ARUSHRI SWARUP
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PERSONAL STATEMENT

A driven, hard-working and optimistic biomedical engineer starting an MASc. at IBBME. Has developed prototyping, engineering design, teamwork and project management skills through her undergraduate degree of Engineering Science, Biomedical Systems Option at U of T and her internships. Eager to apply and enhance her skills in an exciting Master's project, developing new instruments to facilitate endoscopic ear surgery, through IBBME and the Hospital for Sick Children.

WORK EXPERIENCE

Capstone Engineering Design Teaching Assistant – Institute for Biomaterials and Biomedical Engineering at the University of Toronto

September, 2016 - Present

- Delivered a lecture to the class about how to succeed in the course
- Provide technical and project management support on how to translate client's needs to an engineering problem

Research Student – Centre for Image Guided Innovation and Therapeutic Intervention at the Hospital for Sick Children May – Aug, 2016

- Used Solidworks, 3D printing and CNC Mill Machining to fabricate components for experiments
- Conducted experiments to characterize force vs. deformation trends nitinol tubes using a motor, force sensor, Arduino board and laser apparatus
- Analyzed data using Matlab and statistical analysis
- Trained students to use CNC Mill Machine and to generate G-Code
- Mentored summer students to design and fabricate prototypes

Engineering Associate – Baylis Medical Company May, 2014 – August, 2015

- Designed, tested, documented and implemented device verification and validation testing
- Managed projects involving communication with company departments and suppliers
- Prototyped and tested production tools, using Solidworks and 3D printing, while incorporating feedback from senior engineers and production operators
- Addressed non-conformances in production by performing technical investigations, developing and implementing a solution in production with a product engineer
- Developed a Laser Welding Training Document and Manufacturing Protocols

EDUCATION

University of Toronto September, 2011 – April, 2016

- **Bachelor of Applied Science and Engineering, Biomedical Systems Option, Graduated with Honours**
- Relevant Courses: Biomedical Engineering Design, Undergraduate Thesis, Biomaterial and Medical Device Development, Human Physiology, Cells and Tissue Engineering

ENGINEERING PROJECTS

Design and Fabrication of an Endoscopic Ear Surgery Tool September – December, 2015

- Collaboratively designed a modified surgical tool for Endoscopic Ear Surgery with four team members and an ENT Surgeon at SickKids Hospital

- Used Solidworks, 3D printing and Mill machining to design a functional prototype and tested inside a 3D printed ear canal model and a cadaver ear canal
- Delivered a final presentation and report
- Will continue this project, as an MASc. project at IBBME, where the ENT Surgeon will be the Primary Investigator

Undergraduate Thesis: Computer Simulation of Nerve Stimulation September, 2015 – April, 2016

- Developed a model of electrical nerve stimulation on a simplified human leg using COMSOL Multiphysics
- Analyzed nerve excitability using Matlab and optimized model parameters
- Delivered thesis presentation to peers and supervisor and submitted Thesis report

Fabrication of Pneumatic Engine - Basic Machining Course at George Brown College February, 2015

- Used Lathe, Mill machine and Drill press to machine a pneumatic engine

Development of an Antimicrobial Resistant Microorganism Monitoring System May – August, 2013

- Conducted diffraction-based immunoassays and tested them on a system of optical instruments along with a fellow student
- Utilized Matlab to analyze data collected, wrote an SOP for diffraction patterning

Aeroponic Proof of Concept Project May 2012 – November, 2014

- Collaboratively built an Aeroponic Garden System consisting of individual garden units with a central nutrient-spraying and drainage system, with a team and U of T professor

SKILLS

- Matlab, Solidworks SolidCAM, Microsoft Office, COMSOL Multiphysics, ImageJ
- CNC Mill Machining, Laser Welder, Force Gauge, Pull Test Stand, 3D Printing, Wet Lab experience
- Certified in Laser Safety Training by U of T, May, 2013

AWARDS

- Director's Innovation Award, August, IBBME, 2016
- NSERC IUSRA Award May-August, 2014 and 2015 during PEY at Baylis Medical
- Recipient of 2011 University of Toronto President's Scholarship

CLINICAL AND VOLUNTEER EXPERIENCE

Baylis Medical Company May, 2014 – August, 2015

- Volunteered at company Christmas party and Annual General Meeting

Grand River Hospital/Regional Cancer Centre Volunteer: Summer Student Program July – August, 2011

- Interacted with patients undergoing chemotherapy

LEADERSHIP/VOLUNTEER EXPERIENCE

Engineering Science Ambassador September – December, 2013

- Conversed with prospective Engineering Science students at University Fairs

HOBBIES

Bollywood Dance Instructor at Hart House, U of T February, 2016 - Present

REFERENCES: Available on Request