof. Raquel Urtasun, Prof. Sanja Fidler
- Project 1: Monocular Instance Segmentation and Depth Ordering for Autonomous Driving. We proposed a feedforward network for simultaneous instance segmentation and depth ordering given an image patch, and a densely connected Markov random field (amenable to efficient inference) which aggregates patch-level predictions and provides a globally coherent instance map.
- Project 2: Monocular 3D Object Detection for Autonomous Driving. We proposed an energy minimization framework which scores candidate 3D cuboids via intuitive potentials encoding semantic/instance segmentation, contextual information, size/location priors and typical object shapes.
- Project 3: Label Propagation on Video Sequences. We proposed a framework on simultaneous *car vs. non-car* segmentation and CAD model fitting for consecutive video frames, and investigated an alternating inference algorithm for the framework.

TEACHING EXPERIENCE

University of Toronto, Toronto, ON

- Graduate Teaching Assistant — 2014
  - Course: Machine Learning and Data Mining

AWARDS & SCHOLARSHIPS

- **Tuition Fellowship**, University of Toronto — 2014 – 2016
  For international students.
- **Entrance Scholarship**, University of Toronto — 2014
  For top 10% admitted students.
- **Scholarship for Excellent Academic Performance**, Tsinghua University — 2011 – 2013
  For top performing students.
- **Freshman Scholarship**, Tsinghua University — 2009
  For top scorers in the Chinese National Higher Education Entrance Examination.
- **Shuping Scholarship**, Shuping Scholarship Foundation — 2009
  For top performing high school students nationwide.

SKILLS

C/C++, MATLAB, Python, OpenCV, Caffe, PyTorch, TensorFlow

PROFESSIONAL SERVICES

Reviewer for CVPR 2019, ACCV 2018, ECCV 2018, IJCAI 2018, CVPR 2018