

# Amna Hyder

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Technical Researcher, Entrepreneur and Passionate Science Educator.

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## Education

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### Neuroscience Masters at UBC

Sept/16 - April/20

- Thesis investigates differences in the mirroring and mentalizing systems using several computational methods applied to EEG data. Thesis available at [amnahyder.com/research](http://amnahyder.com/research)
- Previous thesis explores emergent properties in a variety of different social contexts by measuring two brains simultaneously
  - Look at differences in functional connectivity and between-brain coupling:
    - in cooperative, competitive and independent conditions, as well as
    - in the joint experience of ostracism with either common vs. divergent mindsets
- Collect and analyze EEG data on concussed individuals to identify biomarkers of concussion
- Use graph theory analysis to investigate the effects of chemotherapy on the brain
- Investigate how functional connectivity is altered for individuals with cerebral palsy while undergoing mobility rehabilitation
- Study how functional connectivity is altered in a variety of eating disordered states
- Scholarships: Faculty of Medicine Graduate Award (\$6,500); Cordula and Gunter Paetzold Fellowship 2017 (\$12,000); Cordula and Gunter Paetzold Fellowship 2018 (\$6,000).

### Center for the Integration of Research, Teaching, and Learning (CIRTL) Associate

Sept/11 - May/14

- Earned a CIRTL teaching certificate as part of a program that trains post-docs and PhD students in evidence-based teaching methods.

### Computation and Cognitive Neuroscience Summer School (CCNSS)

June/18 - July/18

- Selected as one of 32 students from 14 different countries (<http://www.ccns.org/ccn-2018>)
- Program trains PhD students in research domains associated with Computational Neuroscience with several world-renowned researchers over the course of several weeks. All programming is done in **Python**.
- Full scholarship with all living expenses (hotel & food) covered by funding from google DeepMind

### Honours Bachelor of Integrated Science at McMaster University

Sept/10 - May/14

- Elected as valedictorian for graduating class
- Graduated with highest distinction (*summa cum laude*) and Deans Honours List
- Integrated Science is a competitive interdisciplinary program that expresses a holistic view of science through research projects that emphasize leadership, group work, research, presentation and writing skills
- Completed thesis in *mathematics and statistics* on a graph theory analogue for dimensionality reduction

### Completed a concentration in Physics and Astronomy at McMaster University

Sept/11 - May/14

### John Fraser Secondary School, Mississauga

Sept/06 - June/10

- 4.0 average last two years.
  - Received "Friends of Fraser Award" and Silver Award in 2009 and 2010 respectively
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## Publications (author underlined>

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Brucar, L.R., Hyder, A. and Birmingham, C.L. (2018). Normalizing the Neural Correlates of Binge-Eating Disorder with Lisdexamfetamine: A Case Report and Review of the Literature. *OJPSYCH, Special Edition*.

Porter, S., Torres, I. J., Panenka, W., Rajwani, Z., Fawcett, D., Hyder, A., & Virji-Babul, N. (2017). Changes in brain-behavior relationships following a 3-month pilot cognitive intervention program for adults with traumatic brain injury. *Heliyon*, 3(8), e00373

**Hyder, A.**, and Maung, M. (2014, April). "Using the First Three Eigenfunctions of the Combinatorial Laplacian for Dimensionality Reduction". McMaster University.

- Final thesis report exploring how effective first three eigenfunctions of the combinatorial laplacian are in a variety of applications (protein-protein interactions, carcinogenicity predictions, mortgage prepayment loan prediction). Developed theory behind the statistical method and developed models to use it in

**Hyder, A.**, and Colgoni, A. (2013, April). "Efficacy of Problem Based Learning Approaches Across Programs at McMaster". McMaster University.

- Research featured in McMaster Daily News. Explored the efficacy of a variety of problem based learning programs using student responses from each program

**Hyder, A.** (2012). Evidence for Primordial Life. In C. Eyles & S. Symons (Ed.), *History of the Earth (Volume II)*. Hamilton: ON.

- Authored chapter in earth science textbook. Assisted in editing process.

#### **Conference Presentations** (author underlined)

**Hyder, A.**, and Virji-Babul, N. (2018, June). "Increased network connectivity across all frequency bands in adolescents with concussion". Organization for Human Brain Mapping, OHBM. Singapore.

**Hyder, A.**, and Virji-Babul, N. (2018, May). "Functional Connectivity of Between-Brain Coupling in Social Contexts". Canadian Association for Neuroscience, CAN-ACN. Vancouver.

**Hyder, A.**, and Virji-Babul, N. (2018, May). "The Effect of Social Context on Functional Connectivity and Between-Brain Coupling". GF Strong Rehab Research Day, University of British Columbia, Vancouver, BC. (60+ presentation attendees)

**Hyder, A.**, and Birmingham L. (2016, October). "Using Vyvanse To Normalize The Neural Correlates Of BED": A Case Study. 22nd Annual EDRS Meeting in New York City, NY.

**Hyder, A.**, and Maung, M. (2014, April). "Dimensionality Reduction". Presented at the Synthesis Symposium, McMaster University, Hamilton, ON.

**Hyder, A.**, McDonough, D., Peng, M. (2013, December). "Efficacy of Levodopa vs. Rasagiline in the Treatment of Parkinson's Disease". Presented in the Health and Disease Symposium, McMaster University, Hamilton, ON.

**Hyder, A.**, and Colgoni, A. (2013, April). "Efficacy of Problem Based Learning Approaches Across Programs at McMaster". McMaster University.

**Hyder, A.**, (2010, June 25). "The Faces of International Hunger vs. National Hunger". Eden Community Food Bank OTF Grant Kick-Off Event. Mississauga, ON.

**Hyder, A.** (2010, June 1) "Hunger in Canada" Presented at Mississauga Hunger Awareness Breakfast at Eden Community Food Bank. Mississauga, ON.

#### **Awards & Accomplishments**

- 2018: Full scholarship and living expenses for the CCNSS
- 2018: Cordula and Gunter Paetzold Fellowship 2018 (\$6,000)

- 2017: Cordula and Gunter Paetzold Fellowship 2017 (\$12,000)
- 2017: Finalist for MAX Gala Women in Science Award (\$6,000)
- 2016: Faculty of Medicine Graduate Award (\$6,500)
- 2014: Elected as Valedictorian for Graduating Class
- Class Pedagogical Research presentation previewed on McMaster Daily News (2013)
- 2012: Muslims for Humanity Award
  - Awarded for large leadership role in Muslim community (ICNA Relief). Acknowledged critical role in organizing leadership development in community.
- 2010: McMaster University President's Award (\$2500)
- 2010: Realizing our Vision Silver Award - John Fraser S.S.
  - Awarded to student actively involved in developing school community. Recognized efforts to develop more environmental awareness at the school, and integrating school community

### Career Experience

#### CEO at BabyChild and Naturally Henna Oct/18-current

- Links: [www.shopbabychild.com](http://www.shopbabychild.com) and [www.naturallyhenna.com](http://www.naturallyhenna.com)
- ¾ of a million dollars in sales in the first year. Take home profit of \$38,000 within the first few months
- Designed and developed several products. Hired and trained employees. Designed the website, managed shipping, fulfillment and customer service. Also took care of all the marketing and most product photography

#### Research Assistant at the Action Perception Lab Sept/16- Oct/18

- Managed the lab website, all accounts/finances and overseeing several projects in the lab

#### TA at UBC for Psych 101 May/13-Current

- Lead and prepared tutorials for class. Marked exams and projects
- Did one guest lecture for all tutorial sections

#### Credit Risk Modeling Analyst at Scotiabank Sept/14-Sept/15 and May/16-Sept/16

- Respond to requests by OSFI and publish quarterly reports for validation reports
- Used SAS, VBA and SQL to build models
- Help develop scorecard models for various products

#### Tutor at Queen Elizabeth Academy May/13-Current

- Design lesson plans for students in advanced functions, calculus and vectors, grade 11-12 chemistry, grade 11-12 physics, and grade 10 science

#### Research Assistant with Dr. Birmingham Sept/15-May/16

- Statistical Analysis of data from neurofeedback sessions
- Helped with neurofeedback sessions for eating disorder patients

#### Tutor at Queen Elizabeth Academy May/13-Sept/15

- Design lesson plans for students in advanced functions, calculus and vectors, grade 11-12 chemistry, grade 11-12 physics, and grade 10 science

#### Research Assistant the Department of Mathematics at Statistics at McMaster May/13-May/14

- Looked into statistical problem of dimensionality reduction (how first few eigenfunctions of combinatorial laplacian can be used to reduce dimensionality of higher dimensional data sets)
- Applied this to prediction of mortgage prepayment loans, and data sets in biochemistry

- Youth Mentor for the Youth Leadership Development Program Mississauga** **May/12-July/12**
- Responsible for supervision and planning of activities for group of students in summer leadership camp
  - Worked to instill leadership qualities in students and invited them to engage in leadership opportunities
- Piano Teacher** **May/13-Current**
- Prepared lesson plans to get student to pass royal conservatory of music exams
- Credit Analyst at Scotiabank** **May/11-Sept/11**
- Assisted in project management by organizing and checking deliverables, proof-reading documents, and monitoring tasks during the development of the new EGL
  - Role included documentation of minutes and updating progress on key deliverables
- Teaching Assistant (TA) for the Peel District School Board** **June/10-July/10**
- Wrote and marked tests, quizzes and an exam that would help prepare them for more advanced math later
  - Previously acted as a TA in grade two grade 10 science classes
  - Employed new teaching methods for lectures (such as videos, group work, games)
- Subway Restaurant (Erin Mills Town Center)** **Feb/09-Oct/09**
- Operated cash register, prepared food for customers, and marketed specials or deals

### Extracurricular Activities

- Part-Time Photographer** **Aug/18-Jan/2020**
- Photographed a few weddings and engagement shoots.
- Youth Engagement Manager at The Citizens Foundation in Canada** **Dec/14-Dec/18**
- The Citizens Foundation is one of the world's leading non-profit organizations in the field of education of the underprivileged, and has developed 1000s of purpose-built schools in Pakistan
  - Helped manage the Drive to See them Thrive campaigns that brought in a quarter of a million dollars each year. Helped plan yearly galas in Toronto and Vancouver, Canada.
  - Flown in to speak at the Toronto TCF 2016 gala (in front of 1000+ guests)
- President and Founder of Students Teaching Students Ontario** **Dec/10-Current**
- Founded organization that provides guests lectures to schools throughout Ontario by several motivated university students on their fields of interest ([www.stsontario.org](http://www.stsontario.org))
  - Gave over 20 guest lectures on cutting edge research in science related to students curriculum
  - Developed a Science Fair for grade 7-8 students with individual peer mentors to guide students on the scientific method
  - Aim is to provide fresh new perspective to curriculum and answer questions about post-secondary pathways
- VP Administration of Origins Society at McMaster University** **May/13-May/14**
- Responsible for overseeing all administrative duties for society comprising of all origins institute members
  - Helped in organizing origins related events and ensuring weekly colloquia and public lectures ran smoothly
- Honorary Member of Pakistani Professional Forums** **2007-Current**
- Founded to bring together a community of Pakistani/Canadian professionals for networking and community development purposes
  - Manage youth related events for the networking

**Academic Mentoring** **Jan/13-May/14**

- Physics Help Initiative (PHI) at McMaster (Sept/2012-May/2014)
- iSci Society Academic Mentor (Sept/2011-May/2014)
- Social Science Senior Scholar at John Fraser Secondary School (2008-2010)

**Peer Coaching at John Fraser** **Jan/09-June/10**

- Received week-long councilor training on how to assist guidance councilors in dealing with at risk students.
- Trained as Peer Mediators that can assist students who want to solve problems they are having with other students.
- Weekly meetings with students who need extra support.

**Royal Treatment at John Fraser** **Sept/07-June/10**

- Acted as Segway between faculty staff and parents.
- Helped in organizing all faculty run events at John Fraser such as weekly parent-teacher information sessions, parent-teacher nights, graduations or after-school events

**Clubs and Organizations Liaison Representative** **Dec/10-Current**

- Elected to be responsible for overseeing all the clubs and organizations at John Fraser Secondary School
- Hosted school wide Clubs Fest to introduce students to clubs at the school and develop integrated community

**Volunteer Experience****Research Assistant in Computational Biochemistry Department** **May/14-Current**

- Applied statistical method developed throughout thesis to the prediction of carcinogenicity of polycyclic aromatic hydrocarbons (PACs)
- Determined which properties of PACs contribute to carcinogenicity using 1700 hundred properties of 200 PACs with corresponding carcinogenicity ranges
- Applied the combinatorial laplacian & pre-established statistical methods to data to make a predictive model. Currently working on publication of results in a peer reviewed journal

**Honorary Annual Science Fair Judge and Mentor at Al-Falah** **2010-Current**

- Honorary judge at the annual Al-Falah Science fair
- Help teachers better prepare students corresponding to BASEF guidelines.
- Provide students with thorough individual feedback to help them understand the scientific method, and the nature of scientific research

**International Fundraising Initiatives**

- Fundraising Manager for TCF (The Citizens Foundation): Dec/12-Current
  - TCF is one of the biggest and fastest growing non-profit organizations globally
  - Role included recruiting support teams across Ontario to help fundraise, and leading an independent fundraising team
  - Responsible for developing new ideas to expand awareness and fundraising as well as in event preparation
- Honorary member of McMaster EMPOWER: Eliminating Manipulation and Poverty Worldwide through Educational Revival: Sept/10-April/14
  - Responsible for the preparation of events throughout the school year to raise funds supporting the development of sustainable schools and education projects in underprivileged countries globally
- Canadian Coordinator of SAYA trust: June/09-Current

- Family owned non-profit school in Islamabad (Pakistan). Responsible for coordinating Canadian fundraising events and donations

**Teaching Assistant for Grade 10 Science**

**Dec/10-June/10**

- Volunteer teaching assistant responsible for helping students that need more support, marking labs or quizzes, and presenting short lessons

**Over 400 Volunteer Hours at Community Service Based Organizations**

**Sept/07-current**

- 220 volunteer hours at Al-Falah Elementary School
- Speaker and volunteer at Eden Community Foodbank
- Helped plan the annual Synthesis Symposium at McMaster highlighted integrated research across the university
- Remaining hours at volunteer opportunities hosted by *Volunteering Peel, PEYA, Integrated Science and McMasters Soup Kitchen*