

Post-Doctoral Researcher

Adult Neurodevelopment & Geriatric Psychiatry Division

Campbell Family Mental Health Research Institute, Centre for Addiction and Mental Health

The Centre for Addiction and Mental Health (CAMH) is Canada's largest mental health teaching hospital and one of the world's leading research centres in its field. As Canada's leading mental illness research facility, CAMH's Campbell Family Mental Health Research Institute (CFMHRI) is home to scientists, staff and research trainees conducting leading research to improve the understanding of the brain and the causes, the biomarkers and cures for mental illness as well as research to advance the prevention and treatment for mental illness and addictions across the lifespan. With a collaborative inter-disciplinary environment that spans clinical, biological, social and epidemiological research, CAMH supports a workplace that embraces diversity, encourages teamwork and complies with all applicable regulatory and legislative requirements.

The Adult Neurodevelopment & Geriatric Psychiatry Division advances applied, clinically grounded research in brain health across the lifespan. Our program applies quantitative methods to brain and mental health research, spanning signal processing, AI/ML, and multimodal physiological data. A key part of our work involves developing and evaluating scalable digital biomarkers and decision-support approaches using data such as EEG, eye movements, ECG, wearables, and speech, with an emphasis on rigorous analytics, reproducible pipelines, and clinically meaningful translation.

The ideal candidate for this full-time 1-year engagement with optional for renewal will be an individual who possesses clearly defined research interests and scientific objectives in alignment with the mission of the Adult Neurodevelopment & Geriatric Psychiatry Division and a record of relevant scholarly activity and achievements (e.g. graduate training awards, publications, presentations, community engagement). The successful applicant will also demonstrate capacity for independence, originality, and contributions to team research.

ACTIVITIES AND OPPORTUNITIES FOR COLLABORATION

CAMH postdoctoral researchers will make semi-independent contributions to knowledge under the mentorship of a CAMH scientist. In addition to planning, developing, and carrying out their own original research, CAMH post-docs may contribute to team science and collaborate with other researchers.

Both independent and collaborative activities are intended to expand experience and professional relationships, refine technical, methodological, and scientific expertise, and develop essential research skills in preparation for independent scientific careers within and beyond academia.

Core skills that CAMH post-docs are expected to develop and refine during the process of carrying out their personal research projects include:

- Developing research proposals and experimental designs to investigate research questions
- Identifying research goals, objectives, and milestones for

- Planning, operationalizing, and carrying out their own mentored research projects
- Determining necessary methodology required to collect data and test hypotheses
- Developing and submitting competitive grant proposals
- Collaborating with other researchers and clinicians
- Preparing manuscripts for publication and publishing as first author
- Preparing and presenting results at conferences
- Mentoring, training, and/or teaching other trainees

Current projects within the Adult Neurodevelopment & Geriatric Psychiatry Division that may be of interest for training and collaboration purposes include: (1) multimodal digital biomarker validation studies leveraging EEG, eye-tracking, ECG, and wearable data; (2) development of robust and explainable AI/ML models for prediction and monitoring; (3) cross-cohort and cross-device generalization studies with calibration and robustness evaluation; and (4) applied methodological contributions to grants, manuscripts, and well-documented analytics.

ELIGIBILITY AND QUALIFICATIONS

The ideal candidate will have completed (or be close to completing) a PhD in Biomedical Engineering, Computer Science, Electrical Engineering, Applied Mathematics, Statistics, Computational Neuroscience, Data Science, or a closely related quantitative discipline. Individuals who are more than 5 years post-PhD are not eligible; however, consideration will be given to candidates who have experienced career interruptions related to documented leaves of absence or formal clinical training. Demonstrated success in obtaining external funding as a graduate student or in a previous post-doctoral role is strongly preferred.

To be successful, the candidate will have 2+ years of related research experience. Experience will encompass advanced signal processing and AI/ML for physiological time-series data (e.g., EEG, eye movements, ECG); strong Python proficiency and scientific software development (clean code, version control, reproducible experiments); modern model evaluation (e.g., calibration, robustness, ablation studies, and generalization testing); and effective collaboration with clinicians and multidisciplinary research teams.

FUNDING

This opportunity includes a competitive research stipend reflective of the successful candidate's research training, qualifications, experience, and achievements. However, the post-doc will be required to seek out and apply to external funding opportunities.

LOCATION

This position will be based at 1025 Queen Street West, Toronto, Ontario.

APPLICATION INSTRUCTIONS

Interested applicants should e-mail Dr. Sanjeev Kumar (Sanjeev.Kumar@camh.ca) or Dr. Hamed Azami (Hamed.Azami@camh.ca), including a full academic CV and a brief 1-page statement of their research interests.

CAMH is a fully affiliated teaching hospital and research institute of the University of Toronto. As a CAMH Research Trainee, you will contribute to our mission by supporting the advancement of teaching, research, and the clinical care. CAMH is dedicated to equity, diversity, and inclusion and committed to fostering a workplace, teaching, and learning environment that is inclusive, respectful, and free from discrimination and harassment. We welcome applicants from all backgrounds and encourage applications from candidates who reflect the diversity of the communities we serve, including First Nations, Métis, and Inuit Peoples; Black and other racialized communities; LGBTQ2S+ communities; women; and people with disabilities, including those with lived experience of mental health and substance use challenges.

LAND ACKNOWLEDGEMENT

CAMH is situated on lands that have been occupied by First Nations for millennia; lands rich in civilizations with knowledge of medicine, architecture, technology, and extensive trade routes throughout the Americas. In 1860, the site of CAMH appeared in the Colonial Records Office of the British Crown as the council grounds of the Mississaugas of the New Credit, as they were known at the time. Today, Toronto is covered by the Toronto Purchase, Treaty No. 13 of 1805 with the Mississaugas of the Credit. Toronto is now home to a vast diversity of First Nations, Inuit and Métis who enrich this city. CAMH is committed to reconciliation. We will honour the land through programs and places that reflect and respect its heritage. We will embrace the healing traditions of the Ancestors, and weave them into our caring practices. We will create new relationships and partnerships with First Nations, Inuit and Métis and share the land and protect it for future generations.