

# Peter Ascoli E.I.T.

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## Education

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- Sept. 2015 **Massachusetts Institute of Technology**, Cambridge, MA, USA  
Present *Master of Science, Mechanical Engineering, Design and Manufacturing, Expected June 2017*
  - Cumulative GPA: 4.8/5.0 (3.8/4.0), School of Eng. KUT Fellowship ('15-'16), Graduate Research Assistsanship ('15-'17)
  - Courses: Elements of Mech. Design, Medical Device Design, Solid Mechanics, Structural Mechanics, & Mechatronics
- Sept. 2011 **The Cooper Union for the Advancement of Science and Art**, New York, NY, USA  
May 2015 *Bachelor of Engineering, Mechanical Engineering, Graduated Summa-Cum-Laude May 2015*
  - Cumulative GPA: 3.93/4.00, Major GPA: 4.00/4.00, Full Tuition Merit Scholarship (2011-2015)

## Experience

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- Sept. 2015 **Graduate Research Assistant at MIT**, Cambridge, MA, USA  
Present *Laboratory for Manufacturing and Productivity*
  - Thesis Topic: Process Control for Quality and Flexibility of Centrifugally Casting Micro-Contact Printing Stamps
  - Rewrote the LabVIEW [FPGA] control program for a hybrid maskless lithography & centrifuge machine, to raster-scan stamp molds of arbitrary patterns with micron-level precision
  - Redesigned the centrifuge subassembly using a commercial motor, controller, and electrical hardware
  - Implemented fiber-optic measurements to locate machine precision errors causing defects in the PDMS stamps
- May 2014 **Mechanical Design Engineer at NASA Kennedy Space Center**, Cape Canaveral, FL, USA  
Aug. 2014 *Structures and Mechanisms Design Branch*
  - Designed a 14,000 lb structural and ballast addition to an Orion Crew and Service Module mockup to mimic the mass properties of the EM1 flight vehicle for ground transportation tests, and a tripod hoist structure for the Vehicle Motion Simulator for positioning the Orion Service Module Umbilical Plate in dynamics tests (in use)
  - Recipient of the 2014 NIFS (NASA Interns, Fellows and Scholars) Intern of the Year Award
- Sept. 2012 **Mechanical Design Engineer and Fabricator**, New York, NY, USA  
Apr. 2013 *New York City Artist MaDora Frey*
  - Designed and fabricated a pair of electro-mechanical sculptures, including pulley and lead screw systems
  - Regularly communicated technical content to the artist, sculpture shown in Trestle Gallery (Brooklyn, NY)

## Projects

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- Spring '16 **CNC Benchtop Lathe**
  - Designed and fabricated a CNC (x & z axes) benchtop lathe for turning steel and aluminum with 50 um precision
  - Formulated an error-budget and created a homogenous transform matrix model to track errors and deformations
  - Performed finite element analyses to design a 1-DOF cross-feed flexure bearing stage, a 2-DOF bushing mount to relieve guide rail overconstraint, and a 4-DOF drive nut mount to relieve lead screw overconstraint
  - Contributed to the design of the spindle, x-feed and z-feed drive mechanisms utilizing parametric hand calculations
  - Created drawings for manufacture with pertinent GD&T, and machined parts on the mill, lathe, and water jet
- Fall '15 **Mechanical Apparatus for the Compression of 3D Cell Scaffolds**
  - Designed and manufactured a low-cost device to apply dynamic compressive loads to biomimetic 3D tooth scaffolds for tissue engineering research at Tufts University School of Dental Medicine
  - Formulated an error budget around current-controlled voice coil actuators, utilizing elastic averaging of tolerance rings and flexure blades, and kinematic couplings to precisely align machine components
  - Chose materials and manufacturing methods to meet sterilization, biocompatibility, and incubator requirements
  - Submitted a paper on the machine design to the Journal of Precision Engineering (under review since May 2016)

## Skills

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- Design: 3D modeling, finite element analysis, tolerance stackups, error budgets, machine design, and 2D drawings  
Fabrication: Mill (CNC, conversational, & manual), lathe (manual), water jet, laser cutter, 3D printer, and hand tools  
Computer: SolidWorks, Inventor, PTC Creo, ANSYS, Abaqus, HSMWorks, Mastercam, AutoCAD, MATLAB, MathCAD, LaTeX, LabVIEW [FPGA], Microsoft Office Suite, and Adobe Creative Suite

## Extracurricular

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- 2015 - 2017 **MakerWorks at MIT**, Machine shop technician, supervisor, and leader of team maintaining the milling equipment  
2015 - 2016 **Rocket Team at MIT**, Designer of composite outer-mold-line structures using finite element analysis methods  
2014 - 2015 **Pi Tau Sigma at The Cooper Union**, President, chapter won 2<sup>nd</sup> place service and 3<sup>rd</sup> place performance awards  
2012 - 2015 **Engineering Student Council at The Cooper Union**, Class of 2015 mechanical engineering representative