

Curriculum Vitae

Christopher Chan, PhD.

Canadian-Born Citizen

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Education

Ph.D. in Computer Science (2018)

Department of Computer Science, Ryerson University, Toronto, Canada.

Dissertation Title: “A Simulation Algorithm Capable of Modelling Spatial Impact Points from the Neutralization of an Improvised Explosive Device”

Advisor: Dr. Alexander Ferworn

M.Sc. in Computer Science (2015)

Department of Computer Science, Ryerson University, Toronto, Canada.

Thesis Title: “Game-Based Threat Assessment Tool for Improvised Explosive Device Neutralization Training”

Advisor: Dr. Alexander Ferworn

Honours B.Sc. in Computer Science and Co-op Completion (2013)

Department of Computer Science, Ryerson University, Toronto, Canada.

Employment

Assistant Professor, Department of Information Management, Chaoyang University of Technology

I am currently employed as an Assistant Professor at Chaoyang University of Technology. My research focus involves deep learning and blockchain. My teaching load is 2 courses per semester, currently I have taught Artificial Intelligence Deep Learning, Big Data and Internet of Things for graduate students, and will be teaching C Sharp and Web Programming for undergraduate students.

Post-doc Researcher, Department of Information Engineering, National Taiwan Ocean University 2019

My role as a post doctoral researcher is to assist Professor Jun-Wei Hsieh in research on novel Deep Learning Architectures, in which our current focus is Ship Detection and Recognition research. My assistance includes translating state of the art new Deep Learning architectures into publication formats, understand the intricacies of any proposed network and deliver world-class writing and analysis to top journals and conferences. This work includes guiding and teaching Masters and PhD. Students in their work and converting their results into peer-reviewed publications.

Assistant Research Professor, Department of Electronic Engineering, National Taipei University of Technology (Taipei Tech), Taiwan November 2018 - 2019

I was employed as a Research Assistant Professor in the Department of Electronics at the National Taipei University of Technology. My research focus is Information Forensics and Information Security as well as Deep Learning for Information Security and Smart Car Applications. During my contract as a Research Assistant Professor, I will also supervise Masters and PhD. students in their thesis and research work, as well as teach computer science related courses.

Blockchain Software Architecture Consultant, Capital Blockchain and IVehda, Toronto, Ontario, Canada March 2018 – October 2018

I was employed as a software architecture consultant to build a blockchain software architecture solution that provides secure end-to-end non-subjective (factual) information specific to an individual's application for employment. I was a consultant for Capital Blockchain of Toronto working in partnership with IVehda, a software consultant firm. We developed a proof of concept model for the solution and provided specific software architecture design guidelines for implementing Hyperledger Fabric blockchain methodology into the system.

Sessional Lecturer, University of Ontario Institute of Technology, Toronto, Ontario, Canada April 2018 – September 2018

I was a sessional lecturer for a spring/summer course offered at University of Ontario Institute of Technology for computer architecture. This course introduces the fundamental basics of computer architecture, organization, and design. Topics covered in this course include computer systems generation: main-frame, mid-range, micro-computers; peripherals and interfaces; bus design;

input/output systems and technologies; central processing units: arithmetic logic and control units; semiconductor memory (RAM and ROM), cache memory; digital logic; integer and floating point arithmetic, pipelining and parallelism, and C programming. It is targeted to undergraduate students and bridge degree programs for information technology security, networking, and game development and entrepreneurship.

Continuing Education Personal Tutor, Ryerson University Chang School for Continuing Education, Toronto, Ontario, Canada

2017 – Present

I provide one on one tutoring for continuing education students that request additional assistance to excel in areas of related interests. For example, current and past data science students ask for my support and guidance for an online machine learning competition called Kaggle. This competition is open to the public and provides a suite of datasets for various problems. It requires students to find innovative data cleaning techniques and tailor machine learning algorithms to public datasets such as credit card fraud detection. I assist in any coding related issues, suggest relevant algorithms and assist in ensuring a presentable entry for Kaggle.

Instructor, Ryerson University Chang School for Continuing Education, Toronto, Ontario, Canada

2017 – 2018

I was an instructor for the standard and fast-track program offered at Ryerson University Chang School for Continuing Education for the Certificate in Data Analytics, Big Data, and Predictive Analytics. This certificate provides a strong foundation in analytics, tools, and statistics. It is targeted to individuals who need to use data analytics, big data, and predictive analytics to optimize performance at a variety of levels in a wide range of sectors or are employed in a related field such as data warehousing, data management, IT, etc. and need to acquire the necessary credentials for career promotion or other professional enrichment. Upon successful completion of this certificate, graduates are prepared to take the Institute for Operations Research and the Management Sciences (INFORMS) Certified Analytics Professional (CAP®) exam to become certified professionals in this burgeoning field. As evidence of teaching effectiveness, I have received a personal reference letter from one of the students in my class, which is attached to my teaching portfolio.

Expert Tutors

2017-2018

To further my desire to teach and continually learn from others. I was employed by Expert Tutors from Ontario to tutor students from grade 3 to grade 12. For each school year I am matched with one or two students to assist them with homework help, provide additional work for practice and guide them through their education. I am employed to facilitate learning and help bridge the knowledge gap in science, technology, engineering and math and assist them with seeking answers on their own.

Doctoral Students Guidance - Personal Tutor, Ryerson University, Toronto, Ontario, Canada

2016-Present

I provided personal advice and guidance to PhD. students in finding a suitable and relevant thesis topic for the successful completion of a PhD. in Computer Science at Ryerson University. For example, a PhD. student requested my assistance for methods of research in Agile Programming and developing business models for Agile environments. I assisted the student in determining areas of focus within the Agile development field, methods of finding niche areas for improvement, and techniques to continually research additional resources. The student benefitted from the assistance by arriving at a firm and presentable candidacy proposal.

MapYourProperty Inc., Lead Back End Server Developer

2013 - 2018

When MapYourProperty Inc. was founded, I was instrumental as part of the start-up team for building the back end server as a lead developer for the online business platform which is now deployed as an all-in-one mapping and analytic tool for land development. I manage a team of developers to build our back end server from scratch. I develop server-side applications in PHP and configure MySQL and PostgreSQL databases and ensure to the online platform and web applications are functional and optimized for speed and efficiency. My duties also involve migrating old frameworks into industry standard frameworks and version control such as Gitlab, PHP 7, and Symfony.

Microsoft, Software Development Engineer in Test

2013 – 2014 (Summer Internship - 4 months)

In Microsoft Seattle Research Lab, I assisted in developing functional test and model based test suites for feature work in the messaging area. I collaborated with developer interns to implement product and test code in parallel and designed and wrote test design specifications for feature work in messaging area. I performed competitive analysis on iPhone, and Android phones for the messaging area.

Graduate Teaching Assistant, Ryerson University, Toronto, Ontario, Canada

2012 – 2018

As a graduate assistant, I assisted in creating core course material, designing assignments, grading midterms and exams. I am able to provide student-tailored feedback on assignments, projects, tests and exams for 200 students within a 1-2 day time frame. For example, in the Ryerson University Chang School for Continuing Education courses for data science and big data analytics, students often refer to me for my expertise and the additional notes that I consistently post on blackboard each week regarding errors/typos/hints on the labs or frequently asked questions about the course material. I build strong GA-student relations and ensure that common issues are communicated to the instructor and that common issues are resolved for all students via blackboard and

announcements in a timely manner. I also provide students with a rubric attached with their feedback and provide relevant and immediate communication to students' queries. I am proficient in all computer science instructional core material for 3rd, 4th year courses, graduate courses and continuing ed.

Government of Ontario, Lead Software Developer, Superior Court of Ontario JITO

2011 – 2018

In the Government of Ontario, I am hired to assist Senior Law Officers with developing database management system tools and scheduling software for the Court of Appeals and Superior Court of Ontario, this software incorporates rules and adheres to varying restrictions relating to scheduling appropriate experts to each unique court case. Furthermore, I developed an automated information retrieval system which automates cleaning of judicial database records with advanced queries from active directory and online websites. I also developed additional functionalities for the current Ontario Note Taking software used in Ontario Courts' criminal and Ontario family justice system. My role also includes serving as the research and development bridge for JITO, incorporating academic theoretical research to their business models such as scheduling software and virtualization methodologies.

IBM Canada Inc. QA and SVT for DB2 Data Warehouse

2010 – 2011 (16 months – Co-op)

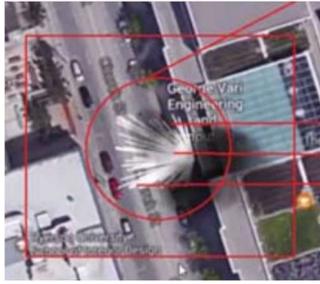
At IBM, I executed DB2 complex test plans and test cases in C, Java and Perl on various Windows and Linux multi-partitioned OS environments. I worked closely with software development engineers and managers through the defect/product life cycle, focusing on DB2 source code and data warehouse workload applications. I monitored DB2 stability and performance in high stress workloads for online transactions. I restructured IBM Websphere automation buckets. I filed 2 patent disclosures related to automation tooling software for DB2 v10 and BASH real time debugging.

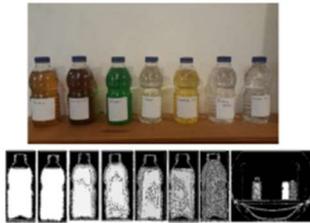
CURRENT AND PAST RESEARCH PROJECTS

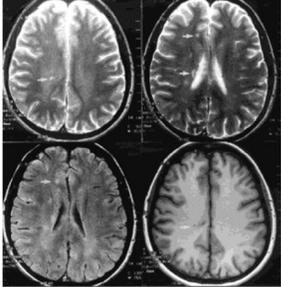
Graduate Research Assistant

Ryerson University, NCART Laboratory and Department of Computer Science, Toronto, Canada

Significant Projects:	Description	Dates	Collaborators
Intelligent Homecare Systems using Deep Learning Vision Techniques	Intelligent Homecare systems have been deployed to help disabled and elderly people because these systems can reduce the need for personal care and enhance quality of life. Using	2018-Present	Trung-Hieu Le, Shih-Chia Huang, Senior Member, IEEE, and Da-Wei Jaw

	<p>deep learning, convolutional neural networks, and cross resolution features fusion (CFF) coupled with single shot multibox detector (SSD), we assist in monitoring and recognizing human activity.</p>		
<p>Determining Splatter Impact Points from a Disruptor Shot on a Successfully Neutralized Threat (Funded by NSERC CREATE ADERSIM and OGS)</p> 	<p>Currently, when EDU professionals are dealt with the task of neutralizing an IED, one of the ways to neutralize an IED threat is to use a disruptor to fire high velocity water to separate the components of an IED before it explodes in an uncontrolled manner. Our current methodology allows for injecting an arbitrary mock IED into a game simulation and reason about the splatter impact points from a disruptor shot for the purposes of EDU training. (Primary Investigators: C. Chan, A. Ferworn)</p>	<p>2015-Present</p>	<p>Halton Police, Sunnybrook Hospital, Toronto Police Service (TPS), Network-Centric Applied Research Team</p>
<p>Unmanned Aerial Vehicle Guided Improvised Explosive Device Shrapnel Dispersal Simulation</p> 	<p>With regards to UAV-delivered shrapnel payloads, we design a methodology to compute, model and simulate a Directionally Focused Charge (DFC) explosive, delivered and deployed on an Unmanned Aerial Vehicle (UAV), with simple particle game engine physics heuristics, for estimating shrapnel trajectories and areas of impact on an urban terrain. We assert that this methodology can provide response and counter-IED teams involved in explosive threat detection with relevant information pertaining to the estimates of the risk associated with significant shrapnel</p>	<p>2016-Present</p>	<p>Network-Centric Applied Research Team</p>

	<p>impact in urban areas. (Primary Investigators: C. Chan, A. Ferworn)</p>		
<p>Disaster Scene Path Planning with Automatic Access Hole Finding</p> 	<p>The structural collapse of building may cause people to become trapped underneath rubble. Emergency workers responding to such disasters are tasked with searching for and extracting trapped victims. An important step in the process involves searching for trapped victims and access points that may lead rescuers into under rubble voids. Our work builds on top of previous algorithms that aims to speed up and relieve some of the work first responders are tasked with by autonomously detecting access holes which may lead to voids in the rubble. Shortest path algorithms such as Dijkstra’s algorithm is applied to the geographical location of these access points to provide additional information to first responders. (Primary Investigators: C. Chan, A. Ferworn)</p>	<p>2013-Present</p>	<p>Town of Caledon Bolton Police Station, Network-Centric Applied Research Team</p>
<p>Model Creation and Game-Based Manipulation of Chemical, Biological, Radiological, Nuclear and explosives (CBRNe) Threats (Funded by NSERC CREATE ADERSIM and OGS)</p> 	<p>When specialized response teams deal with CBRNe-related incidents, one of the guiding principles is to avoid contact with the threat until the nature of the threat can be determined. Our research demonstrates that we can safely create, inspect and manipulate a 3D model of a suspected CBRNe threat within a physics-based game engine where models are created from extremely accurate data gathered from Computed Tomography (CT) sensors. (Primary Investigators: C. Chan, A. Ferworn)</p>	<p>2013-Present</p>	<p>Sunnybrook Hospital, Toronto Police Service (TPS), Ontario Provincial Police (OPP), Proparms Montreal, Network-Centric Applied Research Team</p>

<p>Explosive Disposal Unit Simulation Training (EDUST) (Funded by NSERC CREATE ADERSIM and OGS)</p> 	<p>The training of EDU personnel is often expensive and complex involving the use of specialized disruption equipment, hours of experimentation and some risk. In this project we use methodology learned from DSR and apply it to the improvised explosive device (IED) neutralization task and provide users with reasoning relevant to the neutralization process. (Primary Investigators: C. Chan, A. Ferworn)</p>	<p>2013-Present</p>	<p>Sunnybrook Hospital, Toronto Police Service (TPS), Ontario Provincial Police (OPP), North York Emergency Task Force (ETF), Network-Centric Applied Research Team</p>
<p>Effective Visualization of Patient Brain Disorders using Digital Imaging</p> 	<p>The objective of this work is to implement a technique for characterizing and extracting significant, robust and informative features from electroencephalography (EEG) signals which are representative of the interictal migraine with aura brain state. Current visualization solutions for EEG are not useful for doctor-patient interaction, we aim to find a visualization that accounts for the multitude of data and their relations to each other in a meaningful way to doctors and patients. (Primary Investigators: D. Doidge, M. Garingo, W. Lewis, C. Chan, A. Ferworn)</p>	<p>2017-Present</p>	<p>Ryerson Mechanical Engineering and Industrial Engineering (MEIE), Ryerson Digital Media (DM), Headache Sciences Inc.,</p>
<p>Utilizing Unmanned Aerial Vehicles (UAV) to Locate Wandering People with Dementia)</p>	<p>The focus of this work is on finding a lost patient with dementia. The objective is to provide a theoretical model to support the Search and Rescue Operations (SAR) in finding lost people with dementia through the</p>	<p>2017-Present</p>	<p>Department of Politics and Public Administration (PPA) Faculty of Arts (FoA),</p>

<p>(Funded by NSERC CREATE ADERSIM)</p> 	<p>use of Unmanned Aerial Vehicles (UAVs). (Primary Investigators: D. Hanna, C. Chan, A. Ferworn)</p>		<p>Network-Centric Applied Research Team</p>
<p>3D Disaster Scene Reconstruction with UAV and RGB-D sensor</p> 	<p>Ongoing work in 3D Scene Reconstruction is used to build models rubble of collapsed building with the hope that we can eventually characterize rubble and provide additional situational awareness from the reconstructed model. This is a much needed in Urban Search and Rescue study. (Primary Investigators: C. Chan, T. Zannon, J. Tran, S. Herman, A. Ferworn)</p>	<p>2012-Present</p>	<p>Ontario Provincial Police (OPP), Town of Caledon Bolton Police Station, Network-Centric Applied Research Team</p>
<p>Archaeological Exploration Project in El-Hibeh</p> 	<p>Small scale robots are developed to be capable of addressing the problem of looter tunnel inspection at the “Busa” dig site in Egypt. This research merges traditional archaeological research methods with new methods of exploration and information retrieval. The research involved the creation of a 6-wheel tunneling tethered robot that was deployed in 2017 for tunnel inspection at the “Busa” dig site. (Primary Investigators: J. Li, J. Tran, C. Chan, A. Ferworn)</p>	<p>2016-2017</p>	<p>Department of History, Berkeley University of California, Ministry of State for Antiquities (SCA), Network-Centric Applied Research Team</p>

HONOURS and AWARDS

- Early Doctoral Completion Award, \$10,000, 2018
- NSERC CREATE ADERSIM Grant, \$17,000, 2017-2018.
- NSERC CREATE ADERSIM Grant, \$10,000, 2016-2017.
- Ontario Graduate Student (OGS) Scholarship, \$15,000, 2014-2015.
- NSERC (ENGAGE) Grant, \$25,000, 2014 with DreamQii Inc.
- Ontario Graduate Student (OGS) Scholarship, \$15,000, 2013-2014.

RESEARCH INTERESTS

- **Robotics (Land, Aquatic, and Aerial)**
- **Autonomous Systems**
- **Computational Public Safety (CBRNe, USAR, EDU, TPS and OPP response)**
- **Disaster and Emergency Management**
- **Simulations**
- **Serious Games**
- **Software Engineering**
- **Hardware Engineering**
- **Artificial Intelligence**
- **Mechatronics and Control**
- **Algorithms and Human Computer Interaction**
- **Data Science and Data Analytics**

Selected Journal Papers

Chan, Christopher CK, Alexander Ferworn, Jimmy Tran, Rodney Yip “Innovation in Experimental Education – Learning Human-Robot Interaction (HRI) Through a Mock Reconnaissance CBRNe Threat Mission” *Special issue on Representation Learning for Human and Robot Cognition, 2019 ACM Transactions on Human-Robot Interaction (THRI) - Submitted*

Selected Conference Proceedings

Chan, Christopher CK, Steven Delaney, Doug Schmidt “Natural Language Processing for Productivity Metrics for Software Development Profiling in Enterprise Applications” *Artificial Intelligence and Cloud Computing Conference (AICCC), 2018 International Conference Proceedings Series by ACM*

Chan, Christopher CK, Alexander Ferworn, Andy Olesen, Craig Dunfield “Simulating Naïve Particle Dispersion as a Result of High Velocity Projectile Impact”. – *In Review*

Chan, Christopher CK, Alexander Ferworn, and David Tran “A Rudimentary Approach to Unmanned Aerial Vehicle Guided Improvised Explosive Device Shrapnel Dispersal Simulation” *Intelligent Networking and Collaborative Systems (INCoS), 2016 International Conference. IEEE, 2017.*

Chan, Christopher CK, Alexander Ferworn, and Lee Chin “Towards Determining Relative Densities for Common Unknown Explosives in Improvised Explosive Devices” *International Humanitarian Technology Conference (IHTC), 2017 IEEE Canada International. IEEE, 2017.*

C. Chan and A. Ferworn, “Serious Gaming for Improvised Explosive Device Neutralization Training”, *The 3rd International Conference on Industrial Engineering and Applications (ICIEA 2016)*, 5-7 June, Hong Kong, MATEC Web of Conferences. Vol. 68. EDP Sciences, 2016

INVITED TALKS

- 2018** Speaker at the Artificial Intelligence and Cloud Computing Conference, Tokyo, Japan, Awarded Best Presenter
- 2018** Invited Speaker at ASTM E54.09 Standard Committee Meeting in connection with National Institute of Standards and Technology (NIST); Gaithersburg, MD
- 2017** BDIA Invited Speaker at The Fields Institute for Research in Mathematical Sciences
Lecture: Towards Determining Relative Densities for Common Unknown Explosives in Improvised Explosive Devices

TEACHING EXPERIENCE

- 2019-Present** Assistant Professor for Dept. of Information Management – Chaoyang University of Technology, Taichung, Taiwan
- 2018-2019** Sessional Instructor for Computer Architecture – University of Ontario Institute of Technology, Toronto, Ontario, Canada
- 2017-2018** Instructor for Data Organization for Data Analysis Hybrid – Ryerson University, Chang School, Toronto, Ontario, Canada
- 2017** Guest lecturer – Ryerson University, Toronto, Ontario, Canada
Course: Human Computer Interaction
- 2013-Present** Graduate Teaching Assistant, Ryerson University, Toronto Ontario, Canada
Courses: Extreme Programming Agile Processes, Information Retrieval, Graphics, Bioinformatics, Adv. Computer Organization, Web Systems Development, Data Analytics Advanced Methods, Big Data Analytics Tools, Software Verification/Validation, and Software Tools for Startups

ACADEMIC SERVICE

Reviewer

- 2020** Present Emerald Publishing Limited's Journal of Knowledge Management
- 2019** Present MDPI's Mathematics Journal
- 2019** Present Technology Advancements in Artificial Intelligence (ITCE 2020)
- 2019** Present IEEE Access
- 2019** Present Journal of Applied Sciences
- 2019** Present Elsevier's Electronic Commerce Research and Applications (ECRA)
- 2018** Present IEEE Transaction on Engineering Management (TEM)
- 2018** Present International Congress: Future Vision (ICFV)
- 2018** Present Special Issue: Emerging Technologies and Strategies in Education in

the Big Data Era

- 2017 Present Springer's Service Oriented Computing and Applications (SOCA)**
- 2017 Present Information Systems Frontiers (ISFI)**
- 2017 Present Journal of Network and Computer Applications (JNCA)**
- 2017 Present Journal of Systems Architecture (JSA)**

ACADEMIC OUTREACH

Amazon Coding Competition

2017-2018

Similar to Google Code Jam, Amazon also hosts an online competition annually called “Amazon Prime Code Champ” that allows participants to have a chance to be placed on leaderboards such as HackerRank when their submitted solutions exceed past records. Oftentimes, students that are interested in competitive programming challenges, participate in more than one coding challenge competition, I help gather like minded individuals, facilitate, and organize computer rooms and participate in competitive challenges as a team. For example, together with a Computer Science Master student, we tackled a coding problems ranged from level 1-3 and managed to submit a correct solution within a 3 hour time frame.

STEM Program Director Fairview Library Youth Hub

2016-2017

In Toronto Public Library's Fairview Youth Hub, I am a program director tasked to lead a series of workshops geared towards technology and innovation including STEM enrichment for Toronto's youth aged 13-19.

As of now, I am running a series of robotic workshops that focus on coding by using a block programming IDE, and a proprietary educational robotic system called 'Sphero'.

'Sphero' can utilize sensors, timers, actuators and various gyroscopes to maneuver and navigate a cluttered environment. I deliver a ten-week workshop in which each week the workshop will increase in difficulty and build upon previous content. By the end of the ten weeks, youth will be equipped to be creators of various robotic inventions, video games, and basic computer programming.



Maker Extravaganza Festival

2015-Present

Ryerson University N-CART lab participates in the annual Maker Extravaganza Festival held at Toronto Reference Library each year. The event showcases hundreds of makers, craftspeople, technologists and hobbyists to show off technology that they have created. Together with the N-CART business relations lab advisor, Rodney Yip, we manage a promotional and educational booth for the participants in Maker Festival and showcase explosive disposal (EOD) robots and unmanned aerial vehicles (UAVs). My role is to facilitate the transportation, logistics, and ensure that the equipment and robots are functional, on top of discussing our lab's research to interested participants.



Google Code Jam

2014-2016

Google Code Jam is a global internet-based event open for anyone who would be willing to try to solve computer programming questions. These questions are composed of multipart questions that involve innovative thinking and detailed analysis of the problem statement, which are often reflective of real-world computer-related case studies. After participating in the code jam with a few friends for 2 years, I took the initiative to involve Ryerson's Computer Science students where I oversaw and facilitated a series of coding competitions at the Ryerson University campus. During the competition, the students in the lab and a few administrators completed many of the timed questions and successfully managed to progress to stage 2 within the time allotted. Progressing to this point in the competition is an indication of our skill level, which ranks at approximate 80th percentile of all participants (there were approximately 30 000 total participants worldwide). The highlight of my experience was that I saw a graduate student receive a recruitment email from Google offering him a full-time position as a developer. This success story had spread quickly across the campus and piqued the interest in many student groups in other disciplines such as architecture, engineering, and interior design. My initiative has led many masters and postgraduate level students to get involved in the planning and coding process to prepare for the annual Google Code Jam.

Science Rendezvous

2013-2015

For each Science Rendezvous, Ryerson University's N-CART lab is tasked with assisting the annual event by holding a booth and demonstration that showcases robotics and computing from undergraduates and graduates at Ryerson's Computer Science department. This event reaches out to high school students and raises awareness for the programs offered by Ryerson University. My role is to facilitate the operation, logistics, transportation and planning of the booth and equipment, as well as judge robotic competitions when requested.



IBM Student Ambassador

2012-2013

An IBM ambassador is part of an outreach team employed by IBM that help students and IBM interns bridge the gap between school life and work life balance. On top of outreach to Universities, the program aims to promote IBM certifications, academic seminars and presentations for the purposes of facilitating discussion and encouraging awareness of IBM related initiatives such as IBM EPIC program for undergraduate students.

Ryerson Game Maker's Union (GMU) Executive

2010-2012

The Game Makers' Union focuses on making games with a variety of game engines such as Unity, Unreal, and GameMaker. My responsibility as an executive was to contact industry professionals and alumni who now work for Google or IBM to share their experiences and provide insight of their current work environment. I have also taught students my primary specialty in Shader programming and Nvidia's CUDA parallel computing architecture to produce special effects or video post-processing.

Across U-Hub

2006-2010

I am currently a volunteer high education promotional leader in a Toronto based organization for Asian and new abroad young individuals. My task has evolved into providing promotional work and specific Science, Technology, Engineering and Math (STEM) related information for young Asians especially for female youths (aged 13-21) who may have an interest in STEM related fields and careers. I provide additional resources for further outreach such as job shadowing, workshops and seminars from other leaders in STEM.

CERTIFICATIONS

Professional Certification Program from IBM (Prometric ID PR1356605, chrisc@ca.ibm.com):

- **IBM Certified Application Developer Programming with IBM Enterprise PL/I**
- **IBM Certified Database Associate DB2 9 Fundamentals**
- **IBM Certified Database Administrator DB2 9 or Linux, Unix and Windows**
- **IBM Certified Database Associate DB2 Universal Database v8.1 Family**
- **IBM Certified Application Developer DB2 9**
- **IBM Certified Advanced Database Administrator DB2 Universal Database v8.1 for Linux, Unix and Windows**
- **IBM Certified Database Administrator DB2 Universal Database v8.1 for Linux, Unix and Windows**
- **IBM Certified Solution Designer DB2 Business Intelligence v8**
- **IBM Certified Database Administrator DB2 9 for z/OS**
- **IBM Certified Database Administrator DB2 Universal Database v8.1 for z/OS**
- **IBM Certified Application Developer DB2 Universal Database v8.1 Family**
- **IBM Certified Deployment Professional Tivoli Usage and Accounting Manager v7.1**
- **IBM Certified Specialist Tivoli Storage Manager FastBack v5.5**
- **IBM Certified Deployment Professional Tivoli Storage Productivity Center v4.1**
- **IBM Certified Information Security 2010**

MEMBERSHIPS AND PROFESSIONAL AFFILIATIONS

- Member of the Institute of Electrical and Electronic Engineers (**IEEE**)
- Member of the Association of Computing Machinery (**ACM**)
- Member of the EOD Robotics Testing Committee for the U.S. National Institute of Standards and Technology (**NIST**) reporting to the Department of Homeland Security (**DHS**) and **ASTM** International

REFERENCES

Please refer to contact information for academic and personal references page.