

# Guilin Liu

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📄 <http://liuguilin1225.github.io>

## Expertise

- Deep Learning, Computer Vision, Computer Graphics & Geometry, Robotics.

## Experience

- Aug 2017 – **Research Scientist**, *Applied Deep Learning Research, NVIDIA*, Santa Clara, CA.  
Now working on deep learning, computer vision, computer graphics
- May 2016 – **Research Intern**, *Adobe Research*, San Jose, CA.  
Aug 2016 working on material editing using deep learning
- Mentors: *Duygu Ceylan, Ersin Yumer, Jimei Yang*
- May 2015 – **Research Intern**, *Toyota Technological Institute at Chicago*, Chicago, IL.  
Aug 2015 working on symmetry&depth estimation, unsupervised learning, deep learning
- Mentor: *Qixing Huang (Assistant Professor at UT Austin)*

## Education

- 2012–2017 **Ph.D. in Computer Science**, *George Mason University*.
- Thesis: *Learn to Synthesize Appearance, Shape and Motion from Synthetic Data*
  - Thesis Committee: *Jyh-Ming Lien, Jana Kosecka, Yotam Gingold, Qi Wei*
- 2008–2012 **B.E.**, *Wuhan University*, Wuhan, China.
- Major: *Spatial Informatics & Digitalized Technology (Software Engineering and Geographic Information System)*
  - Minor: *Finance*
  - Thesis: *Registration of 3D Point Clouds*

## Research Recognition

- 2018 **Research on Image Inpainting**, *Image Inpainting for Irregular Holes Using Partial Convolution*.
- **GTC Keynote Talk**: showed the live demo during NVIDIA CEO Jensen Huang's keynote talk at GTC Taiwan 2018.
  - **Video**: the Youtube video of this work has been viewed over 950,000 times.
  - **Media Coverage**: this project was featured in many presses including Fortune, Forbes, Fast Company, Engadget, SlashGear, Digital Trends, TNW, eTeknix, Game Debate, Alphr, Gizbot, Fossbytes Techradar, Beeborn, Bit-tech, Hexus, HotHardWare, BleepingComputer, hardocp, boingboing, PetaPixel, Sohu, Tencent, Sina etc.

## Publication

1. **Guilin Liu**, Fitsum A. Reda, Kevin J. Shih, Ting-Chun Wang, Andrew Tao, Bryan Catanzaro, *Image Inpainting for Irregular Holes Using Partial Convolutions*, European Conference on Computer Vision (ECCV). Munich, Germany. Sep. 2018. [PDF](#) [Video Project](#).
2. Fitsum A. Reda, **Guilin Liu**, Kevin J. Shih, Robert Kirby, Jon Barker, David Tarjan, Andrew Tao, Bryan Catanzaro, *Video Frame Prediction Using Spatially-Displaced Convolution*, European Conference on Computer Vision (ECCV). Munich, Germany. Sep. 2018.
3. Ting-Chun Wang, Ming-Yu Liu, Jun-Yan Zhu, **Guilin Liu**, Andrew Tao, Jan Kautz, Bryan Catanzaro, *Video-to-Video Synthesis*, Under review for NIPS 2018.
4. **Guilin Liu**, Duygu Ceylan, Ersin Yumer, Jimei Yang, Jyh-Ming Lien, *Material Editing using a Physically Based Rendering Network*, International Conference on Computer Vision (ICCV). Venice, Italy, Oct. 2017. (Spotlight Presentation), [PDF\(Paper\)](#). [Suppl.](#)
5. **Guilin Liu**, Chao Yang, Zimo Li, Duygu Ceylan, Qixing Huang, *Symmetry aware Depth Estimation using Deep Neural Networks*, <http://arxiv.org/abs/1604.06079>. [PDF](#).
6. **Guilin Liu**, Zhonghua Xi, Jyh-Ming Lien, *Nearly Convex Segmentation of Polyhedra Through Convex Ridge Separation*, Journal of Computer-Aided Design, also appears in proceedings of Symposium of Solid & Physical Modeling (SPM). 2016. [PDF demo](#).
7. **Guilin Liu**, Yotam Gingold, Jyh-Ming Lien, *Continuous Visibility Feature*, 28th IEEE Conference on Computer Vision and Pattern Recognition (CVPR). Boston, MA: IEEE, June 2015. [PDF](#).
8. **Guilin Liu**, Jyh-Ming Lien, *Fast Medial Axis Approximation via Max-Margin Pushing*, IEEE/RSJ International Conference on Intelligent Robot and System (IROS). Hamburg, Germany, Sept. 2015. [PDF](#).
9. **Guilin Liu**, Zhonghua Xi, Jyh-Ming Lien, *Dual-Space Decomposition of 2D Complex Shapes*, 27th IEEE Conference on Computer Vision and Pattern Recognition (CVPR). Columbus, OH: IEEE, June 2014. [PDF](#).

## Selected Awards

- 2014 **Third Prize**, *Machine Learning Summer School Competition, Carnegie Mellon University*.
  - Multi-labeling problem in high-dimensional data
- 2013 **Third Prize**, *iCOME Contest, Human Segmentation & Recognition, Baidu*.
  - It was a competition held by Baidu Inc. We are in the third place in Human Segmentation & Recognition track with RMB 10,000 award.
- 2012 **Dean Fellowship**, *Volgenau School of Engineering, George Mason University*.
  - An award for new admitted Ph.D. student (3 recipients in total)
- 2012 **Outstanding Graduate**, *Wuhan University*.
  - An honor given to some undergraduates who received Bachelor's degrees.

- 2011 **Tencent Scholarship**, *Tencent Inc.*
  - Scholarship from Tencent Inc. (1 recipient out of 63)
- 2010 **Rising Star of GIS**, *College GIS Forum in China.*
  - One of ten recipients
- 2010 **Award of Excellence**, *"Jiangsu Software Cup" National Undergraduate Software Designing Contest .*
  - It was a national software desining competition. We ranked 7th out of 400 teams with RMB 3,000 award.

## Patent

1. Advanced Image Formation Process as a Network Layer and Its Applications, Filed.
2. Two other patents with NVIDIA, Filed.

## Services

PC/(External) ICRA, AIM, GD/SPM, RSS, Pacific Graphics, IEEE RA-L, SIGGRAPH, IEEE PAMI,  
Reviewer RSS, AAAI.

## Teaching

Teaching Assistant	<b>Data Structure</b> , <i>George Mason University</i> ,	2012 Fall.
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## Skills

Language	C/C++, Java, Matlab, Lua, Python, Shell, R.
Software	OpenGL, OpenCV, Caffé, Torch, CUDA, Mitsuba, CGAL, PCL, PyTorch, Tensorflow.