

# Huixuan Tang

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**Objective**      2010 summer internship to do research in computational photography.

**Education**      PhD. student in Computer Science, University of Toronto.      2010 – present  
MSc. in Computer Science, University of Toronto.      2008 – 2010  
MSc. in Computer Science, Fudan University.      2005 – 2008  
BSc. in Computer Science, Fudan University, China.      2001 – 2005

**Internships**      Internet Graphics Group, Microsoft Research Asia.      2006 – 2007  
Motorola China Research Center.      2007 – 2008

## **Projects**

### **Light-Efficient Panoramas**

*University of Toronto, supervised by Kyros Kutulakos*

- Calibrate the point spread function of multiple camera lenses and observe real point spread function to have spatially-varying, non-uniform and anisotropic structure.
- Propose a lens model that has Seidel aberration and vignetting to explain this phenomenon.
- Argue and theoretically verify that this phenomenon can be taken advantage of for image restoration.
- Our results suggest that real lenses preserve frequencies well enough to allow panorama photography with a large aperture, resulting in significantly shorter exposure.

### **Single Image Defocus Removal**

*Microsoft Research Asia, supervised by Steve Lin*

- Propose that natural images have highly redundant texture, providing the possibility to use well-focused areas to facilitate recovery of significantly defocused areas.
- Devise a progressive approach exploiting both in-focus and deblurred areas to regularize the restoration of more defocused areas to maximize the use of the limited exemplars present in a single image.

### **Camera Shake Removal for Text Recognition**

*Motorola China Research Center*

- Proposed a two-color prior based method to recover motion-blurred text images.
- Implemented an experimental system for optical letter segmentation and recognition.
- Evaluated various deblurring algorithms based on OCR recognition rate and showed the proposed method outperform the others.

**Publications** Huixuan Tang: **Light-Efficient Panoramas**. *MSc. Report, University of Toronto*, 2010.

Yu-Wing Tai, Huixuan Tang, Michael S. Brown, Stephen Lin: **Detail Recovery for Single-Image Defocus Blur**. *IPSN Transactions on Computer Vision and Applications*, vol. 1, pp. 95–104, 2009.

**References** Kyros Kutulakos      University of Toronto  
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Steve Lin                      Microsoft Research Asia  
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