ALY HASSAN

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EXPERIENCE

IMAX

R&D Intern, Optical Engineering

May 2018 - Aug 2018

- Automated opto-mechanical system with MATLAB for detection of defective pixels and glass damage in digital micro-mirror devices, a critical component of modern projectors
- Investigated polarization of films in 3D glasses to develop a quality specification

Apple

Product Design Intern, Materials Engineering

Jan 2017 - Aug 2017

- Designed, evaluated, and iterated on a new test for cosmetic coating adhesion on glass
- Characterized degradation of oleophobic coating on iPhones and conducted user studies on coating performance
- Managed field tests for materials in new Apple devices and analyzed results with JMP

Apple

Product Design Intern, Materials Engineering

Aug 2015 - Apr 2016

- Designed, built, and programmed an automated MATLAB tool for glass scratching analysis on iPhone and Watch products
- Drafted design drawings and worked with overseas vendors to create prototypes for new iPhone features and materials
- Characterized materials for iPhone/iPad applications with SEM, EDS, interferometry, contact angle goniometry, scratch testing

Ontario Institute for Cancer Research

Software Developer, Bioinformatics

Jan 2015 - Apr 2015

- Collaborated with other organizations to create ICGC's beacon, a service designed to promote genetic data openness
- Created visualizations and web tools to summarize large cancer donor datasets and pathways

RESEARCH & TEACHING

University of Toronto

Research Assistant, Nanomechanics and Materials Lab

Sept 2018 - Present

- Research on bio-inspired adhesives for human skin applications
- Experience with adhesion testing, signal processing, opto-mechanical fixture design, surface characterization, MATLAB programming & theoretical models
- Relevant Courses: Applying Human Factors to the Design of Medical Devices, Smart Materials, Introduction to Data Science

Teaching Assistant for Mechanics of Solids II, Materials Science, Mechanics of Materials

Sept 2018 - Apr 2020

- Led labs on using ANSYS Mechanical for static simulations and taught background knowledge
- Designed term projects with case studies to teach students the design process and design validation with mechanical simulations

EDUCATION

University of Toronto

Master of Applied Science,
Mechanical Engineering

Graduating Summer 2020

4.0/4.0

University of Waterloo

Bachelor of Applied Science,
Nanotechnology Engineering

Graduated 2018

3.8/4.0

SKILLS

Mechanical

CAD
Rapid Prototyping, 3D Printing
Design for Manufacturing
Drafting (GD&T)
Test Fixture Design
Mechanical Simulations

Materials

Adhesion & Tensile Testing
Impact Testing
SEM & EDS Analysis
Automated Image Analysis
Statistical Analysis

TOOLS

Engineering

SolidWorks, Siemens NX
AutoCAD, Fusion360
FFF & SLA Printers
ANSYS Mechanical
Basic Machining

Programming

MATLAB
Python
JMP, SAS
Excel