

Shubhabrata Sengupta

Department of Computer Science
2063 Kemper Hall, One Shields Avenue
University of California, Davis
Davis, CA 95616, USA

Phone: 530.220.0464
Fax: 530.752.8894
sengupts@cs.ucdavis.edu
<http://graphics.cs.ucdavis.edu/~shubho>

Objective

Employment for summer and possibly an ongoing relationship with a company that allows me to pursue my research interests in parallel algorithms and data structures on graphics hardware.

Education

Ph.D in Computer Science, Expected 2009
University of California, Davis, CA, USA
GPA: 4.00/4.00

M.Sc in Mathematics, June 1998
Indian Institute of Technology, Kharagpur, WB, India
GPA: 8.3/10.0

B.Sc in Mathematics, June 1996
Indian Institute of Technology, Kharagpur, WB, India
GPA: 8.18/10.0

Research

Department of Computer Science Davis, CA, USA
University of California Davis
Research Assistant 2005–2008
Currently working on developing general-purpose algorithms for upcoming graphics architectures. Current research interests are parallel prefix-sum and its variants and using them to develop fast parallel sort.
Developed new rendering techniques and parallel algorithms on graphics processors, that currently enable interactive film preview and will be feasible for games in coming years. This resulted in a robust algorithm to generate alias-free hard shadows for dynamic scenes at interactive rates.

Teaching

University of California Davis Davis, CA, USA
Teaching Assistant 2004–2005
ECS 15: Introduction to Computers. Dr. Nick Puketza.

Employment

NVIDIA Corporation

Intern

Santa Clara, CA, USA
Jun, 2007–Sep, 2007: Jan, 2008–

I am an intern in the Research group working with Michael Garland on data-parallel programming primitives. My work over summer involved developing a data-parallel algorithm to efficiently build a particular spatial hierarchy on graphics processors and developing a fast segmented scan algorithm. I am continuing to work on segmented scan, keeping in mind its application in sparse solvers.

Pixar Animation Studios

Summer Intern

Emeryville, CA, USA
Jun, 2006–Oct, 2006

I contributed to enhancing the shading quality of Pixar’s hardware rendering pipeline to closely match that of the offline rendering process in many cases. The technique involves compactly storing and accessing sparse volumetric data on graphics processors.

Sun Microsystems

Member of Technical Staff

Bangalore, India
2000–2004

Performed development work on SunONE Application Server.

HCL Technologies

Member of Technical Staff

Broomfield, CO, USA
Tokyo, Japan
1998–2000

Performed development work on REELS tape library management software at StorageTek. Involved in designing a large online betting system at NTT Japan.

Papers

S. Sengupta, M. Harris, Y. Zhang, J. D. Owens “Scan Primitives for GPU computing” Graphics Hardware 2007

A. E. Lefohn, S. Sengupta, J. D. Owens “Resolution Matched Shadow Maps” ACM Transactions on Graphics, 2007, to appear

S. Sengupta, A. E. Lefohn, J. D. Owens. “A Work-Efficient Step-Efficient Prefix Sum Algorithm” Proceedings of the 2006 Workshop on Edge Computing using New Commodity Architectures.

A. E. Lefohn, J. M. Kniss, R. Strzodka, S. Sengupta, J. D. Owens. “Glift: Generic Efficient, Random-Access GPU data structures.” ACM Transactions on Graphics, January 2006.

SIGGRAPH Sketches

A. E. Lefohn, S. Sengupta, J. M. Kniss, R. Strzodka and J. D. Owens. “Dynamic Adaptive Shadow Maps on Graphics Hardware”. Technical Sketches Program, ACM SIGGRAPH 2005, August 2005.

J. M. Kniss, A. E. Lefohn, R. Strzodka, S. Sengupta and J. D. Owens. “Octree Textures on Graphics Hardware”. Technical Sketches Program, ACM SIGGRAPH 2005, August 2005.

Book Chapters

M. Harris, S. Sengupta, J. D. Owens “Parallel Prefix Sum (Scan) with CUDA” GPU Gems 3, chapter 39, Addison Wesley

Technical Reports

J. D. Owens, S. Sengupta and D. Horn. “Assessment of Graphics Processing Units (GPUs) for Department of Defense (DoD) Digital Signal Processing (DSP) Applications”. Technical Report ECE-CE-2005-3, Computer Engineering Research Laboratory, University of California, Davis, 2005.

Patents

Two filed through NVIDIA Corporation. Details upon request.

Fellowships and Awards

- Best Paper Award, Graphics Hardware 2007.
- NVIDIA Fellowship, 2007-2008.
- Departmental fellowship, Department of Computer Science, University of California Davis, 2004–2005.
- Outstanding Achievement Award, Sun Microsystems, 2001.
- Outstanding Achievement Award, Sun Microsystems, 2002.

Computer Skills

- Languages: C, Cg, C++, Korn shell, sed, awk.
- Operating Systems: Almost all flavors of Unix.

Miscellaneous

- Indian citizen on F-1 status. Looking for summer internship as part of Curricular Practical Training (CPT).