Justin Wong

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CONTACT

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PROFILE

A PhD student at Queen's University, Department of Pathology and Molecular Medicine, with a skillset combining *in silico* computational genomics analysis with biochemistry and molecular biology research including experience with the Hospital for Sick Children, the University of Toronto, the Oakville Trafalgar Memorial Hospital, and St John's Ambulance/Toronto EMS.

EDUCATION

Doctor of Philosophy (Pathology and Molecular Medicine) **2016 –**
Queen's University, (Kingston, Canada)

Bachelor of Science (Honours, Biochemistry) **2011 – 2015**
Queen's University, (Kingston, Canada)

RESEARCH EXPERIENCE

Research Assistant / PhD candidate **2018 –**
Queen's University, Department of Pathology and Molecular Medicine (Kingston, Canada)
Supervisor: Dr. Neil Renwick

- Identification of key biomarkers in neuroendocrine tumours via high throughput (next-gen) sequencing and statistical analysis
- Investigation of miRNA oncogenes and tumour suppressors with lentiviral transfection and CRISPR-Cas9

Research Assistant / MSc candidate **2016 – 2018**
Queen's University, Department of Pathology and Molecular Medicine (Kingston, Canada)
Supervisors: Dr. Tomas Babak, Dr. Neil Renwick

- Identification of potentially imprinted genes using GTEx and RNA-seq databases
- Data analysis with computational genomics tools as well as custom Python and Perl scripts
- Continuation of work done in undergraduate thesis
- Upgraded to PhD via the mini-Master's route

Research Assistant / Undergraduate Honours Thesis Student **2015**
Queen's University, Department of Biochemistry / Department of Biology (Kingston, Canada)
Supervisor: Dr. Tomas Babak

- Undergraduate thesis investigating genomic imprinting on the X chromosome
- Used computational genomics tools and created custom Python and Perl scripts to analyse gene expression

Research Student **2015**
The Hospital for Sick Children, Department of Neurosciences and Mental Health (Toronto, Canada)
Supervisor: Dr. Agnes MF Wong

- Perception study regarding the effect of luminance on simultaneity judgement and how latency of signal relates to perception in amblyopia
- Created visual stimuli using Python, MATLAB, PsychToolbox, and PsychoPy programming tools

Research Student **2014**
The Hospital for Sick Children, Department of Neurosciences and Mental Health (Toronto, Canada)
Supervisor: Dr. Agnes MF Wong

- Assistant researcher in ongoing amblyopia and strabismus studies
- Independent project analysing efficiency in ophthalmology clinics

Research Student **2013**
Banting and Best Diabetes Centre, University of Toronto (Toronto, Canada)
Supervisor: Dr. Farid H Mahmud

- Collection, analysis, and processing of data in studies involving treatment of asymptomatic celiac disease, and comorbidity of vitamin D deficiency and type I diabetes mellitus
- Independent project developing and evaluating use of multimedia in recruitment for clinical trials

Volunteer Research Assistant **2009**
The Hospital for Sick Children, Neonatal Neuroimaging (Toronto, Canada)
Supervisor: Dr. Margot J Taylor

- Preparation of MRI and fMRI scans for analysis in a study comparing the neurological development of children born prematurely and those born at term
- Meta analysis study of response to visual stimuli
- Compiled neonatal study database

TEACHING EXPERIENCE

Teaching Assistant **2016 –**
Queen's University (Kingston, Canada)

- Path 828 – Bioinformatics for Cancer Research (Jan. 2018 – Apr. 2018)
- Path 499 – Research Projects in Pathology (Sept. 2016 – Apr. 2017)
- Biol 205 – Mendelian and Molecular Genetics (Sept. 2016 – Dec. 2016)

Education Exec Team Member **2012 – 2014**
Queen's Genetically Engineered Machine Team (Queen's University) (Kingston, Canada)

- Organized and led group sessions for discussion of genetic engineering techniques and future research
- Taught basic genetic engineering concepts and techniques
- Assisted in creation of grant proposal and 4-month action plan

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ACADEMIC SUPERVISION

Teaching assistantships

Christopher Bon, Bchm 422, Research Project in Biochemistry 2018-
- Supervisor: Dr. Neil Renwick
- Research Project: *Methods of extraction and sequencing plasma miRNA for clinical research*
- Current Position: BScH (Biochemistry) candidate, Queen's University

David Xie, Bchm 421, Research Project in Biochemistry 2017-
- Supervisor: Dr. Neil Renwick
- Research Project: *Understanding lung neuroendocrine tumors through expression profiling*
- Current Position: BScH (Biochemistry) candidate, Queen's University

Allison Dorbeck-Jacobi, Research Volunteer 2017-
- Supervisors: Dr. Neil Renwick and Dr. Alastair Ferguson
- Research Project*: Identifying the anatomic basis of the diffuse neuroendocrine system*
- Current Position: Strengthening graduate school application

Mary Goodwin, Research Volunteer 2017-
- Supervisor: Dr. Neil Renwick
- Research Project: *Updating the human miRNA expression atlas*
- Current Position: BScH (Life Sciences) candidate, Queen's University (Kingston, ON)

Adrianna Majewski, Path 499, Research Project in Pathology 2016 - 2017
- Supervisor: Dr. Neil Renwick
- Research Project: *miRNA-guided diagnostics for neuroendocrine tumors*
- Current Position: Strengthening medical school application

Mareena Mallory, Cisc 499, Research Project in Computer Science 2016 - 2017
- Supervisors: Dr. Kathrin Tyryshkin and Dr. Neil Renwick
- Research Project: *Macaque miRNA curation and reannotation*
- Current Position: MSc Candidate, Health Informatics, University of Toronto

PRESENTATIONS AND POSTERS

Department of Pathology and Molecular Medicine Research Seminar Series **September 19, 2017**
Queen's University, Department of Pathology and Molecular Medicine (Kingston, Canada)
- Oral presentation in seminar series:
  Computational analysis to evaluate asymmetric gene expression and genomic imprinting on the human X chromosome

High Performance Computing Symposium (International) **June 7, 2017**
The Centre for Advanced Computing (Kingston, Canada)
- Oral presentation and submission of abstract:
  Identifying genomic imprinting through next-generation sequencing and high-performance computing

Department of Pathology and Molecular Medicine Research Seminar Series **November 1, 2016**
Queen's University, Department of Pathology and Molecular Medicine (Kingston, Canada)

- Oral presentation in seminar series:
  Byte - ing into the X chromosome: Identifying and characterizing genomic imprinting on the human X chromosome through data mining and big data techniques

Molecular & Cellular Integrative Biology Seminar **October 4, 2016**
Queen's University, Department of Biology (Kingston, Canada)

- Oral presentation in seminar series:
  Chromosomes and bytes of code: A computational genomics approach to identify imprinted genes on the human X chromosome

Queen's University 3 Minute Thesis (Finalist) **March 30, 2016**
Queen's University, (Kingston, Canada)

- Oral presentation about Master's thesis:
  When Mom's DNA Fights Dad's DNA: A big data approach to the search for genomic imprinting

SickKids Summer Research Program (SSuRe) symposium **August 10, 2015**
The Hospital for Sick Children (Toronto, Canada)

- Poster presentation and submission of abstract:
  Luminance and Latency: Simultaneity judgement with dichoptic luminance as a technique to investigate perceptual phenomena in amblyopia

SickKids Summer Research Program (SSuRe) symposium **August 12, 2014**
The Hospital for Sick Children (Toronto, Canada)

- Poster presentation and submission of abstract:
  Optimizing Ophthalmology: Using Lean principles to maximize the efficiency of patient scheduling in an Ophthalmology clinic

Charles Hollenberg Summer Student Mini-Conference **August 6, 2013**
University of Toronto, MaRS Centre (Toronto, Canada)

- Oral presentation and submission of abstract:
  Impact of a portable touch tablet and video to introduce clinical research and facilitate patient recruitment

ADDITIONAL EXPERIENCE

Cooperative Education Student **2010**
Oakville Trafalgar Memorial Hospital (Oakville, Canada)

- Observed and assisted in minor procedures (CBC/RBC/WBC, physiotherapy, taking blood samples, centrifuge, inserting/ removing catheters, inserting/ removing IVs, ultrasound, echocardiogram, taking patient history, enema, auscultation, dressing and packing wounds, MRI screening, etc)

Advanced Medical First Responder (AMFR) **2010- 2014**
St John's Ambulance (Oakville / Toronto, Canada)

- Primary first responder at various events requiring medical supervision
- Provided basic and advanced onsite medical care
- Collaborated and coordinated with Toronto EMS to provide onsite care at Canadian National Exhibition
- Received Commendation for Service

PROFESSIONAL EXTENSION

Ontario HPC Summer School, High Performance Computing training July 31, 2017 – August 4, 2017
The Centre for Advanced Computing (Kingston, ON)

Canadian Bioinformatics Workshop, Bioinformatics for Cancer Genomics May 29, 2017 – June 5, 2017
MaRS Building (Toronto, Canada)

PROFESSIONAL AFFILIATIONS AND ACTIVITIES

Member, Ontario Molecular Pathology Research Network **November 11, 2016 -**

AWARDS

The Jeremy Nesheim Graduate Travel Award (competitive) **2016**

- Travel grant awarded to select graduate students in the Department of Pathology and Molecular Medicine at Queen's University
- Awarded to support travel to the Rockefeller University (New York City, USA) for collaboration with the Laboratory of RNA Molecular Biology (Tuschl Lab)
- Funds awarded: $5,793 (CAD)

SickKids Summer Research Grant (competitive) **2015**

- Grant awarded to select students conducting research at the Hospital for Sick Children
- Funds awarded: $6366.36 (CAD)

SickKids Summer Research Grant (competitive) **2014**

- Grant awarded to select students conducting research at the Hospital for Sick Children
- Funds awarded: $6052.47 (CAD)

Charles Hollenberg Summer Studentship Award (competitive) **2013**

- Grant awarded to 15 students conducting diabetes-related research at the University of Toronto
- Funds awarded: $2517 (CAD)

Queen's University Excellence Scholarship **2011**

- Scholarship awarded to students whose high school average is greater than 90%
- Funds Awarded: $2000 (CAD)

St John's Ambulance Commendation **2011**

- Award for Advanced Medical First Responders who have demonstrated outstanding service

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SKILLS - MOLECULAR AND CELLULAR BIOLOGY

General biochemistry / molecular biology lab techniques:

- Western and Southern blots, Agilent 2100 Bioanalyzer, mass spectrometry, ELISA, SDS-PAGE, PCR, affinity chromatography, DNA and protein purification etc.

Basic tissue culture techniques:

- Media preparation, sub-culturing, and splitting of MCF7 breast cancer cell lines

SKILLS - PROGRAMMING, COMPUTATION, AND BIOINFORMATICS

Programming Languages:

- Python2, 3 (Advanced)
- MATLAB, Shell Scripting / UNIX, Perl (Functional)
- R, Java, Julia, HTML5, CSS (Basic Knowledge)

NGS- and Bioinformatics-specific software:

- SAMtools
- bedtools
- plink
- SHAPEIT & IMPUTE2
- GTOOL
- SRA Toolkit
- Bowtie / Bowtie 2

SKILLS - ADDITIONAL SKILLS AND CERTIFICATIONS

- Medical Terminology certificate
- Canadian Red Cross Infection Control training
- WHMIS
- Nonviolent Crisis Intervention
- Standard first aid with CPR-B

LANGUAGES

- English (oral and written) – Native
- French (oral and written) – Certificate of bilingualism

EXTRACURRICULAR

- Music (Violin, Saxophone, Guitar, Piano)
- Dancing (Swing dance instructor: Lindy Hop, Charleston, Jive)
- Writing (Published article in Life Beat newspaper)
- Fencing / Martial Arts (Queen's University Varsity Fencing Team, 2011-2015)
- Power Tumbling Gymnastics (2007 Youth Level National Power Tumbling Champion, 2009 Senior Level National Power Tumbling Medalist)