(214) 235-1678 **Raymond R. Ma** raymond.ma@yale.edu

Education

Yale University New Haven, CT
PhD Candidate in Mechanical Engineering Sept 2010-present

Massachusetts Institute of Technology Cambridge, MA
S.B. in Mechanical Engineering, S.B. in Computer Science Sept 2006-May 2010

Work Experience

Nextjump Cambridge, MA
Software Intern May - August 2010

- Developed API for nginx image server to handle file storage and flexible app development
- Worked on internal product/merchant search engine

JamLegend San Francisco, CA
Software Intern May - August 2009

- Developed online application using Flash/Flex for generating playable game tracks for JamLegend's online gaming platform

Kiva Systems Woburn, MA
Intern in Hardware Division May - August 2008

- Developed analysis programs in Matlab to parse drive unit and floor logs in order to playback action sequences, optimize movement performance, and debug floor offset errors
- Programmed with Labview for automated control of battery-testing module for charging/discharging cycles

MIT Nuclear Reactor Laboratory Cambridge, MA
Programmer under Professor Gordon Khose, Yakov Ostrovsky May 2007 - May 2008

- Developed and rebuilt education nuclear physics experiment for use in Junior Physics and Nuclear Radiation Measurement courses at MIT
- Performed complete rewiring of entire experimental module
- Programmed with Labview for motion control with limit switch feedback, measurements with multichannel scanners and pulse counters
- Collaborated with iLabs (http://icampus.mit.edu/ilabs/) to allow for remote control of experiment through the internet

WikiNotes.vze.com
Founder Sept 2002 - present

- Collected, organized, rewrote course lecture notes into over 1000 web pages
- Site used as study aide by high school and college students
- Currently redeveloping dynamic site to allow for more flexible and comprehensive distribution of lecture notes

Research Experience

Yale University Grablab — New Haven, MA
Advisor: Professor Aaron Dollar — Sept 2010 - present

- Analyzing dexterous manipulation capabilities of compliant SDM, robotic hands
- Studying mechanism and control design for adaptive hand systems

MIT Precision Compliant Systems Laboratory — Cambridge, MA
Advisors: Alex H. Slocum, Dr. Jonathan Bean, Professor Martin Culpepper — Sept 2008 - May 2010

- Designed proof of concept, low-cost device to measure the torque/power output of the human ankle joint, utilizing compliant flexure design
- Developing instrumentation and software in LabVIEW to provide real-time web-based data-analysis

MIT Comparative Media Studies Department — Cambridge, MA
Advisor: Professor Beth Coleman — Feb 2007 - June 2007

- Developed objects for use in the Second Life virtual world as part of project dealing with the production of in-game video, under the direction of Professor Beth Coleman
- Implemented various graphics programs (Blender, Maya, Daz Studio, Photoshop, Qavimator) to produce media components within the SL environment

MIT Media Lab - Robotic Life Group — Cambridge, MA
Advisors: Guy Hoffman, Professor Cynthia Breazeal — Sept 2006 - Mar 2007

- Engineered iris portion of robotic lamp project (web.media.mit.edu/ guy/aur) as part of a study on human-robot interactions
- Utilized Solidworks, laser cutter, water jet, and other shop tools to prototype parts for arm component that controls the focus, color, and beam size of lamp

University of North Texas Physics Department — Denton, TX
Advisor: Professor Arup Neogi — Jan 2005 - May 2006

- Characterized the conductive properties of PEPI film on indium tin oxide substrate and various other organic semiconductors
- Developed programs with LabVIEW to optimize the control of multimeters, monochromators, and lock-in amplifiers

Publications/Conferences

Design of Medical Devices Conference — April 15, 2010
Ankle Rehabilitation via Compliant Mechanisms

- Authors:Alexander Slocum Jr., Raymond Ma, Edward Sung, Dr. Jonathan Bean, Professor Martin Culpepper

Relevant Skills

- **Programming**: Javascript · Python · LabVIEW · Java · mySQL · HTML/CSS · PHP · Matlab scripts · Flash actionscript · Scheme · LaTeX
- **Currently learning**: GWT (Google Web Toolkit) · C++
- **Software**: Dreamweaver · Flash · Fireworks · Solidworks · Matlab · Photoshop · Qavimator · Audacity · MS Office · Eclipse
- **Machining**: CNC · lathe · mill · laser cutter · water jet · band saw · drill press · soldering

Extracurricular

Phi Kappa Sigma Fraternity Sept 2006 - May 2010

- **Sigma** (secretary) - maintained relations with national fraternity headquarters and kept records of chapter meetings during spring 2007
- **Pi** (scholarship chair) - promoted academic focus among fraternity members and organized chapter-wide retreat during fall 2007
- **Rho** (recruitment chair) - organized rush/recruitment events for two terms 2008-2010, managing budget exceeding $15k

Discovery Mechanical Engineering June 2007 - Aug 2010

- volunteer for week-long freshman pre-orientation program that introduces students to the mechanical engineering department through hands-on robotics projects
- co-coordinated 2008 program, managing budget exceeding $20k

2010 Ring Committee June 2007 - May 2008

- Selected by class council to help design the 2010 MIT class ring
- Assisted in coordination of ring premiere and delivery events

Achievements/Honors

- **Whitelaw award**: given to 2 out of class of 120+ for good design in 2.007 competition. Qualifies for international robotics competition in Brazil, summer of 2008
- **President's Roll**: 4.0/4.0 for all 4 semesters at University of North Texas
- **Phi Kappa Sigma Foundation Scholarship**: 2008-10
- **AT&T Foundation Scholarship**: 2008-10
- **Pi Tau Sigma**
- **Tau Beta Pi**