Chen Liu

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RESEARCH INTERESTS

My research interests include 3D vision and scene understanding. I am particularly interested in geometry reasoning for indoor scenes.

EDUCATION

Washington University in St. Louis Sep 2014 – Present

Ph.D. candidate in Computer Science

- Advisor: Yasutaka Furukawa
- GPA: 3.95/4.0

University of Science and Technology of China Sep 2010 – Jun 2014

B.S. in Information Science

- GPA: 3.96/4.3
- Ranking: 3/131

PUBLICATIONS

Chen Liu, Jiajun Wu, Pushmeet Kohli, Yasutaka Furukawa, "Raster-to-Vector: Revisiting Floorplan Transformation" in International Conference on Computer Vision (ICCV) 2017.

Chen Liu, Jiajun Wu, Pushmeet Kohli, Yasutaka Furukawa, "Deep Multi-Modal Image Correspondence Learning" arXiv:1612.01225, 2016.

Chen Liu[*], Hang Yan[*], Pushmeet Kohli, Yasutaka Furukawa, "Multi-way Particle Swarm Fusion" arXiv:1612.01234, 2016. ([*] indicates equal contribution)

Chen Liu, Pushmeet Kohli, Yasutaka Furukawa, "Layered Scene Decomposition via the Occlusion-CRF" in Conference on Computer Vision and Pattern Recognition (CVPR) 2016 (**spotlight**).

RESEARCH EXPERIENCE

PlaneNet: Planar Geometry Reasoning May 2017 – Aug 2017

Computer Vision Research Intern *Adobe Research*

- Mentors: Jimei Yang, Duygu Ceylan, Ersin Yumer
- Perceive planar surfaces in a static image.
- Deploy CNN to estimate both plane parameters and masks.

Floorplan image analysis and reconstruction Mar 2016 – Present

Research Assistant WUSTL

- Study and benchmark the challenging problem of matching photographs of building interiors with their corresponding floorplans.
- Achieve state-of-the-art performance for converting raster floorplan images to vector-graphics representations.

Parallel CRF optimization Nov 2015 – Mar 2016

Research Assistant WUSTL

- Propose a novel MAP inference framework for Markov Random Field (MRF) in parallel computing environments.
- Prove that many existing inference techniques special cases of our framework.

Occlusion reasoning from RGBD images Sep 2014 – Nov 2015

Research Assistant WUSTL

- Address the challenging problem of perceiving the hidden or occluded geometry of indoor scenes by decomposing a scene into layers.
- Propose a novel ”Occlusion-CRF” model to infer the layer decomposition.

Automatic popup craft design Sep 2013 – Nov 2013

Visiting Scholar NTHU

- Generate paper popup craft designs from 2D images automatically.
- Optimize the design via solving a Mixed Integer Programming problem.

Virtual Garment Try-on System Mar 2013 – May 2014

Undergraduate Research Assistant USTC

- Explore human pose estimation for the purpose of changing garment virtually.

SKILLS

Proficient: C/C++, Python, Lua, Torch7, TensorFlow, OpenCV
Experienced: Matlab, Java, Hadoop

REFERENCES

Yasutaka Furukawa

Assistant Professor at Simon Fraser University

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Pushmeet Kohli

Research Scientist at DeepMind

pushmeet@google.com

Jimei Yang

Research Scientist at Adobe Research

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