

DIMUTHU HEMACHANDRA

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SUMMARY OF QUALIFICATIONS:

- 7+ years of experience in scientific researches with backgrounds in Bio Medical Engineering and Astrophysics
- 6+ years of experience in teaching at university level as a contract Faculty member
- Excellent problem solving skills and complex data analysis skills
- Exceptional organizational & multitasking skills
- Strong & effective communication, problem solving and negotiating skills with students
- Passion for learning, comprehending & contributing

EDUCATION

Ph.D. in Biomedical Engineering <i>Western University, London, Ontario, Canada</i>	<i>May 2018 - August 2023</i>
Certificate in Curriculum, Teaching and Learning in the STEM <i>Faculty of Engineering, Western University, London, Ontario, Canada</i>	<i>Jan. 2022 - July 2022</i>
Master of Science in Astrophysics <i>Western University, London, Ontario, Canada</i>	<i>Sep. 2012 - April 2014</i>
Bachelor of Science in Physics Minors : Mathematics, Computer Science <i>The University of Peradeniya, Sri Lanka</i>	<i>May 2007 - Sep. 2011</i>

PROFESSIONAL EXPERIENCE

Research Assistant , <i>Robarts Research Institute, London, Ontario</i>	<i>2018 - Present</i>
<ul style="list-style-type: none">• Developed tools to detect Parkinson's Disease at its early stages using MRI data combined with machine learning techniques, with an accuracy over 90%• Handled large amount of open source data collected across the world using advanced super computers to develop pipelines to process data efficiently and accurately.	
Graduate Teaching Assistant , <i>Western University, London, Ontario, Canada</i>	<i>2012 - present</i>
<ul style="list-style-type: none">• Developed excellent communication and presentation skills by teaching and demonstrating scientific concepts and experiments for groups of 40+ undergraduates.	
Research Assistant , TRIUMF Canada <i>Canada's national laboratory for particle and nuclear physics</i>	<i>Fall - 2014</i>
<ul style="list-style-type: none">• Worked on instrumentation of the EMMA (Electro-Magnetic Mass Analyzer) project which is developed to measure the mass of subatomic particles which are produced from nuclear reactions.• Gained experience in working at a nuclear laboratory and to use radioactive materials in experiments while following safety procedures and health regulations..	

Research Assistant, *Western University, London, Ontario, Canada*

2012 - 2015

- Analyzed large amount of data gathered from space based telescopes using high level programming languages and fitted statistical models to those data.
- Collaborated with research groups and professors as a team to manage multiple tasks and to achieve time sensitive goals.

TECHNICAL STRENGTHS

Operating Systems: Windows, OS X, Linux
Programming: Python, Shell Scripting, Java, Matlab
Software & Packages: Ms Excel and other Office packages, High Performance Computing (HPC)
Tools in Neuroimaging: FSL, MRtrix, FreeSurfer, ANTS, Nilearn, NiBabel, Workbench, Nipype

PUBLICATIONS

Articles published in peer-reviewed journals:

Taha, A., Gilmore, G., Abbass, M., Kai, J., Kuehn, T., Demarco, J., ... **Hemachandra, D.**, et al. (2022). “Magnetic resonance imaging datasets with anatomical fiducials for quality control and registration”. Preprint accepted in Nature Science. doi: 10.1101/2022.11.21.516173

Y. Xiao, J. C. Lau, **Hemachandra, D.**, G. Gilmore, A. R. Khan and T. M. Peters, “Image Guidance in Deep Brain Stimulation Surgery to Treat Parkinson’s Disease: A Comprehensive Review,” in IEEE Transactions on Biomedical Engineering, vol. 68, no. 3, pp. 1024-1033, March 2021. (*Contribution: Wrote several sections in the manuscript*)

Maragkoudakis, A., Ivkovich, N., Peeters, E., Stock, D. J., **Hemachandra, D.**, A.G.G.M. Tielens. (2018). “PAHs and star formation in the HII regions of nearby galaxies M83 and M33”, Monthly Notices of the Royal Astronomical Society, 481: 5370–5393

Hemachandra, D.*, Barmby, P., Peeters, E., Willner, S.P., Ashby, M.L.N., Smith, H.A., Gordon, K.D., Smith, D.A., Fazio, G.G. (2015). “Mid-infrared spectroscopy of the Andromeda galaxy”, Monthly Notices of the Royal Astronomical Society. 454: 818-830 (*Contribution: Collected data, analysed them and wrote the entire manuscript*)

Other peer-reviewed contributions:

Hemachandra, D.*, MacDonald, P., Khan, A. (2022). “Prediction of early-stage Parkinson’s disease using connectivity and morphometry of the striatum”, Movement Disorders Society Congress (MDS) conference, Madrid, Spain, (talk)

Hemachandra, D.*, MacDonald, P., Khan, A. (2022). “Tracking disease progression in Parkinson’s Disease using striato-cortical gradients”, Imagining Network Ontario (ImNO) conference, Toronto, Canada, (talk)

Hemachandra, D.*, MacDonald, P., Khan, A. (2019). “Structural connectivity biomarkers for Parkinson’s disease”, Organization for Human Brain Mapping (OHBM) conference, Glasgow, Scotland, (Poster)

Hemachandra, D.*, MacDonald, P., Khan, A. (2019). “Structural connectivity biomarkers for Parkinson’s disease”, Organization for Human Brain Mapping (OHBM) conference, Rome, Italy, (Poster)

Unpublished Work:

Hemachandra, D., Alushaj E, Handfield-Jones N., Alan Kuurstra, Ravi S. Menon, Adrian M. Owen, Ali R. Khan, Penny A. MacDonald, “Imaging iron in the substantia nigra and ventral tegmental area in early-stage Parkinson’s disease: Proposing an MRI diagnostic biomarker ” *Journal of NeuroImage* (Submitted)

SCHOLARSHIPS AND AWARDS

- **NSERC- Doctoral Award** *2019 - present*
Natural Sciences and Engineering Research Council, Canada
- **Ontario Graduate Scholarship(OGS)** *2019*
Ontario Graduate Scholarship, Canada
- **Dean’s Honor Roll of Teaching** *2016 - 2017*
Brescia University College, London, Ontario, Canada
- **STEM Teaching Certificate Award** *2021 - 2022*
University of Western Ontario, Canada
- **Travel Award (MDS Congress, Madrid)** *June 2019*
Organization for Human Brain Mapping
- **Travel Award (OHBM conference, Rome)** *June 2019*
Organization for Human Brain Mapping
- **Western Graduate Research Scholarship(WGRS)** *2018 - present*
Western University, London, Ontario, Canada

PROFESSIONAL DEVELOPMENT

Neuromatch Academy - 3-week course in Deep Learning (NMA-DL) *July 2021*

- Completed an intensive and interactive 3-week course on deep learning as part of the Neuromatch Academy. Collaborated with an international group of participants to enhance understanding and application of deep learning techniques. Developed a music generative AI model, contributing to the creation of a new music genre.

International High Performance Computing (HPC) Summer School *Summer 2021*

- Participated in the International 2- week Summer School on HPC Challenges in Computational Sciences in 2021. Gained comprehensive knowledge of high-performance computing and its applications across various disciplines.

Brainhack Events and Workshops *2019 - 2022*

- Attended several Brainhack events globally and locally, including collaborative workshops that bridge the data science and neuroscience research communities. Engaged in open collaboration and interdisciplinary teamwork to address complex questions in neuroscience. Contributed to innovative projects utilizing computational techniques to solve problems in neuroscience. Organized local Brainhack workshops to foster regional collaboration and knowledge exchange.

How to Change the World -*United Nations Experiential Education Program**Summer 2021*

- Participated in a four-day experiential education program organized by the United Nations, focused on addressing real-world sustainability and innovation challenges. Received a certificate for the proposed sustainability project aimed at improving CO2 emissions in the city of Bologna, Italy. Collaborated with individuals from diverse backgrounds, leveraging collective expertise for impactful solutions.

PUBLIC OUTREACH

Main organizer of the Brainhack computational workshop.*Western University, London, Ontario, Canada**Fall - 2021***Organized a weekly tutorial series for computational neuro-imaging.***Robarts Research Institute, London, Ontario, Canada**Fall - 2019***Conducted a public awareness talk series about research works on Parkinson's Disease.***Robarts Research Institute, London, Ontario, Canada**June - 2019***Member of the organizing committee of the Brainhack computational workshop.***Western University, London, Ontario, Canada**Fall - 2019***Examiner, London District Science Olympics***Western University, London, Ontario, Canada**May. - 2019***Judge, Thames Valley Science Engineering Fair***Western University, London, Ontario, Canada**April - 2019***Examiner, Canadian Association of Physics (CAP) University Prize Exam***Western University, London, Ontario, Canada**Feb. - 2014*
