# Jinwei Gu

Chinese University of Hong Kong          (+852) 3943 8418 (Office)
Ho Sin Hang Building, Room 1007         jwgu@cuhk.edu.hk
Shatin, N.T., Hong Kong           http://www.gujinwei.org

## EDUCATION:

| | | |
|---|---|---|
| 9/2005-5/2010 | **Columbia University** | Ph.D. in Computer Science (Honor: PhD with Distinction) |
| 9/2002-5/2005 | **Tsinghua University** | M.S. in Automation (Honor: Outstanding Master's Thesis Award) |
| 9/1998-5/2002 | **Tsinghua University** | B.S. in Automation |

## EMPLOYMENT:

| | | |
|---|---|---|
| 03/2023-Present | The Chinese University of Hong Kong (CUHK) | Associate Professor |
| 11/2018-03/2023 | SenseBrain | R&D Executive Director (San Jose Office) |
| 11/2015-11/2018 | NVIDIA Research | Senior Research Scientist (Learning and Perception Research) |
| 11/2013-10/2015 | Futurewei Technologies | Senior Researcher in Media Lab (New Jersey Office) |
| 9/2010-6/2013 | Rochester Institute of Technology (RIT) | Assistant Professor of the Chester F. Carlson Center for Imaging Science |
| 9/2005-5/2010 | Columbia University | Graduate Research Assistant of the CAVE Laboratory in Computer Science |
| 5/2008-8/2008 | Adobe Research | Research Intern in the CTL Lab |
| 2003-2004 | Microsoft Research Asia (MSRA) | Research Intern in the Visual Computing Lab |

## RESEARCH INTERESTS:

Computational Imaging; AI Sensor/Camera/ISP Chip; 3D Computer Vision; Computational Photography

# RESEARCH PRODUCT EXPERIENCE:

**SenseBrain 2018-present: Mobile Photography for Smart Phone**
Build and lead a R&D team of 〜20 people in Silicon Valley, focusing on complete product solution for photo/video quality enhancement, which is computational photography and computational imaging on mobile phones, including super-resolution, AI denoising, HDR video, soft camera ISP, portrait enhancement, RGBW, RGBCMY, super night, super resolution, under display camera, etc. (with close collaboration with Tetras.AI).  In 2020, we built the world's first AI-sensor (RGBW, IMX866) with Tetras.AI & SONY.

**NVIDIA 2017-2018: Co-Pilot SDK / Drive IX** (AI-based ADAS Platform)
Lead the team for technology development and transfer to build the Co-Pilot SDK (AI for in-car monitoring), including head pose estimation, gaze estimation and tracking, hand gesture recognition, and lip reading. Demo in NVIDIA Keynote for CES 2017, Jan 2017 https://techcrunch.com/2017/01/04/nvidia-builds-a-co-pilot-into-its-autonomous-drive-computer/  Our work on wide-baseline video stitching is also shipped into NVIDIA Drive IX SDK ( https://www.nvidia.com/en-us/self-driving-cars/drive-ix/ ).   I also led the team developing novel approaches for DNN-based inverse image rendering, video-based depth estimation, 3D plane estimation, polarization-based multiview stereo, etc.

**NVIDIA 2015-2017:  VirtualEye Project** (multi-camera tracking + free-view video)
Key member in this Nvidia+DARPA collaboration, June 2016 https://www.engadget.com/2016/06/24/darpas-virtual-eye-lets-soldiers-see-around-obstacles We built a multi-camera tracking system to create free-view video experiences for telecommunication and telepresence. The entire system includes: multi-camera Co-SLAM, 3D reconstruction of background and foreground subjects, novel view synthesis, and real-time streaming for image-based rendering. I am in charge of the multi-camera Co-SLAM tracking and the system design, and I also ported the Co-SLAM system on NVIDIA Jetson TX2 for mobile devices, with lower power consumption.

**Futurewei 2014-2015: V-Sports Project** (multi-camera virtual reality system)
Team lead for prototyping a complete virtual reality system built with multiple cameras. The system includes: multi-camera 3D scene capture and post-processing (i.e., 3D alignment, background subtraction, etc.), multi-camera video stitching, real-time streaming, and augmented reality on mobile devices (Android).

**RIT 2012-2013: Discriminative Illumination for Recycling** (material classification)
Principal investigator for building a novel active lighting and imaging system for recycling scrap materials (e.g., aluminum, copper, plastics). I led the team to build a LED-based multispectral dome (controlled with Arduino boards) as a prototype product and test with real samples from the institute of sustainability for scrap material recycling.

# HONORS:

CVPR 2019 Best Paper Final List
CVPR 2018 Outstanding Reviewer
Ph.D. Degree with Distinction, Columbia University, 2010.
Ph.D. Service Award, Columbia University, 2009.
Principal Scholarship Award, Tsinghua University, 2005.
Outstanding M.S. Thesis Award, Tsinghua University, 2005.

## PUBLICATIONS[1]*:

### Refereed journal articles:

J18. Kevin Chan, Xiangyu Xu, Xintao Wang, **Jinwei Gu**, and Chen Change Loy. "GLEAN: Generative Latent Bank for Image Super-Resolution and Beyond", *IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI)*, 45(3), 2023.

J17. Josh Rego, Huaijin Chen, Shuai Li, **Jinwei Gu**, and Suren Jayasuriya. "Deep Camera Obscura: An Image Restoration Pipeline for Pinhole Photography", *Optics Express* 30 (15), 27214-27235, 2022.

J16. Shiyu Duan, Huaijin Chen, **Jinwei Gu**. "JPD-SE: High-level Semantics for Joint Perception-Distortion Enhancement in Image Compression.", *IEEE Transactions on Image Processing, vol. 31, 2022*.

J15. Chongyi Li, Chunle Guo, Linghao Han, Jun Jiang, Ming-Ming Chen, **Jinwei Gu**, and Chen Change Loy. "Low-light Image and Video Enhancement Using Deep Learning: A Survey", *IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI)* 2021 .

J14. Felipe Gutierrez-Barragan, Huaijin Chen, Mohit Gupta, Andreas Velten, and **Jinwei Gu**. "iToF2dToF: A Robust and Flexible Representation for Data-Driven Time-of-Flgith Imaging". *IEEE Transactions on Computational Imaging*. 2021 (to appear).

J13. Chao Liu* and **Jinwei Gu**. "Discriminative Illumination: Per-Pixel Classification of Raw Materials based on Optimal Projections of Spectral BRDF", *IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI), 36(1), pp.86-98, 2014.*

J12. Dengyu Liu*, **Jinwei Gu**, Yasunobu Hitomi, Mohit Gupta, Tomoo Mitsunaga, and

---

[1] In computer vision, one of the leading journals is the IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI), Leading conferences are IEEE CVPR, ICCV and ECCV. Papers in these conferences are rigorously reviewed, with acceptance rates around 20%, and below 5% for oral presentations. In computer graphics, the SIGGRAPH conferences (SIGGRAPH & SIGGRAPH Asia) are the leading venue for publishing research in computer graphics, with acceptance rates ranging from 15%-20%. Since 2002, the proceedings have also been published as a special issue of the ACM Transactions on Graphics (TOG), the leading journal in graphics. The EuroGraphics Symposium on Rendering (EGSR) is the leading venue for rendering research (second only to the SIGGRAPH conference), and has a competitive acceptance rate of 25-35%. In computational photography, the leading conference is IEEE ICCP, with the acceptance rates around 20%.
* Co-authors are my advisee (graduate students, interns or visiting scholars).

Shree Nayar. "Efficient Space-Time Sampling with Pixel-wise Coded Exposure for High Speed Imaging", *IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI), 36(2), pp.248-260, 2014.*

J11. **Jinwei Gu**, Shree Nayar, Eitan Grinspun, Peter Belhumeur, and Ravi Ramamoorthi. "Compressive Structured Light for Recovering Inhomogeneous Participating Media," *IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI), 35(3), pp.555-567,* 2013

J10. **Jinwei Gu**, Ravi Ramamoorthi, Peter Belhumeur and Shree Nayar. "Removing Image Artifacts Due to Dirty Camera Lenses and Thin Occluders." *ACM Transactions on Graphics (Proceedings of SIGGRAPH Asia),* Dec. 2009.

J9. Wojciech Matusik, Boris Ajdin, **Jinwei Gu**, Jason Lawrence, Hendrik P.A. Lensch, Fabio Pellacini, and Szymon Rusinkiewicz. "Printing Spatially-Varying Reflectance". *ACM Transactions on Graphics (Proceedings of SIGGRAPH Asia),* Dec. 2009.

J8. Jie Zhou, Fanglin Chen, and **Jinwei Gu**. "A Novel Algorithm for Detecting Singular Points from Fingerprint Images". *IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI),* vol.31, no. 7, 2009.

J7. **Jinwei Gu**, Chien-I Tu, Ravi Ramamoorthi, Peter Belhumeur, Wojciech Matusik, and Shree Nayar. "Time-Varying Surface Appearance: Acquisition, Modeling, and Rendering". *ACM Transactions on Graphics (Proceedings of SIGGRAPH),* vol. 25, no. 3, June 2006, pp 762-771.

J6. **Jinwei Gu**, Jie Zhou, and Chunyu Yang. "Fingerprint Recognition by Combining Global Structure and Local Cues". *IEEE Transactions on Image Processing*, vol. 15, no. 7, 2006, pp 1952-1964.

J5. Wei Jiang, Guihua Er, Qionghai Dai, and **Jinwei Gu**. "Similarity-based Online Feature Selection in Content-based Image Retrieval". *IEEE Transactions on Image Processing*, vol. 15, no. 3, 2006, pp 702-712.

J4. Wei Jiang, Guihua Er, Qionghai Dai, and **Jinwei Gu**. "Hidden Annotation for Image Retrieval with Long-term Relevance Feedback Learning". *Pattern Recognition*, vol.38, no.11, 2005, pp. 2007-2021.

J3. **Jinwei Gu**, Jie Zhou, and David Zhang. "A Combination Model for Orientation Field of Fingerprints". *Pattern Recognition*, vol. 37, no.3, 2004, pp. 543-553.

J2. Jie Zhou and **Jinwei Gu**, "A Model-based Method for the Computation of Fingerprints' Orientation Field". *IEEE Transactions on Image Processing,* vol. 13, no. 6, 2004, pp 821-835.

J1. Jie Zhou and **Jinwei Gu**, "Modeling Orientation Fields of Fingerprints with Rational

Complex Functions". *Pattern Recognition,* vol. 37, no. 2, 2004, pp 389-391.

**Refereed conference proceedings:**

C42. Zhaoyang Zhang, Yitong Jiang, Wenqi Shao, Xiaogang Wang, Ping Luo, Kaimo Lin, **Jinwei Gu**. "Real-time Controllable Denoising for Image and Video", CVPR 2023.

C41. Ruicheng Feng, Chongyi Li, Huaijin Chen, Shuai Li, **Jinwei Gu**, Chen Change Loy. "Generating Aligned Pseudo-Supervision from Non-Aligned Data for Image Restoration in Under-Display Camera", CVPR 2023.

C40. Man Zhou, Yu Hu, Jie Huang, Feng Zhao, **Jinwei Gu**, Chen Change Loy, Deyu Meng, Chongyi Li. "Deep Fourier Up-Sampling", *NeurISP* 2022.

C39. Zhaoyang Zhang, Yitong Jiang, Jun Jiang, Xiaogang Wang, Ping Luo and Jinwei Gu. "STAR: Structure-Aware Lightweight Transformer for Real-time Image Enhancement". ICCV 2021.

C38. Ke Yu, Zexian Li, Yue Peng, Chen Change Loy, and Jinwei Gu. "ReconfigISP: Reconfigurable Camera Image Processing Pipeline". ICCV 2021.

C37. Zhaoyang Zhang, Wenqi Shao, Jinwei Gu, Xiaogang Wang, and Ping Luo. "Dynamic Quantization with Mixed Precision and Adaptive Resolution". ICML 2021.

C36. Ruicheng Feng, Chongyi Li, Huaijin Chen, Shuai Li, Chen Change Loy, and Jinwei Gu. "Removing Diffraction Image Artifacts in Under-Display Camera via Dynamic Skip Connection Network." *CVPR 2021*

C35. Kelvin Chan, Xintao Wang, Xiangyu Xu, Jinwei Gu, and Chen Change Loy. "GLEAN: Generative Latent Bank for Large-Factor Image Super-Resolution." *CVPR 2021 (Oral)*

C34. Matthias Innman, Kihwan Kim, **Jinwei Gu**, Matthias Niesner, Charles Loop, Marc Stamminger, and Jan Kautz. *"NRMVS: Non-Rigid Multi-View Stereo",* IEEE WACV 2020.

C33. Yan Chen, Jimmy Ren, Xuanye Cheng, Keyuan Qian, and **Jinwei Gu**. "*Very Power Efficient Neural Time-of-Flight*", IEEE WACV 2020.

C32. Wei-Sheng Lai, Orazio Gallo, **Jinwei Gu**, Deqing Sun, Ming-hsuan Yang, and Jan Kautz. "Video Stitching for Linear Camera Arrays", *BMVC 2019*.

C31. Soumyadip Sengupta, **Jinwei Gu**, Kihwan Kim, Guilin Liu, David Jacob, and Jan Kautz. *"Neural Inverse Rendering of an Indoor Scene from a Single Image"*, ICCV 2019.

C30. Chao Liu, **Jinwei Gu**, Kihwan Kim, Srinivas Narasimhan, and Jan Kautz. *"Neural RGB->D Sensing: Depth and Uncertainty from a Video Camera"*, CVPR 2019 (Oral) [**Best Paper Finalist**]

C29. Chen Liu, Kihwan Kim, **Jinwei Gu**, Yasutaka Funakawa, and Jan Kautz. *"PlaneRCNN: 3D Plane Detection and Reconstruction from a Single Image"*, CVPR 2019 (Oral)

C28. Donghoon Lee, Sifei Liu, **Jinwei Gu**, Mingyu Liu, Minghsuan Yang, Jan Kautz. *"Context-aware Synthesis and Placement of Object Instances"*. NIPS 2018.

C27. Sifei Liu, Guangyu Zhong, Shalini Gupta, **Jinwei Gu,** Varun Jampani, Ming-Hsuan Yang, and Jan Kautz. *"Switchable Temporal Propagation Network"*.  ECCV 2018.

C26. Samarth Brahmbhatt*, **Jinwei Gu**, Kihwan Kim, James Hayes, and Jan Kautz. *"MapNet: Geometry-Aware Learning of Maps for Camera Localization"*. CVPR 2018 (Spotlight).

C25. Huaijin Chen*, **Jinwei Gu**, Orazio Gallo, Ming-Yu Liu, Ashok Veeraraghavan, and Jan Kautz. *"Reblur2Deblur: Video Deblurring via Self-Supervised Learning"*. ICCP 2018.

C24. Patrick Wieschollek*, Orazio Gallo, **Jinwei Gu**, and Jan Kautz. *"Separating Reflection and Transmission Images in the Wild"*. ECCV 2018.

C23. Sifei Liu*, Shalini Gupta, **Jinwei Gu**, Ming-Hsuan Yang, Jan Kautz. *"Learning Affinity via Spatial Propagation Networks." NIPS, 2017*.

C22. Kihwan Kim, **Jinwei Gu**, Stephen Tyree, Pavlo Molchanov, Matthias Niebster, and Jan Kautz*. "A Lightweight Approach for Reflectance Estimation on-the-fly". ICCV 2017 (Oral)*

C21. Suren Jayasuriya*, Orazio Gallo, **Jinwei Gu**, Timo Aila, and Jan Kautz. *"Reconstructing Intensity Images from Binary Spatial Gradient Cameras", CVPR 2017 Embedded Vision Workshop (Oral)*

C20. Zhaopeng Cui*, **Jinwei Gu**, Boxin Shi, Ping Tan, and Jan Kautz*. "Polarimetric Multi-View Stereo". CVPR 2017*

C19. **Jinwei Gu**, Xiaodong Yang, Shalini Gupta and Jan Kautz. *"Dynamic Facial Analysis: From Bayesian Filtering to Recurrent Neural Networks". CVPR 2017*

C18. Suren Jayasuriya*, Orazio Gallo, **Jinwei Gu**, and Jan Kautz. *"Deep Learning with Energy-efficient Binary Gradient Cameras", arXiv preprint: 1612.00986.*

C17. Wei Jiang and **Jinwei Gu**. " Video Stitching with Spatial-Temporal Content-Preserving Warping". *IEEE Conference on Computer Vision and Pattern Recognition (CVPR), Computational Cameras and Displays Workshop,* 2015. [citation: 10]

C16. Chao Liu*, Gefei Yang*, and **Jinwei Gu**. "Learning Discriminative Illumination and Filters for Raw Material Classification with Optimal Projections of Bidirectional Texture Functions". *IEEE Conference on Computer Vision and Pattern Recognition (CVPR),* 2013.

C15. Jun Jiang*, Dengyu Liu*, **Jinwei Gu** and Sabine Susstrunk. "What is the Space of Spectral Sensitivity Functions for Digital Color Cameras?" *IEEE Workshop on the Applications of Computer Vision (WACV)*, 2013.

C14. Jun Jiang* and **Jinwei Gu**. "An Exemplar-Based Method for Automatic Visual Editing and Retouching of Fine Art Reproduction" *Color and Imaging Conference (CIC),* 2013.

C13. **Jinwei Gu** and Chao Liu*. "Discriminative Illumination: Per-Pixel Classification of Raw Materials based on Optimal Projections of Spectral BRDFs". *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2012 [**Oral**]

C12. Jun Jiang* and **Jinwei Gu**. "Recovering Spectral Reflectance under Commonly Available Lighting Conditions*". IEEE Conference on Computer Vision and Pattern Recognition (CVPR) Computational Camera and Display Workshop*, 2012. [**Oral**]

C11. Adria Fores*, James Ferwerda, and **Jinwei Gu**. "Toward a Perceptually Based Metric for BRDF Modeling", *Proceedings IS&T/SID 20th Color Imaging Conference, November*, 2012.

C10. **Jinwei Gu,** Toshihiro Kobayashi*, Mohit Gupta, and Shree Nayar. "Multiplexed Illumination for Scene Recovery in the Presence of Global Illumination". *IEEE International Conference on Computer Vision (ICCV)*, 2011 [**Oral**]

C9. Yasunobu Hitomi*, **Jinwei Gu**, Mohit Gupta, Tomoo Mitsunaga, and Shree Nayar. "Video From a Single Exposure Coded Photograph using a Learned Over-Complete Dictionary". *IEEE International Conference on Computer Vision (ICCV)*, 2011.

C8. **Jinwei Gu**, Yasunobu Hitomi, Tomoo Mitsunaga, and Shree Nayar. "Coded Rolling Shutter Photography: Flexible Space-Time Sampling". *IEEE International Conference on Computational Photography (ICCP),* Mar. 2010. [**Oral**]

C7. **Jinwei Gu**, Shree Nayar, Eitan Grinspun, Peter Belhumeur, and Ravi Ramamoorthi. "Compressive Structured Light for Recovering Inhomogeneous Participating Media". *European Conference on Computer Vision (ECCV),* Oct. 2008, pp 845-858. [**Oral**]

C6. **Jinwei Gu**, Ravi Ramamoorthi, Peter Belhumuer, and Shree Nayar. "Dirty Glass: Modeling and Rendering Contaminations on Transparent Surfaces". *Eurographics Symposium on Rendering (EGSR),* June 2007. [**Oral**]

C5. Jie Zhou, **Jinwei Gu,** and David Zhang, "Singular Points Analysis in Fingerprints Based on Topological Structure and Orientation Field". *International Conference of Biometrics (ICB),* August 2007, pp 261-270.

C4. Stephen Lin, **Jinwei Gu**, Shuntaro Yamazaki, and Heung-Yeung Shum. "Radiometric Calibration from a Single Image". *IEEE Computer Society Conference on Computer Vision and Pattern Recognition (CVPR),* June 2004, vol. 2, pp 938-945. [**Oral**]

C3. Wei Jiang, Mingjing Li, Hongjiang Zhang, and **Jinwei Gu**. "Online Feature Selection based on Generalized Feature Contrast Model". *IEEE International Conference on Multimedia and Expo (ICME), 2004*.

C2. **Jinwei Gu** and Jie Zhou. "Model-based Orientation Field Estimation for Fingerprint Recognition". *IEEE International Conference on Image Processing (ICIP)*, 2003.

C1. **Jinwei Gu** and Jie Zhou, "A Novel Model for Orientation Field of Fingerprints". *IEEE Computer Society Conference on Computer Vision and Pattern Recognition (CVPR),* June 2003, vol 2, pp 493-498.

## Preprints and Arxiv:

A3. Josh Rego, Huaijin Chen, Shuai Li, **Jinwei Gu**, Suren Jayasuriya. "Deep Camera Obscura: An Image Restoration Pipeline for Lensless Pinhole Photography". Arxiv 2021.

A2. Yitong Jiang, Inchang Choi, Jun Jiang, and **Jinwei Gu**. "HDR Video Reconstruction with Tri-Exposure Quad-Bayer Sensors". ArXiv. 2021.

A1. Shiyu Duan, Huaijin Chen, and **Jinwei Gu**. "JPAD-SE: High-level Semantics for Joint Perception-Accuracy-Distortion Enhancement in Image Compression". Arxiv. 2020

**Book Chapters, monographs and tutorials:**

Jie Zhou, David Zhang, **Jinwei Gu**, and Nannan Wu.  "Graphical Representation of Fingerprint Images". Integrated Image and Graphics Technologies, Kluwer academic publisher, Boston, 2004.

**Theses**

"Measuring, Modeling, and Synthesis of Time-Varying Appearance of Natural Phenomena", Columbia University, May 2010. (PhD Thesis)

"Fingerprint Orientation Field Modeling and Its Applications", Tsinghua University, May 2005. (MS Thesis)

**Popular press:**

**Dynamic Facial Analysis with RNNs**,  GTC 2017 (GPU Technology Conference) Invited Talk

**Polarimetric Multiview Stereo.** ICCP 2018 Poster Presentation.

**Space-Time Appearance Factorization**, Computer Graphics World, Aug 2006.

# PATENTS:

**Patent Granted:**

P18. Kihwan Kim, **Jinwei Gu**, Chen Liu, and Jan Kautz. 3D Plane Detection and Reconstruction Using a Monocular Image. US Patent 11037051B2.

P17. **Jinwei Gu**, Kihwan Kim, and Chao Liu. Estimating Depth for a Video Stream Captured with a Monocular RGB Camera. US Patent 10984545.

P16. SH Baek, Kihwan Kim, **Jinwei Gu**, Orazio Gallo, AJ Troccoli, MY Liu,  Jan Kautz. Guided Hallucination for Missing Image Content Using a Neural Network. US Patent 10922793B2

P15. Orazio Gallo, **Jinwei Gu**, Jan Kautz and Patrick Wieschollek. Deep-learning method for separating reflection and transmission images visible at a semi-reflective surface in a computer image of a real-world scene. US Patent 10762620. 2020/09/01

P14. Sifei Liu, Shalini De Mello, **Jinwei Gu**, Ming-Hsuan Yang, Jan Kautz.  Learning Affinity via a Spatial Propagation Neural Network. US Patent 10762425.

P13. **Jinwei Gu**, Orazio Gallo, Ming-Yu Liu, Jan Kautz, Huaijin Chen. Unsupervised

Learning Approach for Video Deblurring. US Patent 10593020.

P12. **Jinwei Gu**, Samarth Manoj Brahambhatt, Kihwan Kim, and Jan Kautz. Learning based Camera Pose Estimation from Images of an Environment. US Patent 10692244

P11. **Jinwei Gu**, Xiaodong Yang, Shalini De Mello, Jan Kautz. Systems and methods for dynamic facial analysis using a recurrent neural network. US Patent 10373332.

P10. Yasunobu Hitomi, **Jinwei Gu**, Mohit Gupta, Tomoo Mitsunaga, Shree K. Nayar. Systems, methods, and media for reconstructing a space-time volume from a coded image. US Patent 20180234672A1

P9. **Jinwei Gu** and James Begole. System and Method for Generalized View Morphing over a Multi-camera Mesh. US Patent 9900583.

P8. Wei Jiang and **Jinwei Gu**. Markerless Multi-User, Multi-Object Augmented Reality on Mobile Devices. US Patent 9928656. 2018/3/27

P7. **Jinwei Gu**, Bennett, Wilburn, Wei Jiang. Methods and systems for light field augmented reality/virtual reality on mobile devices. US Patent 10388069.

P6. **Jinwei Gu**, Yasunobu Hitomi, Tomoo Mitsunaga, Shree K. Nayar. Methods and systems for coded rolling shutter. US Patent 9100514. 2015/8/4

P5. Wei Jiang and **Jinwei Gu**. Computational multi-camera adjustment for smooth view switching and zooming. US Patent 9286680. 2016/3/15

P4. Wei Jiang and **Jinwei Gu**. Parallax tolerant video stitching with spatial-temporal localized warping and seam finding. US Patent 9363449. 2016/6/7

P3. Wojciech Matusik and **Jinwei Gu**. Using Reflectance Properties. US Patent 9436059. 2016/9/6

P2. Stephen S. Lin, Baining Guo, Heung-Yeung Shum, **Jinwei Gu**. Radiometric calibration from a single image. US Patent 7986830. 2011/7/26

P1. Jie Zhou, **Jinwei Gu** and Dingrui Wan. Fingerprint Recognition based on Multiple Features. Chinese Patent CN1595425A 2005/3/16

## Patent Application:

A4. Deqing Sun, Orazio Gallo, Jan Kautz, **Jinwei Gu**, Wei-Sheng Lai. View Synthesis using Neural Networks. US Patent Application. 16299062. 2020/09/17

A3. Donghoon Lee, Sifei Liu, **Jinwei Gu**, MY Liu, and Jan Kautz. Joint Synthesis and Placement of Objects in Scenes. US Patent Application 16201934.

A2. Sifei Liu, Shalini De Mello, **Jinwei Gu**, Varun Jampani, and Jan Kautz. Switchable Propagation Neural Network. US Patent Application 16353835

A1. **Jinwei Gu**, Kihwan Kim, Jan Kautz, Guilin Liu, and S Sengupta. Inverse Rendering of a Scene from a Single Image. US Patent Application 16685538.

## FUNDING:

Principal Investigator, NSF CISE EAGER (2012-2014). "Smart Space-Time Sampling for Recovering and Recognizing Dynamic Scenes", $91,512.

Principal Investigator, NYSP2I (2012-2013). "Computational Imaging-based Sorting Technologies for Recycling", $49,992.

Principal Investigator, Xerox University Affair Committee Gift Fund (2011). "High-Speed Imaging and Event Detection with a Pixel-wise Coded Exposure Camera", $90,000.

Principal Investigator, RIT Strategic Acceleration of Research for Tenure Track Faculty (START) awards (2012) "Capturing Time-Varying Appearance of Food for Material Perception", $10,000.

Principal Investigator, RIT CIS Micro-grant (2013). Pilot Study on "Seeing the World through a Compound Eye", $6,895.

Co-Investigator, HP Research Grant (2013) "High-Fidelity Softproofing of Surface Appearance", $75,000 (James Ferwerda, PI.)

Co-Investigator, RIT COS Dean's Research Initiation Grant (2013), "3D Computer Vision System for Synthesizing American Sign Language in Avatars", $48,395 (Nathan Cahill, PI.)

Principal Investigator, RIT Office of the Vice President for Research (2011) "Material Categorization with Discriminative Lighting", $5,000.

Co-Investigator, Intel Research Grant (2011) "Color Image Super-resolution", $140,000 (Mark Fairchild, PI.)

## STUDENT COLLABORATORS AND ADVISEES:

**PhD Students:**
Zhaoyang Zhang, CUHK (Intern 2019)
Felipe Gutierrez, Univ. Wisconsin (Summer Intern 2019)
Soumyadip Sengupta, Univ. Maryland (Summer Intern 2018)
Chao Liu, CMU (Summer Intern 2018)

Chen Liu, Univ. Washington at St. Louis (Summer Intern 2018)
Huaijin Chen, RICE (Summer Intern 2018)
Samarth Brahmbhatt, Computer Science, Georgia Tech (Summer Intern 2017)
Patrick Wieschollek, Computer Science, MPI (Summer Intern 2017)
Sifei Liu, Computer Science, UC Mercedes (Summer Intern 2017)
Zhaopeng Cui, Computer Science, Simon Fraser (Summer Intern 2016)
Suren Jayasuriya, Computer Science, Cornell Univ. (Summer Intern 2016)
Jian Wang, Computer Science, CMU (Summer Intern 2014)
Dengyu Liu, Imaging Science, RIT (Aug. 2011 - 2013, now Intel)
Chao Liu, Imaging Science, RIT (Sept., 2011 - 2013, now CMU)
Jun Jiang, Color Science, RIT (graduated, May 2013, now Apple)

# PROFESSIONAL SERVICE:

**IEEE Senior Member (2018-present)**

**Panelist:** NSF Robust Intelligence (RI) Program, 2013, 2018.
NSF CGV Program, 2014.

**Organizer:** CVPR 2021 Area Chair, ECCV 2020 Area Chair, ICCV 2019 Area Chair, ACCV 2012 Workshop on Computational Photography and Low-level Vision. ICCP2020 Industry Chair

**Program Committee**: CVPR 2013, 2014 Workshop on Computational Camera and Displays, EGSR 2011, IEEE Pro-Cams Workshop 2010, 2011, 2012, SIGGRAPH Asia 2012 Technical Briefs, ICCP 2015, ICCV 2017 PBDL, Associate Editor of the Journal of Electronic Imaging (2015-2017), Associate Editor of the IEEE Transactions on Computational Imaging (2018-present).

**Peer Reviewer**: ACM Transactions on Graphics, IEEE Transactions on Image Processing, IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), International Journal of Computer Vision (IJCV), Journal of the Optical Society of America A (JOSAA), Computer Vision and Image Understanding; SIGGRAPH 2007; SIGGRAPH Asia 2009, 2010; ICCV 2007, 2011, 2013, 2015, 2017; CVPR 2007, 2008, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018; Eurographics (EG) 2008, 2009; EGSR 2008, 2009; ICCP 2009, 2010, 2011, 2012. BMVC 2017.

# MISCELLANEOUS:

**Programming Skills:** C++/C (Proficient), Python (Proficient), and Android (Familiar)
**Language:** Fluent in English, native in Chinese.

# REFERENCES:

**Prof. Michael S. Brown**

York University
Email: mbrown@eecs.yorku.ca
Phone: 416-736-2100 (x66675)

**Prof. Srinivasa Narasimhan**
Carnegie Mellon University
Email: srinivas@cs.cmu.edu
Phone: 412-268-1199

**Dr. Jan Kautz**
VP of Learning and Perception Research @NVIDIA
Email: jkautz@nvidia.com
Phone: 781-354-4701

**Prof. Shree Nayar**
Columbia University
Email: nayar@cs.columbia.edu
Phone: 212-939-7004

**Prof. Peter Belhumeur**
Columbia University
Email: belhumeur@cs.columbia.edu
Phone: 212-939-7087

**Prof. Ravi Ramamoorthi**
University of California at San Diego
Email: ravir@cs.ucsd.edu
Phone: 858-822-1483

**Prof. Ko Nishino**
Drexel University
Email: kon@drexel.edu
Phone: 215-895-2678