Nivedita Chandrasekaran

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38 Elmwood Drive
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Education

Massachusetts Institute of Technology…….. Cambridge, MA
Candidate for M.Eng. in Electrical Engineering and Computer Science, June 2009 GPA: 5.0/5.0
S.B. in Electrical Engineering and Computer Science, June 2008 GPA: 4.9/5.0
Relevant coursework: Algorithms for Inference and Estimation, Digital Communications I, Information Theory, Discrete-Time Signal Processing, Solid State Circuits, Power Electronics, Software Engineering Laboratory, Digital Systems Laboratory
Candidate for S.B. in Physics, June 2009 GPA: 5.0/5.0
Relevant coursework: Electromagnetism, Vibrations and Waves, Relativity, Quantum Physics I-III

Work Authorization and Clearances

Department of Defense Secret Clearance, US Citizen

Honors

Robert C. Byrd Scholarship (2004-2008), National Merit Finalist and Scholarship Winner (2004-2005), Janet Grosser Memorial Scholar (2004), Society of Women Engineers Scholarship Winner (2004)

Experience

MIT Lincoln Laboratory, Lexington, MA June 2007 to present.
MIT VI-A Intern.

- **Thesis work:** Designing, prototyping, and implementing an algorithm that will dynamically adapt a photon-counting receiver array to atmospheric turbulence. This algorithmic block will improve the channel capacity and thus the overall data rate of a pre-existing photon-counting free space optical communications link. The first iteration of the algorithm has allowed the system to work in conditions with a signal to noise ratio ten times smaller than previously possible.
- Summer 2007: Researched the feasibility of incorporating voice-coil actuator technology into a miniature two or three axis gimbal that could mechanically implement a direct-drive laser pointing system. Proved the performance of the technology by using optical pickups from CD/DVD players to prototype a two axis gimbal that produced a milliradian beam spot that could be positioned with a resolution of centiradians.
- Summer 2007: Constructed and implemented a new design for a mechanical shutter to replace a similar component in an already existing system by writing interrupt routines for a TIMSP430 microcontroller and interfacing it to a three-phase stepper penny motor. New mechanical shutter system decreased the power consumption of original system by an order of magnitude, decreased the size of the system by two orders of magnitude, and thus facilitated future calibration experiments and demonstrations.

Adaptive Optics Associates, Cambridge, MA June 2006 to August 2006.
Software Engineering Intern.

- Prototyped, tested, and integrated an essential time calibration algorithm into the High Powered Laser Designator (HPLD) system. Designed a noise-detection function that could be run speedily in real time and which allowed for more efficient testing of the HPLD system. The time calibration algorithm passed all design and specification tests and shipped to the customer with the system in September 2006.
- Restructured and re-implemented the messaging layer and graphical user interface of a LabVIEW system as part of a contract to streamline and repackage an advanced dispersion compensation system. Swift completion of project allowed the first deliverable to ship on time despite a tight schedule.

Massachusetts Institute of Technology, Cambridge, MA September 2005 to May 2006.
Undergraduate researcher. Worked on a particle physics research project where neural networks were utilized to process and analyze simulated Monte Carlo data. Streamlined plotting of the neural network inputs by adding functionality to C++ and ROOT code.

Stanford Linear Accelerator Center, Stanford, CA June 2005 to August 2005.
Volunteer researcher, BaBar Research Group. Improved the efficiency and facilitated the upgrade of the BaBar muon detector by performing various quality checks and analyzing the performances of new hardware.

Technical Skills: MATLAB, LabVIEW, Java, C++, C, TCL, Perl, Verilog/VHDL

Leadership

Director of Career Week Logistics for MIT Career Fair 2008 **May 2008 to present**
President of Eta Kappa Nu March 2008 to present
Treasurer of Eta Kappa Nu (EECS Honor Society) March 2007 to March 2008
Tau Beta Pi Spring Career Fair Coordinator February 2007 to March 2008
Treasurer of the MIT Literary Society January 2006 to January 2007