# Zafarali Ahmed

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**EDUCATION**

**BSc. Quantitative Biology, Minor Computer Science**  Expected May 2017
McGill University, Montreal, Canada
*Relevant Courses:* Applied Machine Learning, Artificial Intelligence, Algorithm Design, Statistics
*Teaching Roles:* Undergraduate Teaching Assistant for Biophysics (2015-2017)

**SKILLS**

**Languages:** Python, JavaScript, Java, C/C++, bash
**Machine Learning Libraries:** SciKit-learn, Keras, TensorFlow

**EXPERIENCE**

**Computational Oncology Research Assistant**  Jan 2015 - Present
Gravel Lab, McGill University
- Developed a theoretical cancer model with 7,000+ lines of Python with eventual use of a C++ model to investigate tumor heterogeneity.
- Implemented pipelines to run batch data analysis and used high performance computing clusters to execute.
- Won a poster prize and received two grants from the Canadian government (See Awards).

**Co-Founder, Scientific Lead**  June 2015 - Dec 2015
QuantiScience, Montreal
- Engineered an algorithm to extract heart rate variability and infer mental stress from data obtained by the Fitbit Charge HR.
- Launched product to 3 beta testers and demoed in San Francisco as part of the top 10% of the AngelHack HACKcelerator.

**Software Developer Intern**  Summer 2014
Citation.io, Montreal.
- Developed, documented and delivered a front-end minimum viable product for an online reference management software using AngularJS and D3.js.

**VOLUNTEER POSITIONS**

**Founding Member and Co-Vice-President Events**  2015 - Present
McGill Integrative Bioscience Students Society
- Launched a club for interdisciplinary biologists, successfully partnering with Google and Microsoft. Organized 5 events with an average of 80+ people per event.

**AWARDS AND HACKATHONS**

**Computational Biology Summer Studentship Award**  2015 and 2016
Canadian Institutes of Health Research
**1st Place, Mathematical and Computational Sciences**  2015
McGill Undergraduate Research Conference
**Tomlinson Engagement Award for Mentoring**, McGill University  2016 and 2017
**1st Place**, Microsoft BrunchHack: Machine Learning  2015
**1st Place**, AngelHack Montreal  2015
**2nd Place**, Montreal Expedia Hackathon  2015
**Natural Language Processing (NLP) Prize**, Big Data Week Hackathon  2015

**CONFERENCES AND TALKS**

**The Rise of Conversational AI**  2016
Montreal Inaugural Chatbot Meetup, Microsoft Montreal
**Computational Modeling and Inference of Genetic Diversity in Cancer**  2016
Functional Genomics Group, Goodman Cancer Research Centre, Montreal
**Predicting with Data**  2016
Osmos Academy Montreal
**Mathematical Modelling of Infectious Disease Spread**  2016
Mathematical Bioscience Institute, Ohio State University
**Impact of Tumor Dynamics on Heterogeneity, Sampling Bias & Metastasis**  2015
Undergraduate Research Conference, McGill University

**PUBLICATIONS**  **Ahmed Z.** and Gravel S. (2017). *Genetic Diversity in Circulating Tumor Cells* - Submitted. [preprint: https://doi.org/10.1101/113480]

**SELECTED PROJECTS**
(full portfolio at
www.zafarali.me)

### MinervaBot
April 2016 - Present

- Designed and launched a Facebook Messenger bot to help students find information about courses and buildings on McGill campus.
- Implemented machine learning classifiers, information retrieval and clever REGEX-based algorithms resulting in $> 80\%$ bot success rate.

### Towards electroencephalography-based prosthetics
Sept 2015 - Dec 2015

COMP 598: Applied Machine Learning [Grade: A]

- Compared transfer learning approaches versus personalized learning of neural networks, logistic regression and support vector machines as software for 3D printed arms.

### Analysis of Urban Spatial Patterns
April 2014

GEOG 217: Cities in the Modern World Final Project [Grade A: 90%]

- Planned and executed a field survey to discover 8 key urban metrics of 14 Montreal neighbourhoods. Used statistical analysis to interpret the relationship between space and urban metrics.