# Bhaskar Mookerji

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## Education

**Massachusetts Institute of Technology** **Cambridge, MA**

Candidate for Ph.D in Mechanical Engineering (Nanotechnology) **Sept. 2011 – Feb. 2012 (On Leave)**
SB/M.Eng in Electrical Engineering and Computer Science **June 2011**
Bachelor of Science (SB) in Physics **June 2009**
Cumulative GPA: 4.5/5.0 (Undergraduate) 4.9/5.0 (Graduate)

**Relevant Coursework**: *Operating Systems Engineering, Numerical Methods and Algorithms, Artificial Intelligence, Complex Digital Systems Design, Large-Scale Symbolic Systems, Computational Mechanics, Embedded Electronics Design. Graduate coursework in physics (theory, through quantum field theory) and electrical engineering (through solid state devices, quantum optical communications, and electromagnetic device theory).*

## Professional Experience

**Apple, Inc.** **Cupertino, CA**
**Exploratory Design Group**
*Research Engineer/Scientist/Intern* **May 2011 – September 2011**

Invented an online, stochastic estimation algorithm for a new embedded hardware technology in a future product (using Mathematica, Python, and Matlab). Collaborated within a research team in software prototyping and production testing/verification for a separate product.

**MIT Research Lab of Electronics** **Cambridge, MA**
**Optical and Quantum Communications Group**
*Research and Teaching Assistant* **May 2008 – May 2011**

Built an optical source for quantum cryptographic key distributon. · Theoretically designed and characterized a protocol and system for long-distance quantum state teleporation. Wrote optimized software in Mathematica and C to numerically simulate and verify designs. · Taught undergraduate recitations and wrote course notes probably still in use by current teaching staff.

**Raytheon BBN Technologies** **Cambridge, MA**
**Disruptive Information Processing Technologies Group**
*Research Assistant* **June 2009 – September 2009**

Designed and implemented a Matlab and Python-based, data acquisition pipeline deployed for automating low-temperature superconductivity experiments. Wrote instrumentation device drivers, a Python-based interpreter for automating their creation, and a domain-specific language for describing experiments and capturing/analyzing data.

**MIT Mobile Autonomous Systems Lab** **Cambridge, MA**
*Technical Director* **February 2007 – February 2011**

Collaborated with graduate students to run MIT's autonomous, artificial vision-based robotics contest, a class taken by over 50 students during MIT's independent activities period. Responsible for the development, maintenance, and deployment of the hardware (ARM & C) and user-level (Java) libraries of an embedded robotics platform. Lectured on embedded sensors, software engineering, and robotic behavior/control.

**Other Recent Projects** **February 2011 – Current**
Large-scale, parallelized electromagnetic device simulations using Open MPI · Minimal UNIX-style, multicore exokernel and userspace (including $O(1)$- scheduler, VGA graphics and sound) · A soft implementation of a superscalar pipelined processor running an SMIPS instruction set.
— https://github.com/mookerji

## Skills and Activities

- **Current Interests:** Functional programming languages; numerical simulation in applied physics and engineering design; computer architecture and performance; cooking; electronic art.
- **Computer Languages and Environments**: Working knowledge (*proficient) of Python*, C*, Haskell, Assembly (x86, MIPS), Mathematica*/Matlab*, SystemVerilog (Bluespec*), LaTeX; Familiar with Java, GNU Scheme, and Objective-C (used, but not recently); OS X, Linux, Emacs.
- **Hardware**: Optics, digital design (AVR/PIC/8051 microcontrollers and FPGAs), basic machining.