SAMUEL VARGHESE

NEUROSCIENCE SPECIALIST STUDENT

CONTACT

416-989-1788 (CAN)
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SKILLS

- Proficient in content development, including slides, infographics, and videos, for course creation at the University of Toronto.
- Capable of quickly assimilating information, comprehending it, and effectively presenting it for instructional purposes .
- Skilled in Microsoft Office applications for coursework and content development.
- Strong interpersonal skills with demonstrated leadership abilities and a capacity to collaborate effectively within teams.
- Experienced in brain specimen collection, manipulation, imaging, and processing.
- Proficient in data collection and analysis.
- Human and Animal Sample management, preservation and storage
- Proficient in PHI Systems
- Trained to provide life saving medical intervention in combat, field and clinical settings.

EDUCATION

University of Toronto

Honours Bachelor of Science

2022 - Current

Specialist in Cellular and Molecular Neuroscience

Francis De Sales Centre

Magna Cum Laude High School Diploma

2018-2022

Graduated with Great Honours.

Curriculum: Kolbe Academy

LANGUAGES

English

French

PROFILE

Cellular and Molecular Neuroscience student and Medical Assistant with a passion for learning in the pursuit of service.

WORK EXPERIENCE

Research Student/Technician

Jan 2025 - Current

University Health Network, Department of Surgical Oncology

- Provide comprehensive biospecimen services and sample management to study teams across UHN, supporting cutting-edge cancer research.
- Process human bodily fluid samples collected both on-site and externally for long-term cryogenic storage, ensuring sample integrity and research viability.
- Access and manage patient health information systems (EPIC) to retrieve sample collection details and assist with surgical charting.
- Shadow surgical pathology teams for tumor analysis, gaining insights into tissue characterization for personalized patient care and treatment planning as well as post-op treatment
- Oversee the management, storage, and distribution of specimens from oncology and transplant patients, coordinating external shipments for collaborative research initiatives.
- Maintain accurate sample records using Excel and specialized biobank management systems (caTissue) to ensure efficient tracking and accessibility

Teaching Assistant

Jan 2025 -- April 2025

- Led and facilitated laboratory sessions, guiding students through experimental procedures in cell biology, genetics, and evolution, while ensuring adherence to safety protocols.
- Taught complex biological concepts by breaking them down into clear, engaging, and digestible lessons tailored to different learning styles.
- Designed and refined instructional materials, including FLR (First-Year Learning Resources) tutorials, to enhance comprehension of key topics and promote active learning.
- Provided individualized academic support, working closely with each student to address conceptual difficulties, refine their study habits, and improve their overall academic performance.
- Evaluated and graded lab reports, quizzes, and assignments, offering detailed and personalized feedback to help students develop stronger analytical and scientific writing skills.
- Implemented targeted feedback strategies, identifying common challenges and adjusting teaching approaches to ensure students could track and achieve clear, measurable improvement in their coursework.
- Worked one-on-one with students to develop better work ethics, improve time management, and establish effective study techniques, leading to significant improvements in both their grades and overall engagement.
- Promoted student engagement and participation, fostering an inclusive and supportive learning environment where students felt encouraged to take initiative and actively contribute to discussions and lab work

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REFERENCES

Dr. Maithe Arruda-Carvalho
Associate Professor

(416) 208-8130
m.arrudacarvalho@utoronto.ca

Dr. Olivia Podolak-Lewandoska
Assistant Professor, Teaching Stream
Assistant Chair - Undergraduate Student Affairs

olivia.podolak@mail.utoronto.ca

Dr. Michael Souza

Associate Professor, Teaching Stream

(416) 287-7191
michael.souza@utoronto.ca

WORK EXPERIENCE

Medical Assistant/Combat Medic

Apr 2024 - Current

25 (Toronto) Field Ambulance, Canadian Armed Forces

- Serve the members of the CAF and the public with lifesaving medical intervention in exercises and operations both domestically and abroad.
- Serve in any and all roles tasked by the chain of command to support current mission success.
- Ensure that members of the CAF and civilians are provided with high-quality and professional medical service.
- Train non-medical members in the CAF in first aid, and other medical techniques to prevent injury and loss of life in the field.
- Provide clinical and in field medical care to CAF members.
- Train in state-of-the-art simulation centres for clinical trauma care and stabilization for later handoff, including operating room clinical training

Research Assistant

Development Systems Neuroscience Lab — Mar 2024 - Sept 2024

- Performed Target checks under microscope to ensure and validate successful implantation of fiberoptic cables for fear behavior based optogenetics experiments in mice, as well as validation proper injection of viral mediated retro tracers used in tract tracing for neural circuit mapping.
- Mice brain slicing and preservation for further analysis under cfos immunohistochemistry and/or cell stain analysis, using a vibratome.
- Experience with cell stains, and preparation of stain solutions (ex. Hoescht).
- Specimen cell staining and slide media preparation for microscope analysis.
- Utilize Nikon Microscope software for enhancing image clarify, brightness and capture of images for advanced analysis of viral spread and target checks.
- Performed cell counting using ImageJ, after cfos immunohistochemistry.
- Maintain brain specimen storage, records and data base of brain type and identifying information (experiment type, age, source, and manipulations) for imaging and further analysis.

Engineering Instructor

May 2022 - Sept 2022

Department of Engineering Outreach, Faculty of Applied Science and Engineering,

- Rapidly researched, digested and put together teachable content in the field of Aerospace Engineering leading to the development of a sound curriculum and course.
- Lead students to be more engaged in STEM related concepts for grade 7/8 students and the general increase of interest in STEM through the successful development and delivery of a curriculum and course covering aerospace engineering and the physics concepts that govern aerospace engineering.
- Developed a strong curriculum, safety protocol sheets and course materials (i.e., slides, teaching aids, and experiments) mindful of learning needs and diverse capabilities.
- Taught in teams of two for course delivery consisting of 15 lectures and practical sessions over 5 days and lead students in practical activities and projects to test and apply their newly developed knowledge from the lectures.
- Worked with students with ADHD, ASD, OCD and provided them full opportunity in course work and aid in the successful completion of all activities.

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WORK EXPERIENCE

Training Non-Commissioned Officer

Sept 2015 - 2022

Royal Canadian Air Cadets

- Managed teaching operations and projects for teaching at the RCAC 166 Bulldog Squadron leading to an efficient, organized and effective learning experience for Cadets at the squadron.
- Rapidly took in and digested information from various bodies of knowledge, developed teachable content for high sch0ol students and delivered lessons based of the newly acquired information.
- Developed teaching aids (i.e. slides, infographics and compiled videos) to assist in the increased understanding of students and the increased engagement with the material as well as inspire further learning of the concepts taught in classroom.
- Successful coordination and execution of Squadron wide (100+ people) field training excursions as well as creation of teaching schedules/ squadron excursion plans.
- Development of Operations orders that direct all staff (officers, staff and cadets) on operations and safety procedures as well as event schedule (incl. lesson schedule and squadron wide activities).

PUBLICATIONS AND MANUSCRIPTS

Lab: DEVSNEURO

Wilkin, J. et al. (2024). Age- and sex-dependent changes in fear memory expression [Unpublished manuscript]. Department of Psychology, University of Toronto

COURSE EXPERIENCE

PSYC08: Advanced Data Analysis In Psychology

Developed High Proficiency in:

- Multiple Comparisons I – Post Hoc Tests & A Priori Tests
- Randomized Block Design & Analysis of Covariance
- Randomized Block Design – Repeated Measures ANOVA
- Kruskal-Wallis & Friedman's Tests
- Factorial ANOVA
- Factorial ANOVA Simple Effects
- Mixed-Design ANOVA & Simple Effects

PSYB70: Methods in Psychological Research

- Focus on Experimental Designs, including Quasi Experiments, Multivariate Experiments and others including their strengths and weaknesses based on research question
- Experimental Ethics and applications to experimental design
- Evaluation of Research Claims and literature reviews

PSYB55: Cognitive Neuroscience

- Learned experimental techniques used in medical and research applications and effectively utilized them in theoretical applications (i.e. fMRI, MRI, TMS etc.)
- Developed experimental designs and design solutions for cognitive neuroscience research utilizing experimental techniques

NROC36: Molecular Neuroscience

- Examination of research techniques and experiments that give rise to the literature of proteins that give rise to molecular mechanisms.
- Developed theoretical experiments through pharmacological manipulations of proteins to understand structure and function of protein of interest and contribution to wholistic function of synapse.