

## DANIEL T. SHORES

MECHANICAL ENGINEER • USA CITIZEN

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### EDUCATION

**NORTHEASTERN UNIVERSITY** **BOSTON, MASSACHUSETTS USA** **AUGUST 2016**

**MASTER OF SCIENCE, MECHANICAL ENGINEERING**

**CONCENTRATION IN MECHANICS**

**GPA: 3.45** (*maximum grade point average 4.0*)

**COURSES** Mathematical Methods for Mechanical Engineers, Advanced Mechanics of Materials, Mechatronics, Finite Element Methods, Dynamics and Mechanical Vibration  
Environmental Issues in Manufacturing and Product Use

**THESIS** DEVELOPMENT OF PATIENT SPECIFIC NEONATAL CATHETERS USING 3D MAGNETIC PRINTING

*January 2016 – June 2016 (Spring 2016 & Summer I 2016 Semesters)*

Supervisor: Dr Randall Erb, Assistant Professor

College of Engineering, Mechanical and Industrial Engineering

**NORTHEASTERN UNIVERSITY** **BOSTON, MASSACHUSETTS USA** **DECEMBER 2015**

**BACHELOR OF SCIENCE, MECHANICAL ENGINEERING**

**GPA: 3.45** (*maximum grade point average 4.0*)

**COURSES** Dynamics and Vibrations, Computation Method (FEA), Measurements and Analysis, Systems Analysis and Control, Heat Transfer, Thermodynamics, Fluid Mechanics, Mathematical Methods for ME, Mechanics of Materials, Mechanics (Statics and Dynamics), Material Science, Engineering Problem Solving (MATLAB, C++)

**SENIOR DESIGN** DIRECT-WRITE 3D PRINTER FOR ALIGNED DISCONTINUOUS FIBER COMPOSITES  
*July–December 2015 (Summer II 2015 & Autumn 2015 semesters)*

**HONORS** DEAN'S SCHOLARSHIP, 2011-2016

DEAN'S LIST (3.5 or better GPA during a semester)

*Spring 2012 and Autumn 2012*

*Autumn 2013*

*Autumn 2015*

**Co-OP WORK** BOSTON DEVICE DEVELOPMENT, Newton, Massachusetts USA  
*January - June 2015*

FARM DESIGN, Hollis, New Hampshire USA

*January - June 2014*

FIKST PRODUCT DEVELOPMENT, Woburn, Massachusetts USA

*January - June 2013*

**EXTRA-CURRICULAR** BIOMEDICAL ENGINEERING SOCIETY, NORTHEASTERN UNIVERSITY CHAPTER  
Co-Founder; Vice President, 2012-2013; Treasurer 2014; President 2015

NORTHEASTERN UNIVERSITY OUTDOORS CLUB

Trip Leader, 2012-2015; Vice President, 2013

**GEORGETOWN HIGH SCHOOL** **GEORGETOWN, MASSACHUSETTS USA** **June 2011**

**GPA: 3.8** (*maximum grade point average 4.0*)

**LEADERSHIP** STUDENT COUNCIL: PRESIDENT, 2010/2011

VARSITY CROSS-COUNTY RUNNING CAPTAIN, 2010

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**CERTIFICATIONS** Solidworks Professional – Mechanical Design, *June 2014*

MITx Intro to Comp. Sci. and Programming Using Python, *April 2014*

Six Sigma Specialist, *August 2012*

## WORK EXPERIENCE

**BOSTON DEVICE DEVELOPMENT** *Product development consultancy focused on consumer and early-stage clients*  
MECHANICAL ENGINEERING CO-OP  
Jan – June 2015 Newton, Massachusetts USA

**SUMMARY** Built and troubleshot a 3 meter tall factory pill sorting robot prototype consisting of a 3-axis gantry upper system and a 2-axis lower system and developed the works-like, looks-like beta prototype of a butane powered curling iron and straightener. Projects were completed in teams of 2-3 with weekly meetings with the clients.

**FARM DESIGN** *Product development consultancy focused on biomedical clients*  
MECHANICAL ENGINEERING CO-OP  
Jan – June 2014 Hollis, New Hampshire USA

**SUMMARY** Brainstormed, designed, sourced parts, and built the base frame subsystem of a 5-week medical robot stability and transportation concept prototype project; developed the motherboard and performed testing for a neurological ablation system; and built and documented the pneumatic controller prototype for a controlled diagnostic device. Projects were completed independently as portions of larger projects with teams of 4-6.

**FIKST PRODUCT DEVELOPMENT** *Product development consultancy focused on biomedical and consumer clients*  
MECHANICAL ENGINEERING CO-OP  
Jan – June 2013 Woburn, Massachusetts USA

**SUMMARY** Conducted brainstorming, initial design, CAD, and alpha prototyping of a golf ball thrower for FlingGolf and performed research, constructed a complex theoretical model, and designed components to solve balance and vibration issues in a rotating medical device. Projects were completed independently under the guidance of a principal engineer and involved weekly client meetings.

**RAYTHEON - IDS** *Private Defense Contractor focused on guided missile systems*  
MECHANICAL ENGINEERING INTERN  
May – Aug 2012 Andover, Massachusetts USA

**SUMMARY** Contributed to manufacturing floor support team for Patriot Radar System; tracked radar shelter non-conformances and generated engineering change proposals; and conducted a company improvement project concerning environmental testing performed on COTS items used by Raytheon

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## RESEARCH PROJECTS

**MASTER'S THESIS** Development of Patient Specific Neonatal Catheters Using 3D Magnetic Printing  
*Northeastern University, January-June 2016*  
Supervisor: Dr Randall Erb, Assistant Professor

**SUMMARY** Samples of varying ceramic fiber reinforcement orientations and polymer materials were printed using an aligned discontinuous fiber composite prototype 3D printer and tested for mechanical strength properties. From these properties, an FEA model was built which allows for rapid design and printing of a customized, high strength intravascular catheter small enough to be used in neonatal procedures.

**SENIOR DESIGN** Direct-Write 3D Printer For Aligned Discontinuous Fiber Composites  
*Northeastern University, July – Dec 2015*

**SUMMARY** Built a direct-write 3D printer capable of printing a specific aligned composite material with exceptional strength to weight ratio. Team of five student engineers. In charge of syringe pump development and control as well as printer integration and communication.

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## SKILLS

**TECHNICAL** Mill, Arduino, 3D Printer, Laser Cutter, DFM, Engineering Drawings

**COMPUTER** Solidworks, Pro/E, ANSYS, Excel, Python, MATLAB, Simulink, LabView