Vaishnavi Kotha

// Always designing something new.



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Education

Bachelor of Engineering with Honours Major in Biomedical Engineering University of Guelph



Sept 2016 – July 2020

Dean's Honours List (3 semesters)

Experience

Summer Student, Princess Margaret Cancer Centre

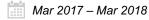


May 2019 – Aug 2019

Principal Investigators: Dr. Jennifer Croke, Dr. Kathy Han, Dr. Michael Velec, and Dr. Tony Tadic

- Developed autosegmentation methods in RayStation to assist in the automatic contouring of specific organs at risk (OARs) during the treatment of cervical cancer
- Created a reference atlas and evaluated the performance of both atlas-based and model-based segmentation tools for a set of test cases using geometrical agreement analyses with manually defined contours
- Defined and manually delineated relevant anatomical reference points and contours; Quantified the accuracy of deformable image registration using geometrical agreement analyses of mapped vs. manually defined structures
- Authored an instructional manual to assist clinicians and technicians in the use of segmentation tools and methods in RayStation
- Constructed a control theory based approach for practical implementation of adaptive radiotherapy

Research Intern, Medical Makers Inc.



- Managed and coordinated multiple projects simultaneously on the development of customized diagnostic and therapeutic medical devices for patients worldwide
- Liaised with other departments to provide regulatory input on product development and to ensure compliance with national and international standards and regulations
- Used Solidworks Assembly software to computer automate process design; constructed Solidworks drawings of prototype parts for dimensional analysis
- 3-D printed prototype designs using Cura software and FlashForge 3-D Printer
- Conducted data analyses of material defects and investigated potential alternatives; Examined means of limiting defects through rigorous material testing of alternatives
- Regularly consulted with patients throughout design development phase to ensure efficacy of design, compliance with customer needs and overall customer satisfaction

Skills

Software

Solidworks, AutoCAD, Altium CircuitMaker, Fritzing, ANSYS

Programming Languages

- Proficient: Java, C, Matlab, Python
- Familiar With: Arduino, G-Code, HTML/CSS

Design Tools

· Adobe Illustrator, Adobe Photoshop, Adobe Lightroom, Inkscape, Krita

Applications

Microsoft Office Suite (Word, PowerPoint, Excel, Project, Access), LaTeX

Projects

Hospital Navigation System

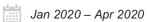
University of Guelph



- Designed and constructed an internal hand-held hospital navigation system using Bluetooth Low-Energy (BLE) technology
- Developed a pathfinding algorithm in Java and Python that assists in providing real-time directions to a prespecified location within a designated space. Front-end demonstration was implemented using HTML and CSS for user-friendly interface.
- Designed overall demonstration concept and presented idea to professionals within the communications technology industry at the University of Guelph Bioinstrumentation Design Day Trade Show
- Technical skills used: Java, Python, HTML, CSS

Hand-held Dynamometer

University of Guelph



- Designed an automated hand-held dynamometer to assist physiotherapists in manual muscle testing at **DEFY Sports Performance and Physiotherapy**
- Constructed a full-scale prototype with load cells. load cell amplifiers, LCD screen and Teensy microcontroller; Wiring diagrams were created using Fritzing software; Data logging was programmed using Teensyduino software add-on for the Arduino
- Technical skills used: Fritzing, Teensyduino