# UNIVERSITY OF WATERLOO
# CO-OPERATIVE EDUCATION RECORD

**DHRUV SHARMA**
**20502224**
1B MECHATRONICS ENGINEERING

| WORK TERM | | EVALUATION |
|---|---|---|
| FALL 2014 | **PHOENIX INTERACTIVE DESIGN INC**<br>LONDON<br>SOFTWARE DEVELOPER | |
| WINTER 2014 | **UNIVERSITY OF WATERLOO**<br>**FACULTY OF ENGINEERING**<br>WATERLOO<br>CONTROLS AND HYDRAULIC SYSTEMS | EXCELLENT |

# *Dhruv Sharma*

*Mechatronics Engineering*
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## SKILLS SUMMARY

- SOFTWARE – C++, C#, Java, solid understanding of Algorithms and Data Structures, IOS Development (Objective C), Android Development, MATLAB, LabVIEW, Visual Basic Applications
- HARDWARE/EMBEDDED SYSTEMS – Robot C to program NXT, Arduino, Data Acquisition Systems
- GRAPHIC AND DESIGN - Skilled in creating engineering drawings using AutoCAD, SolidWorks. Experienced in machining and fabrication
- ACADEMIC STANDING – Rank 1 in Mechatronics Class of 2018 out of 150 students
- Hands on experience working with electrical devices - multimeters, soldering equipment, Oscilloscope

## WORK EXPERIENCE

**Software Developer, Phoenix Interactive Design Inc., London, ON** **September 2014 – Present**

- Took part in rigorous fast paced agile object oriented software development process, involving software development in C++, using XML configuration and C# (.NET framework)
- Wrote base classes to be used in VistaATM software product(C++), developed data analysis tool to analyze logs generated during application runtime (C#)
- Wrote unit tests for new functions implemented using Google's Gtest and Gmock framework
- Worked collectively with senior developers on internal company tickets to fix bugs in software (C++, XML)
- Gained experience in development on Microsoft windows platform through test driven development involving testing the software on next generation ATM machines and using various debugging tools

**Controls and Hydraulic Systems Intern, Prof Amir Khajepour, University of Waterloo** **Jan 2014 – April 2014**

- Set up a Data Acquisition System for strain data logging Wrote VBA script to generate corresponding stress values. Installed and calibrated strain gauges using shunt calibration approach.
- Set up Data Acquisition system configuring both hardware and software (wrote software program for data logging using LabVIEW) to record pulses from motor and processed it using VBA to calculate RPM of the motor
- Wrote scripts in MATLAB to plot stresses recorded during fatigue testing of the system and analysed the data,
- Created drawings using SolidWorks and performed machining and fabrication of parts used in Pneumatic Suspension and Pulse Active Steering research projects.

**Research Assistant, Prof Amir Khajepour, University of Waterloo** **April 2014 – September 2014**

- Processed data (produced from different tests performed while research) using VBA and MATLAB scripts, analysed the data – performed different calculations and reported the observations
- Wrote technical reports brushing technical writing and presentation skills

## RELEVANT PROJECTS

***Implemented:***

**Game Development in Python**: Developed interactive games in Python (SImpleGUI), applied principles of Object Oriented Programming. Developed games like Asteroids, BlackJack, Memory, StopWatch, and more **Sept2014 – Nov 2014**

**IOS Game Development:** **Sept 2014 – Nov 2014**

*Alien Invasion*: Designed and developed Alien Invasion that aims at saving our mother Earth from alien invasion by killing aliens invading the Earth.

*Flappy Bird Rebirth*: Developed a different version with new graphics and varying hardness levels during playtime.

**Robot Design Project**: Designed and programmed a Lego robot, leading a team of four students, capable of autonomously sorting objects based on colour **Sept 2013**

***Currently Working:***

**ReadOutLoud**: IOS app that reads out loud text in an image. So click an image of an article from your phone and it will recite that for you. Using Tesseract OCR library **Oct 2014 - Present**

## RELEVANT KNOWLEDGE

**Interactive Game Development in Python by Rice University (COURSERA)**

- Aimed at teaching art of creating interactive applications using python through weekly lectures, quizzes and mini projects.

**Algorithms and Data Structures**

- Gained proficiency in structured software design, data structures, abstract data types, recursive algorithms, algorithm analysis and design, sorting and searching, hashing, and problem-solving strategies.
- Practically applied the concepts in labs and in various university projects using C++ programming language

**Digital Computation**

- Learnt hardware and software organization, developing efficient algorithms for basic scientific computations
- Gained experience programming in C++ for software development and Robot C for programming Lego Robots

**Circuits**

- Understood the elements of Electromagnetism, AC and DC circuits, Diodes, Transistors
- Experienced in analysing circuits through labs and using electronic instruments: Oscilloscopes, multimeters

## EDUCATION

**Candidate for Bachelor of Honours Mechatronics Engineering,** Co-operative Program, University of Waterloo, Waterloo, ON, September 2013

## ACTIVITIES & INTERESTS

**Website Manager and Member, Executive body, Engineers in Medicine, Waterloo, Ontario** **May 2014 – Present**

- Manage club website by updating information, performed search engine optimization using Google Webmaster Tools

**Member, University of Waterloo Aerial Robotics Group, Waterloo, Ontario** **Sept 2013- Present**

- Worked with the controls team to improve the code for controller of the aircraft made by WARG

## AWARDS

- First In Class Engineering Scholarship **November 2014**
- Deans Honor List Summer 2014 term **September 2014**
- Team Spirit Award – Google Games 2014 **April 2014**
- University of Waterloo President's Scholarship of Distinction **September 2013**

**References available upon request**

# UNIVERSITY OF WATERLOO
# UNOFFICIAL GRADE REPORT

**DHRUV SHARMA**
**20502224**
1B MECHATRONICS ENGINEERING

| | | | | |
|---|---|---|---|---|
| Winter 2015 | MSCI | 211 | Organizational Behaviour | |
| Winter 2015 | MTE | 200A | Seminar | |
| Winter 2015 | MTE | 201 | Exp. Meas. & Stat. Analysis | |
| Winter 2015 | MTE | 202 | Ordinary Differential Equation | |
| Winter 2015 | MTE | 219 | Mechanics of Deformable Solids | |
| Winter 2015 | MTE | 262 | Microprocessors Digital Logic | |
| Winter 2015 | SYDE | 182 | Physics 2 (Dynamics) | |

Term Average: n/a Decision:

| | | | | |
|---|---|---|---|---|
| Fall 2014 | COOP | 2 | Co-operative Work Term | |
| Fall 2014 | PD | 21 | Eng'g Wrkplace Skills II: | |

Term Average: n/a Decision:

| | | | | |
|---|---|---|---|---|
| Spring 2014 | MATH | 118 | Calculus 2 for Engineering | 100 |
| Spring 2014 | MTE | 100B | Seminar | |
| Spring 2014 | MTE | 111 | Structure & Prop. of Materials | 100 |
| Spring 2014 | MTE | 119 | Statics | 95 |
| Spring 2014 | MTE | 120 | Circuits | 99 |
| Spring 2014 | MTE | 140 | Algorithms and Data Structures | 91 |

Term Average: 97.2 Decision: Excellent standing

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|---|---|---|---|---|
| Winter 2014 | COOP | 1 | Co-operative Work Term | |
| Winter 2014 | PD | 20 | Eng'g Workplce Skills I: | CR |

Term Average: n/a Decision:

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|---|---|---|---|---|
| Fall 2013 | CHE | 102 | Chemistry for Engineers | 93 |
| Fall 2013 | GENE | 121 | Digital Computation | 79 |
| Fall 2013 | MATH | 115 | Linear Algebra (Eng) | 96 |
| Fall 2013 | MATH | 116 | Calculus 1 for Engineering | 100 |
| Fall 2013 | MTE | 100 | Mechatronics Engineering | 80 |

Term Average: 88.7 Decision: Excellent standing