

Mohammad H. Yaghoubi, [Email](#), [LinkedIn](#), [Google Scholar](#)

Education

- Ph.D. in Neuroscience.** McGill University. Canada. **Jan 2019 – Present**
Thesis: Developing deep-learning tools for understanding high-dimensional neuronal data.
- M.Sc. in Physics.** University of Calgary, Canada. (GPA: 3.90/4) **Jan 2016 – Dec 2018**
Thesis: Neuronal avalanche dynamics and criticality in neuronal cultures.
- B.Sc. in Physics.** University of Zanjan, Iran. (GPA: 92.40/100) **Sep 2011 – Sep 2015**
Thesis: Analytical solution for normal modes of a defected linear mass-spring system.

Research Experiences

- **Summer School:** DLRL Summer School. Alberta University, Edmonton, Canada. **Jul – Aug 2019**
- **Internship:** RIKEN Center for Brain Science (CBS), Japan. **Jun – Jul 2017**
Advisors: Dr. Andrea Benucci
Project: Comparing performance of different measures of functional connectivity in the mouse visual cortex.
- **Internship:** Charles University, Czech Republic. **Jul – Aug 2015**
Advisors: Dr. Artem Ryabov, Dr. Ebrahim Fouladvand
Project: Developing an analytical solution for a non-equilibrium stochastic Brownian ratchet.
- **Software Development:** Participating in developing an open-source software suite for the large-scale analysis of calcium imaging recordings "**NETCAL**".

Publications

- **M. Yaghoubi**, T. Graaf, J. Orlandi, F. Giroto, M. Colicos, and J. Davidsen, "Neuronal avalanche dynamics indicates different universality classes in neuronal cultures". *Scientific Reports*, 8(1), 3417. (2018)
- **M. Yaghoubi**, E. Foulaadvand, A. Brut and J. Luczka, "Energetics of a driven Brownian harmonic oscillator". *Journal of Statistical Mechanics: Theory and Experiment*, 2017(11), 113206. (2017)
- V. Holubec, A. Ryabov, **M. Yaghoubi**, M. Varga, A. Khodaei, E. Foulaadvand, and P. Chvosta. "Thermal ratchet effect in confining geometries". *Entropy* 19, no. 4: 119. (2017)
- A. Aghamohammadi, E. Foulaadvand, **M. Yaghoubi**, and A. Mousavi. "Normal modes of a defected linear system of beaded springs". *American Journal of Physics* 85, no. 3: 193-201. (2017)
- A. Ryabov, V Holubec, **M. Yaghoubi**, M. Varga, E. Foulaadvand, and P. Chvosta. "Transport coefficients for a confined Brownian ratchet operating between two heat reservoirs". *Journal of Statistical Mechanics: Theory and Experiment* 2016, no. 9: 093202. (2016)

Presentations

- "Dynamics of hippocampal neurons in a highly cognitive-demanding task" Oral, HBHL research day, Montreal, Canada. **Aug 2020**
- "Critical dynamics in neuronal systems" Oral, GSA Peer Beyond Symposium, Calgary, Canada. **Feb 2018**
- "Neuronal avalanches and Critical dynamics at neuronal systems" Oral, International Symposium on Complexity Science Approaches to Brain Dynamics, Calgary, Canada. **Oct 2018**
- "Comparing measures of functional connectivity in the mouse visual cortex". Oral, RIKEN CBS Summer program, Tokyo, Japan. **Jul 2017**
- "Non-trivial neuronal avalanche dynamics in developing neuronal cultures". Poster, RIKEN CBS Summer Program, Tokyo, Japan. **Jul 2017**
- "Neuronal avalanche dynamics in neuronal cultures". Oral presentation, Annual Physics Symposium, University of Calgary, Calgary, Canada. (best oral presentation award) **Feb 2017**

Honors and Awards

- McGill Faculty of Medicine Doctoral Fellowship. (12,000 \$) **2020 – 2021**

- McGill Faculty of Medicine Doctoral Fellowship. (12,000 \$. declined) **2019 – 2020**
- HBHL (Healthy Brains, Healthy Lives) Doctoral Fellowship. (15,000 \$) **2019 – 2020**
- McGill Integrated Program in Neuroscience (IPN) Recruitment award. (4000 \$) **2019**
- Travel award for an internship at RIKEN BSI, Japan. (3,000 \$) **2017**
- Departmental graduate student excellence award. (5,500 \$. 2 consecutive years) **2017 & 2018**
- Travel award for an internship at Charles University, Czech Republic. (1000 \$) **2015**

Teaching Experiences

- Machine Learning Teaching Assistant. (MILA) **Fall 2020**
- Electromagnetism and Thermal Physics: Lab Teaching Assistant. (University of Calgary) **winter 2017 & 2018**
- Mechanics: Lab Teaching Assistant. (University of Calgary) **fall 2016 & 2017**
- Quantum Mechanics I & II: Teaching Assistant. (University of Zanjan) **fall 2014 & winter 2015**

Additional Skills

- **Computer Skills:** Python, C++, Matlab, Maple, Machine Learning, Deep Learning.
- **Languages:** English (fluent), Persian (mother tongue), Arabic (basic)
- **Leadership Experiences:**
 - Get-Together Chair on the HBHL Trainee Committee. (McGill University) **2019 – 2020**
 - Co-organizer and co-chair of Third Annual Physics Symposium. (University of Calgary) **Feb 2018**
 - Executive member of Departmental Graduate Association. (University of Calgary) **2017 – 2018**
 - VP Events of the Iranian Students Association. (University of Calgary) **2016 – 2017**

References

- **Dr. Mark Brandon**, Ph.D. advisor. Department of Psychiatry, McGill University, Canada. [Email](#).
- **Dr. Joern Davidsen**, M.Sc. advisor. Department of Physics, University of Calgary, Canada. [Email](#).
- **Dr. Andrea Benucci**, Internship advisor. RIKEN Center for Brain Science, Japan. [Email](#).
- **Dr. Ebrahim Fouladvand**, B.Sc. advisor. Department of Physics, University of Zanjan, Iran. [Email](#).