

# Libin Sun

115 Waterman Street  
Department of Computer Science  
Brown University  
Providence, RI 02912

Cell: 401-743-9373  
Email: [geofreesun@gmail.com](mailto:geofreesun@gmail.com)  
Web: [cs.brown.edu/~lbsun](http://cs.brown.edu/~lbsun)

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## EDUCATION

**PhD Candidate, Computer Science** 2010 - present  
Brown University, Providence, RI

- Advisor: James Hays
- Recipient of the Brown University PhD Student Fellowship

**Master of Science, Computer Science** Spring 2012  
Brown University, Providence, RI

- Advisor: James Hays
- GPA: 4.0

**Bachelor of Arts, Computer Science and Mathematics** 2010  
Swarthmore College, Swarthmore, PA

- Recipient of the Swarthmore Quigley Scholarship (highly selective)

**GCE A-Level** 2005  
Raffles Institution and Raffles Junior College, Singapore

- Recipient of the MOE (Ministry of Education) Scholarship
- Special Distinction in Mathematics and Physics

## RESEARCH EXPERIENCE

**Graduate Research Assistant** June 2010 - present  
Brown University, Providence, RI

- **Super-resolution** - [http://cs.brown.edu/~lbsun/SRproj2012/SR\\_iccp2012.html](http://cs.brown.edu/~lbsun/SRproj2012/SR_iccp2012.html)  
Showed that reliable scene matching can be done at extremely limited resolution via global low-level features given Internet-scale imagery. Investigated expressiveness and predictive power of internal *vs* external database, and showed favorable statistical properties of scene matches. Introduced a high quality test set from diverse scenes collected from [www.flickr.com](http://www.flickr.com). Extended state-of-the-art texture/detail transfer techniques to achieve improved detail synthesis for single-image super-resolution at large factors of magnification.
- **Deblurring** - <http://cs.brown.edu/~lbsun/deblur2013/deblur2013iccp.html>  
Investigated patch-based formulation for deblurring. Designed synthetic and learned natural patch priors for image primitives, favoring sharpness under various corruption

scenarios. State-of-the-art blur kernel estimation results are achieved using this patch prior and an iterative optimization with robust objective.

### **Adobe Research Intern**

May - Aug 2012

Adobe Creative Technology Labs, Seattle, WA

- Advisor: Jue Wang, Sunghyun Cho.
- Developed synthetic and learned patch priors specifically for blind deconvolution.
- Designed and implemented efficient iterative optimization procedures and achieved state-of-the-art results for blur kernel estimation.
- Filed patent application with Adobe Research team.

### **Undergraduate Research Assistant**

Feb - Jun 2010

Swarthmore College, Swarthmore, PA

- Implemented a highly scalable algorithm based on MPI and CUDA to solve large kNN problems.
- Presented poster at the Teragrid 2010 Conference, Pittsburgh, PA.
- Featured in International Science Grid This Week (iSGTW), Sep 2010.

### **Research Intern**

Jun - Aug 2009

Infosys Technologies Ltd, Bangalore, India

- Analyzed functional and non-functional requirements for grid performance modeling, compared existing approaches.
- Developed mathematical models using queuing theory and Monte Carlo methods to investigate grid scalability and performance prediction, such as response time distribution and utilization rates.

### **Undergraduate Research Assistant**

May - Jul 2008

Swarthmore College, Swarthmore, PA

- Investigated extinction dynamics among primary producers in the End-Permian terrestrial ecosystems using Markov Chain Monte Carlo and CEG trophic network model simulation.
- Presented poster at the Geological Society of America (GSA) 2008 Joint Meeting Program, Houston, TX.

## **TEACHING EXPERIENCE**

- *Introduction to Computer Vision*, (Brown University CS-143), Fall 2011, Fall 2013

## **ACADEMIC SERVICES**

External Reviewer for IJPRAI, Jun 2012; TPAMI (Special Issue), Sep 2012; TIP, May 2013

## PUBLICATIONS

- **Libin Sun**, Sunghyun Cho, Jue Wang and James Hays. Edge-based Blur Kernel Estimation Using Patch Priors. International Conference on Computational Photography (ICCP), 2013
- **Libin Sun**, James Hays. Super-resolution From Internet-scale Scene Matching. International Conference on Computational Photography (ICCP), 2012
- **Libin Sun**, Cyrus Stoller and Tia Newhall. Hybrid MPI and GPU Approach to Efficiently Solving Large kNN Problem. The 2010 TeraGrid Conference (poster), 2010

## PROGRAMMING

Matlab, C/C++, Java, Python,  $\text{\LaTeX}$ , familiar with Windows/Mac/Unix environment.