

PATRICK CHEN

patrick@gmail.com

742 Evergreen Terrace, Vancouver, BC

778-555-1234

TECHNICAL SKILLS SUMMARY

Applied Optics:	Working knowledge of fibre optics, diffraction gratings, optical systems, lighting systems, and lasers
Machine Vision:	Design of image acquisition systems and image understanding algorithms
Fixtures and Apparatus Industrial Automation:	Working knowledge of actuators, motors, and sensors
Nanofabrication Techniques:	Photolithography, e-beam evaporation, PECVD, atomic force microscopy, scanning electron microscopy
Construction:	Mechanical design, precision machining, and electronic circuit layout/assembly
Programming:	C, C++, Java, MATLAB, Perl
Software Applications:	Maple, NI LabVIEW, TracePro, AutoCAD, MS Office
Languages:	English, French, and Chinese (Cantonese)

INDUSTRIAL EXPERIENCE

Computational Biologist – Genome Mapping May 2016 – Apr 2017

Canada's Michael Smith Genome Sciences Center, Vancouver BC

- Applied image processing and feature extraction algorithms to automatically track sample lanes in electrophoresis gels using C
- Implemented result-checking to achieve full automation of numerous inspection steps of a genome mapping analysis pipeline
- Designed and created user interface with Java to display results of analysis

Imaging Systems Designer Jan 2014 – Apr 2014

Advanced Systems Division, ATS Automation Inc., Cambridge ON

- Designed and constructed prototypes and test apparatus for integration of interdisciplinary systems: e.g. precision fluid dispense systems, air-tight packaging systems
- Designed and assembled image acquisition systems and image understanding algorithms for automated fabrication machines
- Performed validation and performance evaluation testing of custom automation machines

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Machine Build Technician

Jan 2012 – Apr 2012

Centerline (Windsor) Limited, Windsor ON

- Interpreted technical construction details
- Fabricated custom components by precision machining (+/- .5mm).

RESEARCH EXPERIENCE

Graduate Researcher

May 2017 – Aug 2019

Structured Surface Physics Laboratory, University of British Columbia, Vancouver BC

- Fabricated and tested proof-of-principle prototypes of sub-micron active diffraction gratings for non-mechanical beam steering applications using electrophoresis of dye ion and nanoporous electrodes
- Validated an electron tunnelling model for electrochemical reaction threshold that enabled an improved optimization of device response time and lifetime

Journal Publication: Wong et al., *Applied Optics*, Vol. 48, Issue 6, pp. 1062-1072

Semester Project Student

Mar 2015 – Jul 2015

Advanced Photonics Laboratory, Ecole Polytechnique Fédérale de Lausanne, Lausanne, Switzerland

- Designed an interferometer and mechanical setup for the fabrication of fiber Bragg gratings in optical fibers
- Assembled an optical system for UV laser beam shaping
- Evaluated the setup through controlled performance tests

Undergraduate Research Assistant

May 2014 – Aug 2014

Faculty of Environmental Studies, University of Waterloo, Waterloo ON, Canada

- Implemented spatial autocorrelation algorithms in MATLAB for automated segmentation of remotely sensed images
- Identified user requirements through extensive interviews and feedback sessions

EDUCATION

Master of Applied Science in **Engineering Physics**

2017-2019

University of British Columbia, Vancouver BC, Canada

- Relevant technical courses: Laser, Statistics, and Signal Processing with Wavelets
- Recipient of the Natural Science and Engineering Research Council of Canada (NSERC) Post Graduate Scholarship (Masters)
- Thesis work presentation at the Canadian Association of Physicists Annual Congress 2009

Bachelor of Applied Science in **Systems Design Engineering**

2012-2016

University of Waterloo, Waterloo ON, Canada