
Education

- 2018-2019 **Harvard University**, *Exchange Year*, Boston, USA.
◦ Masters thesis research in theoretical neuroscience, courtesy of Bertarelli Fellowship.
◦ *Supervisor*: Prof. Cengiz Pehlevan (Harvard SEAS).
- 2017- Now **École Polytechnique Fédérale Lausanne (EPFL)**, *MSc Physics*, Switzerland.
◦ Specialization: Statistical mechanics of machine learning, theoretical neuroscience.
◦ Mark: 5.5/6.0
- 2014 - 2017 **Imperial College London**, *BSc in Physics*, United Kingdom.
◦ Grade: First-Class Honours
- 2012-2013 **Sunway College**, *GCE A Levels*, Kuala Lumpur, Malaysia.
◦ Results: 4A*s in Physics, Mathematics, Further Mathematics, Chemistry

Academic Awards

- 2018-2019 **Bertarelli Fellowship**, *Harvard Medical School*, Boston, USA.
Generous award for Masters thesis research to be conducted at Harvard.
- 2018 **Janelia Undergraduate Scholarship**, *Howard Hughes Medical Institute*, Virginia, USA.
Summer research scholarship to Janelia Research Campus at Ashburn, Virginia.
- 07-08/17 **Bursary from Durham Biophysics**, *Durham University*, Durham, England.
UROP bursary for summer research project from Durham biophysics grant (of Tom Mcleish)
- 2017 **First-Class Honors Award**, *Imperial College London*, UK.
Highest academic classification for bachelor's degree.
- 10/17-7/17 **Public Services Department of Malaysia Scholarship Award**.
For excellence in high school and A-level studies. Covered full expenses for bachelor's degree
- 2012-2013 **Ministry of Education of Malaysia Bursary Award**.
Awarded for nationwide excellence in high school leaving examinations. Covered full expenses for A-levels studies.
- 2011 **High School Diploma Award**.
Highest possible grade of 10A+'s.

Industry and Research Experience

- 08/19 - Now **Harvard University - Department of Applied Mathematics**, *Cambridge*, USA.
◦ Masters project as a *Bertarelli Fellow*.
◦ Developing mathematical models of neural computation, involving training and simulating biologically plausible neural networks.
- 07/18 - **Janelia Research Campus - Howard Hughes Medical Institute**, *Virginia*, USA.
08/2018

- Summer research as a *Janelia Undergraduate Scholar*.
- Developed numerical simulations of biological neural network models in the fruit fly brain, linking structure to the insects behaviour of keeping track of heading in the dark.

10/17 - 06/2018 **EPFL - Physics of Complex Systems Laboratory (PCSL)**, *Lausanne*, Switzerland.

- Semester Project(s) in theoretical physics applied to machine learning problems.
- **Semester 3** - "*Extended Plefka expansion for neural network models*". I applied techniques from statistical physics to simulate and decipher the dynamics in a trained neural network.
- **Semester 2** - "*Energy Landscape of Deep Learning*" - Worked on theoretical understanding of deep learning by numerically computing the loss landscape of trained convolutional neural networks. Studied the effect of data structure on the landscape curvature.

06/17-07/17 **Oxford University - Department of Experimental Psychology**, *Oxford*, UK.

- Summer Research intern.
- "*Mean and Variance Adaptation In Visual Perception*" - Modelling and theory of visual perception by adaptation to mean and variance, focusing on reproducing psychophysical experimental results.

06/14-07/14 **Operations Intern**, *CIMB Bank*, Kuala Lumpur, Malaysia.

- Worked on part of a RM600 million internal cost-cutting initiative for Malaysia's leading bank.

Leadership Experiences

09/17-02/19 **Vice-President, ShARE EPFL**, Lausanne, Switzerland.

- Rose from junior member to vice-president within a year, in EPFL based international student think-tank and consulting club.
- Advised a CHF100 million EPFL-based Swiss blockchain startup on market strategy and product development.
- Conducted recruitment, interviews, and trainings for junior member for two semesters.
- Successfully sourced project from EPFL based medtech startup, well-known for ground-breaking neuroprosthetic technologies. Negotiated in person with CEO of said company.

10/16-06/17 **Head of Padel Activities**, *Imperial College Latin-American Society*.

- Led a team of padel enthusiasts at Imperial to establish regular playing sessions.

10/14-06/14 **Fundraising Volunteer for Childreach International**, *London*, UK.

- Fundraised £3000 for Childreach International in 2014 for a charity expedition trip, by leading various fundraising initiatives.

01/13-08/14 **Math and Physics Personal Tutor**, Kuala Lumpur, Malaysia.

- Taught math and physics to up to six students for high school and A-level examinations. Top student is currently reading Engineering at Cambridge University.

Skills and Other Interests

IT Skills Expert: Python, MATLAB, LaTeX, MS Office

Proficient: TensorFlow, Keras, Theano, Pytorch; Julia, R, Mathematica, Java, PHP, Angular, Ionic

Languages Fluent: English (native), Spanish (C1 level), French (B2 level), Malay (native)

Elementary: Tamil, Mandarin

Sports Tennis: Represented state at junior level in 2009 (winning silver) and 2010 (winning bronze).

Football: Represented school in 2011.

Music Guitar (self-taught) and piano (up to Grade 5). Performed for high school prom night.
Volunteering Childreach International (2014/15), Crisis at Christmas(2016)
Hobbies/Interests Foreign languages, hiking and outdoors, strength training, entrepreneurship.

Other Achievements

- 08/15 **Climbed Mt. Kilimanjaro**, Tanzania.
Successfully summited tallest free-standing mountain in the world, as part of Childreach expedition in 2015
- 06/15 **ESADE Business School Summer Student**, Barcelona, Spain.
Month long course on social and global entrepreneurship.
- 01/13-08/14 **Lead Flag Bearer for High School March Pass**, *Sri Permata High School*, Malaysia.
Led the school march pass and vow recital for annual sports day due to excellence in tennis achievements.

References

1. **Prof. Cengiz Pehlevan** Harvard University. Masters thesis advisor.
cpehlevan@seas.harvard.edu
2. **Prof. Tom McLeish, FRS**. University of York, Summer research advisor.
tom.mcleish@york.ac.uk
3. **Dr. Barbara Bravi**. EPFL (now ENS Paris), Semester project advisor.
barbara.bravi@phys.ens.fr