

# Mohamed Shaaban

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## Education

### The University of Toronto

Toronto, Canada

#### INCOMING M.Sc. PHYSICS

Sep. 2018 - PRESENT

- One year masters program in physics with **full scholarship and salary** beginning September 4th 2018 until August 2019

### The University of British Columbia

Vancouver, Canada

#### B.Sc. COMBINED HONOURS PHYSICS & MATHEMATICS WITH DISTINCTION & CO-OP

Sep. 2012 - Apr. 2018

- Recipient of the prestigious **International Leader of Tomorrow (ILOT) award**, a full scholarship awarded to students who demonstrate superior academic achievement, leadership skills, involvement in student affairs and community.
- Coursework included microeconomics, symbolic philosophy, software engineering, academic writing and applied probability
- Awards & Honours:** -Dean's list -Chancellor's Scholarship -Dean of Science Scholarship -SURE Award, -Go Global Award -Faculty of Science Scholarship -Academic Distinction -Co op Distinction - Honours Thesis: *A Photogrammetric Analysis of the CHIME Antenna*
- Overall **GPA: 3.9**, Top 60 credits **GPA: 4.0**, Supervised by the **Breakthrough Prize** recipients Gary Hinshaw and Mark Halpern.

## Experience

### Canadian Hydrogen Intensity Mapping Experiment (CHIME), UBC

Vancouver, Canada

#### SURE RESEARCH SCHOLAR & UNDERGRADUATE THESIS RESEARCHER

Apr. 2017 - May. 2018

**"CHIME is a revolutionary new radio telescope designed to probe the mysteries of Dark Energy"**

- Reduced the number of thermometers required to monitor CHIME by 91.5% (4096 to 348) by developing a predictive thermal model.
- Enabled the production of sufficiently accurate sky data by designing and implementing a strategy to monitor CHIME's 4096 antenna and provide an upper limit on the instrument's systematic error.
- Conclusively proved the impossibility of calibrating CHIME via radio interference signals by investigating and analyzing existing data.
- Designed and implemented the deployment and installation procedure for CHIME's 4096 amplifiers and 348 thermometers.

### Max Planck Institute for Solid State Research

Stuttgart, Germany

#### MANY BODY QUANTUM THEORY RESEARCHER & GO GLOBAL RESEARCH SCHOLAR, METZNER GROUP

May. 2016 - Jan. 2017

**"The Metzner group specializes in theoretically analyzing and computing properties of quantum materials"**

- Proved the ability to increase the strength of a magnetic field applied to a topological material by 200% by generalizing the concept of strain induced pseudo-magnetism, thus indicating potential application in quantum computation.
- Presented my scientific findings as an invited speaker at the prestigious **Albert Einstein Institute** in Potsdam and the undergraduate research conference at the Max Planck Institute in Stuttgart.

### Tasktop Technologies

Vancouver, Canada

#### JUNIOR SOLUTIONS ENGINEER

Sep. 2012 - Feb. 2013

**"Tasktop is a value stream management solution for software organizations, that connects development and operation tools"**

- Optimized the solution development process by automating a variety of tasks, such as, eliminating the need for a script specialist.
- Increased the synchronization speed of the "Tasktop Sync" product by developing a custom feature known as the reconciler.
- Designed and developed custom software solutions for Tasktop's flagship clients, such as NASA and National Bank of Canada.

### Housing and Hospitality Services, UBC

Vancouver, Canada

#### RESIDENCE ADVISOR & CHAIR OF COFFEE HOUSE COMMITTEE

Aug. 2015 - Jan. 2016

- Enhanced the residence experience by using a peer-to-peer approach to support wellness, safety and security, community building and personal development for students in residence.
- Facilitated connections between residents the available resources on campus while enforcing the housing contract rules.

### Department of Physics & Astronomy UBC

Vancouver, Canada

#### TEACHING ASSISTANT

Jan. 2017 - May. 2017

- Facilitated the learning of basic concepts in statistics and experimental physics aimed towards engineering students.
- Demonstrated a variety of physics experiments and performed administrative tasks such as grading and preserving student records.

## Community

### Alma Mater Society, UBC

Vancouver, Canada

#### CHAIRPERSON, SPEAKER OF COUNCIL, CHAIR OF EXTERNAL RELATIONS, OVERSIGHT & BOARD MEMBER

Sep. 2013 - Jun. 2018

**"AMS's mission is: To improve the quality of the educational, social, and personal lives of the students of UBC."**

- Organized a 1200 student meeting along with the first quorum annual general meeting in over 40 years (500+ students) enabling the society to pass a directive to oppose proposed changes by the university. This directive is still in effect today.
- Ensured efficient board meetings by enforcing Robert's Rules of order and providing code/policy rulings and interpretations.
- Streamlined the society's external operations by reviewing all 36 external policies and implementing the necessary changes.
- Ensured accountability of the executives by reviewing their strategies, goals and deliverables and assigning a monetary bonus.

## Science Undergraduate Society, UBC

Vancouver, Canada

### VICE PRESIDENT EXTERNAL, CHAIR OF CORPORATE RELATIONS & FY REPRESENTATIVE

Sep. 2013 - Sep. 2015

**"The Science Undergraduate Society aims to promote the academic, physical, and social well-being of UBC Science students"**

- Founded the Science Careers Month, an annual conference that provides science students with broad exposure to potential careers.
- Streamlined SUS sponsorship process by creating a variety of sponsorship packages, securing new major sponsors such as Red Bull.
- Increased the involvement of freshmen by founding the "first year alliance" and organizing a series of freshmen oriented events.

## Speak Up Speak Loud

Various Locations

### FOUNDER & COACH

Sep. 2012 - PRESENT

**A student led initiative to provide free public speaking coaching to students in leadership roles**

- Designed and presented an award winning public speaking training workshop (SLC 2015 best workshop award).
- Provided training in prepared and unprepared speech to a range of people including the UBC sustainability team.

## Physics Society, UBC

Vancouver, Canada

### PRESIDENT

Apr. 2018 - Sep. 2018

**The Physics Society provides academic, career and advocacy support for the physics undergraduate community.**

- Cut the costs of the annual Physics Undergraduate Conference by over 60% without impacting turn out or the quality of execution.
- Designed a 4 point strategy with executable deliverable addressing the core problems of the society as identified by the membership.
- Designed and proposed the physics undergraduate help center, a student service that provides free physics tutoring.

## LET's Charity

Vancouver, Canada

### CHAIR & VICE PRESIDENT

Sep. 2013 - Sep. 2014

**LET's promotes education in underdeveloped communities by utilizing technology to reduce the cost of access to education.**

- Raised over 3000\$ for a school in Pakistan by organizing a series of party themed fund raising events and information sessions.
- Managed the organization's internal tasks such as chairing the meetings, hiring and training the team, and overseeing policies.
- Provided technical advice on pilot project ideas and designs.

## Skills

|                            |   |
|----------------------------|---|
| <b>Computer</b>            | SQL, Microsoft Office, LaTeX, Tasktop Sync, Grafana.  |
| <b>Programming</b>         | C, C++, JAVA, Python, Jupyter, Groovy, Velocity, Ruby, Assembly, MATLAB, Racket(Scheme).                      |
| <b>Laboratory</b>          | Microprocessors, Lathe, Mill, Oscilloscope, Function Generator, Digital Millimeter, Data Collection/Analysis. |
| <b>Language</b>            | English, Arabic (most dialects).  |
| <b>Other</b>               | QPR Certified (suicide intervention), Public Speaking, Event/logistics planning, Budget Management.           |
| <b>Non-Academic Awards</b> | Duke of Edinburgh Award, SLC Best Presenter Award, Rugby Endurance Award, Toastmasters Youth Award.           |

## Personal

### General Philanthropy

Various Locations

#### VOLUNTEER

Sep. 2010 - PRESENT

- Secured a donation of over 20,000\$ from ADNOC to implement environmentally friendly changes to AAESS (my high school).
- Volunteered as an entertainer and support provider at a shelter for domestically abused women and children.
- Worked with 5th grade students at BC public schools teaching them about human rights and Canadian law.
- Raised over 15,000\$ in donations for the Al Ain Hospital breast cancer research efforts.

### Personal Technical Projects

Various Locations

#### DESIGN & IMPLEMENTATION

Sep. 2011 - PRESENT

- Designed a car engine heat recycling system that could increase a combustion engine's efficiency by up to 20%.
- Secured a 300\$ sponsorship from Palm Resorts to build an operational hovercraft from every day household items.
- Designed and built an alcohol powered Micro-Steam Car on a 25\$ which came in first place at the Al Ain micro-steam car competition.
- Used the MSP430 microprocessor and a gyroscope sensor to build an Euler Angle orientation measurement device aimed for satellites.

### Interests

Besides being interested in problem solving, I am passionate about the outdoors. I am a very active individual with a love for sports, especially rugby, weightlifting and recently cross-fit. In my free time, I enjoy reading about mysterious things, especially with regard to psychology, history, evolutionary biology, philosophy, and business. I am very involved in philanthropy (education in developing countries in particular), leadership development, public speaking, and debate. I am also a foodie who enjoys cooking as well as an avid lover of anime, Japanese animated series.