Amrita Mazumdar

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Education

Expected Spring 2014 **B.S., Computer Engineering**, *Columbia University*, New York, NY.
Research Interests: Computer architecture, embedded system design, visual computing processors.
Minor: English & Comparative Literature.

Experience

Research

2013 **DREU Research Fellow**, Computer Engineering Department, Brown University.
Laboratory for Engineering Man/Machine Systems, R. Iris Bahar
Sub-threshold circuit design, electronic design automation. Developed an automated synthesis tool for generating noise-immune sub-threshold circuits using custom Schmitt trigger logic. Funded by a Distributed Research for Undergraduates grant from the Computing Research Association (CRA-W) and the Coalition to Diversity Computing (CDC). Presented at Brown Undergraduate Research Symposium.

2011-2012 **Research Assistant**, Computer Science Department, Columbia University.
Columbia Automated Vision Environment, Shree Nayar
Schlieren optics, SNR analysis. Designed and constructed a Schlieren optics system for visualizing transparent media. Gathered signal-noise ratio data for Point Grey and Lumenera camera sensors, to be used in performance analysis for computational imaging applications.

Industry

2012 **ASIC Design Intern**, *IBM Microelectronics*, Essex Junction, VT.
VLSI circuit design & analysis. Designed a third-generation array of ring oscillators for hardware disposition in future products. Process included design, implementation, layout, physical and logical checking, simulation, and validation of the circuit.

Teaching

2014 **Teaching Assistant**, *Embedded System Design*, Columbia University.
Teaching assistant for an FPGA design class taught with the Altera Cyclone V in System Verilog. Responsibilities included grading homework labs, mentoring student groups for semester-long independent FPGA projects, and holding weekly office hours.

2011 - 2013 **Seminar Instructor**, *Emerging Scholars Program in Computer Science*, Columbia University.
Led special seminars for top students in Columbia's introductory computer science course (COMS 1004). Sample topics include natural language processing, graph theory, speech recognition, encryption, and complexity theory.

2012 - 2013 **Laboratory Assistant**, *Columbia Science Honors Program*, Columbia University.
L Worked weekly with 30-60 high schools students on programming techniques. Topics include computer science fundamentals, algorithmic problem-solving, and introductory Java programming in UNIX.

2012 **Teaching Assistant**, *Object-Oriented Programming & Design*, Columbia University.
Held weekly office hours, graded problem sets and exams, and taught recitations for a group of 100-150 undergraduates. Topics include object-oriented design principles, basic GUI construction, networking, multithreading, and databases.

2010 **Volunteer Tutor**, *Math Mentors*, MS 324 Patria Mirabal School, New York, NY.
Taught review sessions and conducted one-on-one tutoring for 6th-8th grade algebra and trigonometry in preparation for the New York Regents exams.

Publications

A. Mazumdar. Principles and techniques of schlieren imaging systems. Technical Report CUCS-016-13, Department of Computer Science, Columbia University, New York, NY, July 2011.

Awards & Fellowships

2014 Google Anita Borg Memorial Scholarship

2013 CRA-W Distributed Research Experience for Undergraduates (DREU) Fellowship

2010 University of Rochester Frederick Douglass and Susan B. Anthony Award

Languages & Skills

Software Java, C, C++, Python, MATLAB, PHP/MySQL

Hardware VHDL, Verilog, SPICE

CAD Cadence, Autodesk Inventor & Maya, X-code/G-code for CNC milling

Publishing LaTeX, Adobe InDesign, Photoshop, Illustrator, Acrobat

Human English, Bengali, Hindi, French

Leadership & Activities

2013-2014 **Columbia Women in Computer Science**, *Vice President of Social Affairs*.

2011-2012 **Columbia Daily Spectator**, *Deputy Editor for Digital Infrastructure*.