GREYDON GILMORE, B.Sc., M.Sc.

T: 613-852-9282 **E: greydon.gilmore@gmail.com**

PROFILE SUMMARY

A clinical and basic science specialist offering 7+ years of experience in molecular and clinical research settings. Possesses extensive training in molecular laboratory techniques with a focus in biomedical research. During M.Sc. candidacy responsible for carrying out various investigator initiated trials focused on various treatment approaches to Parkinson's disease (e.g. deep brain stimulation, inhaled levodopa etc.). Received Canadian Institute of Health Research grant for M.Sc. thesis project and obtained several research grants for the lab (OCE TalentEdge, NSERC, Mitacs and Parkinson's Society of Canada). Presented research at many international meetings with peers in the field. Presently a Ph.D. candidate in Biomedical Engineering investigating intraoperative neural spike and local field potentials in individuals undergoing deep brain stimulation surgery.

Neuroelectrophysiology ♦ Lead-Point and Alpha Omega♦ Signal Processing using MATLAB and Python
DBS programming ♦Study Design Planning ♦ Clinical Data Collection and Analysis
Molecular Techniques ♦ GCP and Division 5 ♦ Statistical Analysis ♦ Local Ethics Submissions
Grant Applications ♦ Clinical Study Management ♦ Clinical Study Design ♦ Direct Patient Interaction

CAREER HIGHLIGHTS

- Over 5 years of experience in human studies at the Movement Disorders Clinic at Western University Hospital
- Research focus is on understanding the mechanism and effects of stimulation settings during deep brain stimulation in Parkinson's disease patients
- Hands on experience in maintaining and pre-processing data for analysis & interpretation
- Experience with supervised and unsupervised machine learning (Python, Matlab, R)
- A wide-ranging history of training in biotechnology and neurosciences with translational graduate work in disorders of the central nervous system
- Experience working with Rodent models of Parkinson's disease for the purpose of studying the influence of stress and inflammation on disease progression
- Responsible for overseeing several investigator initiated trials, supervising undergraduate student projects, clinical research and development (Phase II and III) in pharmaceutical and CRO settings
- Comprehensive knowledge of ensuring proper storage, linkage and cleaning of collected health data
- Track record of maintaining clinical study subject information including survey data
- Skilled in contributing in the development of new surveys and strategies for various programs
- Well acquainted with assisting program designs and maintenance of survey instruments alongside research consultants

EDUCATIONAL BACKGROUND

Doctorate of Philosophy (Biomedical Engineering) **London, Ontario**
Western University **Sept 2016 – Present**
London Health Sciences Centre
Dissertation: Long-term stability of oscillations during deep brain stimulation in Parkinson's disease.

Masters of Science (Specialization in Neuroscience) **London, Ontario**
Western University **Aug 2013 – Oct 2015**
London Health Sciences Centre
Dissertation: Optimization of deep brain stimulation for the treatment of Parkinson's disease.

Bachelor of Science in Neuroscience (Honours, Highest Distinction) **Ottawa, Ontario**
Carleton University **Sept 2010 - Aug 2013**
Dissertation: Influence of paraquat and recent prior social defeat on affiliative behaviour
Hippocampal neurogenesis in IL-6-deficient mice.

Advanced Diploma Biotechnology Technologist **Ottawa, Ontario**
Algonquin College **Sept 2007- April 2010**
Dissertation: Epigenetic modification of *drosophila melanogaster* eye colour.

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RESEARCH EXPERIENCE

GRADUATE RESEARCH ASSISANT **Sept 2013 – Present**

Western University - Movement Disorders Center, London, Ontario

Supervisor: Dr. Mandar Jog

- Routinely collect spike traces from microelectrodes within the subthalamic nucleus and local field potentials from the motor cortex (ECoG), while the patient performs cognitive tasks in the operating room
- Analyze spike and LFP data within MATLAB
- Localize all DBS electrodes using STEALTH
- Follow patients before surgery and up to 1-year post DBS surgery, while investigating various DBS parameter settings on motor outcome (eg. voltage, frequency, pulse width)
- Collect kinematic data using 17 inertial sensors and gait analysis software
- Statistical analysis on kinematic data for the purpose of understanding motor response to setting changes
- Manage patients according to proper GCP, FDA and ICH guidelines
- Effectively communicated innovative and novel research at many international conferences for several science and medical societies
- Prepared several successful grant applications (Mitacs, CIHR, NSERC and Parkinson's society of Southwestern Ontario)
- Ongoing manuscript preparation and publication
- Wrote a textbook chapter focused on the future of technology in rehabilitation of movement disorders

UNDERGRADUATE RESEARCH ASSISANT **Sept 2012 – May 2013**

Carleton University, Ottawa, Ontario

Supervisor: Dr. Shawn Hayley

- Examined the role interleukin-6 plays in the neuroinflammatory process found in Parkinson's disease rat models exposed to paraquat
- Used cryostat to obtain brain slices for immunohistochemistry (DCX, paraquat accumulation, CD11b and TH staining)
- Other techniques used: western blotting, HPLC, electrophysiology, electron microscopy
- Effectively conducted statistical tests to properly analyse molecular and behavioural data
- Carried out proper handling of research animals, including injections and behavioural protocols
- Conducted all required laboratory tests for completion of research studies
- Prepared manuscripts for publication
- Responsible for keeping ethics submissions up to date

PROFESSIONAL EXPERIENCE

INTRAOPERATIVE ELECTROPHYSIOLOGIST **May 2016 – Present**

London Health Sciences Centre – Department of Neurosurgery, London, Ontario

- Map the brain using electrodes to map the brain for the neurosurgeon
- Attend all neurosurgical operations that require precise localization
- Drive multiple electrodes into deep brain tissue while interpreting the location based on neural spiking activity
- Provide location information to the neurosurgeon for implantation of deep brain stimulation electrodes

CLINICAL TRIAL COORDINATOR **Nov 2015 – Aug 2016**

London Health Sciences Centre - Movement Disorders Center, London, Ontario

CRO, Pharma and Academic Clinical Research Development

- Initiate and manage various clinical research projects and provide project specific administrative support
- Assist with actual clinical research activities by collecting and recording pertinent data
- Provide clinical trial coordination and project management as specified in IRB approved pharmaceutical studies
- Screen potential patients for eligibility through record review of laboratory tests and past medical history, for criteria related to participation in clinical trials
- Implemented and monitored clinical trial to ensure sponsor/investigator obligations are met and are compliant with applicable local requirements and FDA and ICH guidelines

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LABORATORY ASSISTANT **Sept 2008 – May 2009**

Algonquin College - Biotechnology Department, Ottawa, Ontario

- Maintained inventory of lab supplies and reported any shortages to management
- Prepared solutions and bacteria culture monitoring for all sections of the Biotechnology department
- Prepared aseptic technique for isolation, cultivation and growth of bacterial/neuroblastoma cell cultures
- Ensured safe storage and disposal of chemicals and biological residues in accordance with regulations
- Develop maintenance procedures for laboratory equipment and organise maintenance where required

APPLIED RESEARCH EXPERIENCE

- IIT exploring the connectivity of the motor cortex (ECoG) with the subthlamic nucleus (spike data) while the patient performs cognitive tasks in the operating room. (Ph.D. Candidacy, present)
- Industry partnered IIT measuring long-term oscillatory activity during deep brain stimulation from the Activa PC + S device (Ph.D. Candidacy, present)
- Industry partnered IIT exploring the application of current steering and the effects on motor symptoms in Parkinson's disease (Ph.D. Candidacy, present)
- IIT exploring the optimization of deep brain stimulation in the treatment of Parkinson's disease (M.Sc. Candidacy, 2013-2015)
- IIT monitoring levodopa response in Parkinson's disease for the purpose of drug optimization and treatment outcomes (Research associate, 2015-Present)
- Phase III clinical trial monitoring the use of an inhaled form of levodopa for Parkinson's disease (Clinical trial investigator, CRO environment, 2015-2016)
- Phase II clinical trial monitoring the use of Amantadine for Parkinson's disease (Clinical trial investigator, CRO environment, 2015-2016)
- Phase II clinical trial quantifying the effect of Ambroxol on treating dementia in Parkinson's disease (Clinical trial investigator, IIT environment, 2015-2016)

LEADERSHIP EXPERIENCE

Teaching Assistant **Sept 2016 – Present**

Western University, London, Ontario

- Teaching human physiology to a class of 90 second year students (Phys 2130) – Dr. Anita Woods

Student Development Centre (Indigenous Services) **Sept 2014 – Oct 2015**

Western University, London, Ontario

- Work one on one with indigenous students to provide guidance and supporting academic challenges

Teaching Assistant **Sept 2013 – May 2014**

Western University, London, Ontario

- Tutored and mentored students in Child Development (Psyc 2045) – Dr. Lisa Boyko
- Introduction to Psychology (Psyc 1000) – Dr. Michael Atkinson

Student Development Centre (Indigenous Services) **July 2013 – Aug 2013**

Carleton University, Ottawa, Ontario

- Tutored and mentored students in Neuropsychopharmacology (Neur 3402)

Registered Note Taker **Sept 2012 – Aug 2013**

Carleton University, Ottawa, Ontario

- Registered note taker in Neuroscience for the Paul Menton Center

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CONFERENCE PRESENTATIONS

Society for Neuroscience – Washington D.C. **Nov 2017**
Oral presentation of Thesis work

Society for Neuroscience – San Diego, California **Nov 2016**
Oral presentation of Thesis work

Society for Neuroscience – Chicago, Illinois **Oct 2015**
Oral presentation of Thesis work

International Neuromodulation Society – Montreal, Quebec **June 2015**
Oral presentation of Thesis work

Merz Movement Disorder Research Day – London, Ontario **July 2014**
Master's Thesis work

International Gait and Posture Conference – Vancouver, British Columbia **July 2014**
Graduate Thesis Poster

Canadian Association of Neuroscience Conference – Montreal, Quebec **May 2014**
Graduate Thesis Poster

Young Researchers Conference – Ottawa, Ontario **June 2013**
Honours Thesis Poster

Undergraduate Research Day – Ottawa, Ontario **April 2013**
Honours Thesis Poster

PUBLICATIONS

Knowles, T., Adams, S., Abeyesekera, A., Mancinelli, C., **Gilmore, G.**, Jog, M. (2018). Deep Brain Stimulation of the Subthalamic Nucleus Parameter Optimization for Vowel Acoustics and Speech Intelligibility in Parkinson's Disease. JSLHR. doi: 10.1044/2017_JSLHR-S-17-0157

Gilmore, G., Lee, D., Parrent, A., Jog, M. (2017). The current state of post-operative imaging in the presence of deep brain stimulation electrodes. Movement Disorders. doi: 10.1002/mds.27028

Gilmore, G., Jog, M. (2017). Future perspectives: Assessment tools and rehabilitation in the new age. In Fen, C.H., Barsottini, O. (1st edition, pp. 155-182), *Movement Disorders Rehabilitation*. New York, New York: Springer.

Memar, S., Delrobaei, M., **Gilmore, G.**, McIsaac, K., Jog, M. (2017). Segmentation and detection of physical activities during a sitting task in Parkinson's disease participants using multiple inertial sensors. Journal of Applied Biomedicine. doi: 10.1016/j.jab.2017.05.002

Delrobaei, M., Baktash, N., **Gilmore, G.,** McIssaac K., Jog, M. (2017). Using wearable technology to generate objective Parkinson's disease dyskinesia severity score: Possibilities for home monitoring. IEEE Trans Neural Systems Rehabilitation Engineering. doi: 10.1109/TNSRE.2017.2690578.

Delrobaei, M., Tran, S., **Gilmore, G.**, McIssac, K., Jog, M. (2016). Characterization of multi-joint upper limb movements in a single task to assess bradykinesia. Journal of the Neurological Sciences, 368 (337-342). doi: 10.1016/j.jns.2016.07.056

Delrobaei, M., Tran, S., **Gilmore, G.**, Ogjanovic, K., McIssac, K., Jog, M. (2015). The impact of electrical parameters on bradykinesia of Parkinson's disease patients after deep brain stimulation surgery. Movement Disorders, 30 (S88-S88).

Delrobaei, M., Parrent, A., Tran, S., **Gilmore, G.**, Ogjanovic, K., McIssac, K., Jog, M. (2014). Quantifying the short-term effects of deep brain stimulation surgery on bradykinesia in Parkinosn's disease patients. Biomedical Engineering. 21th Iranina Conference (pp 224-228). doi: 10.1109/ICBME.2014.7043926

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PROFESSIONAL ASSOCIATIONS

- Society for Neuroscience
- Canadian Association of Neuroscience
- International Gait and Posture
- Movement Disorder Society

ACADEMIC AWARDS AND GRANTS

- **Graduate Student Innovation Scholars** **2017**
  WORLDDiscoveries – Western University (Ph.D. candidate)
  $1,500 CAD
  - Classroom training in commercialization, entrepreneurship and knowledge transfer.

- **Parkinson's Society of Canada** **2017-2019**
  Graduate Student Award – Western University (Ph.D. candidate)
  $20,000 CAD for two years
  - Declined – Held funding from another agency (OCE TalentEdge).

- **OCE Talent Edge Internship Program (26784)** **2017-2019**
  Intern Talentedge Program – Western University (Ph.D. candidate)
  $60,000 CAD for 2 years

- **Scholarship for Intraoperative Neurophysiological Monitoring Course** **2017**
  Western University (Ph.D. candidate)
  $7,250 USD

- **Natural Sciences and Engineering Research Council of Canada** **2016**
  Partnered grant with Fanshawe College – Western University
  $30,000 CAD for summer term.

- **Canadian Institute of Health Research** **2014-2016**
  Canadian Graduate Scholarship – Western University (M.Sc. Candidate)
  $18,500 CAD for two years.

- **The University Medal in Science** **2013**
  Highest academic standing in the faculty of science – Carleton University

- **The Beer Store and Brewers Distributor Limited Scholarship** **2013**
  The Beer Store employee scholarship competition – Ottawa, Ontario
  $1,000 CAD

- **Dean's List – Carleton University** **2010 - 2013**

- **E.W.R. Steacie Scholarship** **2013**
  Academic standing – Carleton University

- **Hyman Soloway Scholarship** **2013**
  Academic standing – Carleton University

- **William E Beckel Scholarship** **2011**
  Academic standing – Carleton University

- **Dean's List – Algonquin College** **2007 – 2010**

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TRAINING AND CERTIFICATES

- Deep Learning Reinforcement Learning Summer School — July 2018
  Vector Institute and CIFAR

- Intensive Intraoperative Neurophysiological Monitoring Course — May 2017
  Greenville Neuromodulation Centre

- Good Clinical Practice — Updated: Feb 2017
  CITI Program

- Unified Parkinson's Disease Rating Scale — Updated: Feb 2017
  Movement Disorders Society