JILLIAN OLIVEIRA

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Summary Mechanical engineering student graduating in June 2013 with 2+ years of mechanical design experience including design, manufacturing, and analysis. Strengths include design for manufacturability, machine shop experience, organizational skills, and collaboration.

Education

Massachusetts Institute of Technology (MIT)
Graduating with a B.S. in Mechanical Engineering, June 2013 — Cambridge, MA
GPA: 4.7/5.0
Relevant courses include: Mechanics and Materials I & II, Dynamics and Control I & II, Design and Manufacturing I & II, Thermal-Fluids Engineering I & II, Measurement and Instrumentation, and Numerical Computation for Mechanical Engineers

Industry Experience

NASA – Johnson Space Center — May 2012 – August 2012
Summer Intern — Houston, TX
Completed four mechanical design projects tied to the advancement of a large-scale, robotic motion-based platform

- Collaborated with team of mechanical, electrical, and test engineers to ensure project success and safety
- Designed using Pro/E and fabricated a motor based switch activation system and reduced the system's startup time by 20 minutes
- Designed a small-scale vertical hoist including motor, gear train, and level line mechanism
- Awarded "The Elite Team Award" by NASA's Software, Robotics, and Simulation Division

Lab Experience

MIT BioInstrumentation Laboratory — May 2010 – February 2012
Undergraduate Researcher — Cambridge, MA
Completed several projects tied to the development of a disposable, robotic endoscope

- Designed and developed new parts for endoscope, including a handle, turning modules, and motor modules with gearing system
- Utilized SolidWorks for all designs and fabricated with conventional and rapid prototyping techniques
- Manufactured a worm gear assembly for the motor modules, using CAM and Wire EDM. Resulted in increased torque of the system by 50%.
- Evaluated each prototype with performance measurements and MATLAB analysis
- Prepared and tested polymers of various resistances to be used as bend sensors
- Populated PCB and programmed microcontroller in C to implement PWM motor control
- Awarded "The John C. and Elizabeth J. Chato Award: Excellence in Bioengineering"

Conference Proceedings & Patents

33rd Annual IEEE EMB (Institute of Electrical and Electronics Engineers – Engineering in Medicine and Biology) Conference — September 2011, Boston, MA
Conference paper and presentation focused on the mechanics of the endoscope actuation

Oliveira, J. M., Chen, Y., and Hunter, I. W., "Robotic Endoscope Motor Module and Gearing Design" in 33rd Annual International Conference of the IEEE Engineering in Medicine and Biology Society, 7380-7383, 2011.

Chen, Y., Oliveira, J. M., and Hunter, I. W., "Sensor Architecture for a Two-Actuator Robotic Endoscope Tip." in 33rd Annual International Conference of the IEEE Engineering in Medicine and Biology Society, 8340-8343, 2011.

U.S. Patent Application #61377765 — August 2010

Hunter, I. W., Chen, Y., and Oliveira, J. M., "Tip actuated disposable endoscope and robotic platform."

Leadership/ Activities

MIT Advising Program, *Associate Advisor* — September 2010 – Present
Participate in weekly meetings to advise a group of freshman through their first year at MIT

MIT Varsity Athletics, *Team Member: Crew, Swimming & Diving* — September 2009 – October 2011

Skills

Design: SolidWorks, Pro/E, Engineering drawings
Manufacturing: Conventional machine shop, laser cutter, 3D Printer, WireEDM, FeatureCAM, MasterCAM
Software: MATLAB, PCB design software, LaTeX, Microsoft Office