Guillaume Poirier-Morency

Bioinformatics Programmer/Analyst

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I currently work as a Bioinformatics Analyst at the Michael Smith Laboratories under the direction of Dr. Paul Pavlidis. I mainly work on Gemma, a platform for curating and re-analyzing data from gene expression studies and lead the development of the Rare Disease Models & Mechanisms Network platform.

I graduated in Computer Science at Université de Montréal and pursued a master degree specialized in Computational Biology and Deep Learning at the Institute for Research in Immunology and Cancer (IRIC) under the supervision of François Major. Our research mainly focused on the problem of understanding microRNA-mediated regulation of gene expression using partial differential equations and statistical models.

Featured skillset

- Programming in Java, Python, C, and a few other languages
- Web programming with Spring, OpenAPI and a frontend with Vue.js, HTML5, CSS 3
- Spring, Hibernate
- Software development with git, Meson, Maven
- Machine learning
- Mathematical modelling
- Numerical optimization
- RNA-Seq and WGS data analysis

Professional experience

Since 2019 **Bioinformatics Programmer/Analyst**, *The University of British Columbia*, Vancouver
Work under the direction of Dr. Paul Pavlidis at the Michael Smith Laboratories.

Summer 2019 **Teaching Assistant**, *Université de Montréal*, Montreal
Bioinformatics analysis (BIM6065C)

Automn 2018 **Teaching Assistant**, *Université de Montréal*, Montreal
Data structure (IFT2015/IFT6002)

2016 to 2017 **Research Intern**, *IRIC*, Montreal

Winter 2016 **Teaching Assistant**, *Université de Montréal*, Montreal
Mobile programming (IFT1155)

2014 to 2015 **Web Developer**, *RueDesJuristes*, Montreal
Web platform offering various juridic services for french corporations.

2012 to 2015 **Web and Software Developer**, *Hète.ca*, Montreal
Web development with PHP5 and the Kohana framework, jQuery, MySQL, SQLite and other tools.

Academic background and distinctions

2017 to 2021 **M.Sc.**, *Université de Montréal*, Montreal
Master of Computer Science with a Computational Biology focus

Summer 2016 **Award**, *Université de Montréal*, Montreal, $2000
FRQNT supplement for NSERC USRA awardees

Summer 2016 **Award**, *Université de Montréal*, Montreal, $5675
NSERC Undergraduate Student Research Awards

2014 to 2017 **B.Sc.**, *Université de Montréal*, Montreal
Bachelor degree in Computer Science

2013 to 2014 **B.Sc.**, *Université de Montréal*, Montreal
Bachelor in Computer Science and Mathematics

2010 to 2013 **College**, *Collège de Bois-de-Boulogne*, Montreal
College degree in Computer Science and Mathematics

2007 to 2010 **High School**, *Polyvalente Horizon-Jeunesse*, Laval

2005 to 2007 **High School**, *Évangéline High School*, Montreal

Projects and competitions

2022 **GemBrow**, *The University of British Columbia*, `https://gemma.msl.ubc.ca/browse/`
GemBrow is a modern browser for Gemma.

2020 **Gemma**, *The University of British Columbia*, `https://gemma.msl.ubc.ca/`
Gemma is a curated database of reanalyzed gene expression studies.

2020 **RDMM**, *The University of British Columbia*, `https://rare-diseases-catalyst-network.ca/`
The Rare Disease Model & Mechanism Network enables collaboration among canadian modal organism researchers to study rare disease.

2020 **MAGERS**, *The University of British Columbia*, Vancouver
Performed analysis on linked-read whole-genome sequencing and whole blood RNA-Seq data on a cohort of deeply phenotyped schizophrenia patients.

2019 **miRBooking-scan**, *IRIC*
Web application written Python with Flask and SQLite offering predictions from the miRBooking model over a set of commonly used cell lines.

2019 **Hackaton BDC**, *BDC*, Montreal

2017 **CSGames 2017**, *ÉTS*, Montreal
First places in Web and Relay Programming competitions, second place incryotocurrency mining challenge and third place in Artificial Intelligence.

2016 **CSGames 2016**, *UQÀM*, Montreal
Second place in Web competition.

Summer 2015 **RNA Engineering Lab**, *IRIC*, Montreal
Summer project at François Major's RNA Engineering Lab.

2015 **CSGames 2015**, *Université de Sherbrooke*, Sherbrooke
Second places in Web and Relay Programming competitions.

Valum, `https://github.com/valum-framework/valum`
Valum is a asynchronous Web micro-framework powering applications written in Vala.

2014 **WearHacks**, *La Commune*, Montreal
Hackaton with wearable devices.

2014 **CSGames 2014**, *ÉTS*, Montreal
Participation to Web and Database challenges.

Publications and contributions

2021 **ModelMatcher: A scientist-centric online platform to facilitate collaborations between stakeholders of rare and undiagnosed disease research**, *Human Mutation*

2021 **Curation of over 10 000 transcriptomic studies to enable data reuse**, *Database*

2020 **Modélisation des réseaux de régulation des gènes par les microARN**, *Papyrus*, `https://papyrus.bib.umontreal.ca/xmlui/handle/1866/25104`

2019 **Montreal RNA Salon**, *IRCM*, Montreal
First talk of the event presenting miRBooking 2.0.

2019 **CSMB Annual Conference**, Montreal
Short talk at the Computer Model session.

2019 **Forum Bioinfo**, *Université de Montréal*, Montreal
Presentation of my work on miRBooking 2.0 to a cohort of undergraduate students.

2018 **IRIC Symposium**, Montreal
Poster and rapid talk at an international symposium.

2018 **RiboClub Seminar**, Sherbrooke
Short talk introducing miRBooking 2.0.