Temerty Centre for AI Research
and Education in Medicine
UNIVERSITY OF TORONTO

Faculty supervisors list

2024 T-CAIREM Summer Research Studentship Program

This list is intended for students who are applying for the 2024 T-CAIREM Summer Research Studentship Program. The listed faculty supervisors have indicated that they have one or more positions available for summer students.

Applicants may also directly contact other faculty supervisors not on this list to see if they are hiring summer students.

It is the responsibility of the student to arrange a studentship with a faculty supervisor before the studentship starts. The application deadline is 5pm on December 15, 2023.

More information for students:
https://tcairem.utoronto.ca/summer-research-studentships

More information for faculty supervisors:
https://tcairem.utoronto.ca/call-faculty-supervisors-0

We look forward to working with the successful applicants this summer. Good luck!

For more information contact:
Zoryana Salo
Centre Administrator
zoryana.salo@utoronto.ca • tcairem.utoronto.ca
Temerty Centre for AI Research and Education in Medicine

Last updated: 30 October 2023 (This PDF will be updated as more faculty supervisors contact us to list their summer projects.)

T-CAIREM • 2024 Call for Faculty Supervisors: Summer Research Studentships #1

POTENTIAL SUPERVISOR'S INFORMATION

Name	Apurva Narayan
Phone number	(226) 600-3176
Preferred email address	apurva.narayan@uwo.ca
Your primary university/hospital/research institution affiliation	Western University
Primary department you're appointed to/affiliated with	Computer Science
Appointment level	- Assistant Professor
Supervisor's primary research interests AI/ML, Chemoinformatics, Health Analytics	
Website	https://anarayan.com
Briefly describe the research that the student(s) will be involved in. Chemoinformatics projects for improving drug discovery and diagnostics.	
Specific skills you're looking for in summer student(s). Python Programming, Familiarity with AI/ML	
Primary location of research	London, ON
Where will the student's research be conducted?	Remotely
T-CAIREM membership Faculty who are new to the field of health AI research and are not members of T-CAIREM, please see the Membership section of our web site for details on becoming a member. Membership is free.	
Are you a T-CAIREM member?	- Yes, I'm a T-CAIREM member

T-CAIREM • 2024 Call for Faculty Supervisors: Summer Research Studentships #2

POTENTIAL SUPERVISOR'S INFORMATION

Name	Houman Khosravani
Phone number	(416) 480-6100
Preferred email address	houman@neurovascular.ca
Your primary university/hospital/research institution affiliation	Sunnybrook Health Sciences Centre
Primary department you're appointed to/affiliated with	Div. Neurology, Dept. Medicine
Appointment level	- Assistant Professor
Supervisor's primary research interests We apply deep-learning to images and audio patient data to improve the quality of inpatient neurologic care.	
Website	https://uoftneurology.github.io/
Briefly describe the research that the student(s) will be involved in. As a valued member, you will be involved in the next phase of project MASA (machine learning assisted swallowing assessment) - sonic diagnosis. You will develop and refine deep-learning methodology for audio and image classification of dysphagia in stroke and other conditions. We have an established data & deep-learning pipeline with an REB approved project. As a new member, as in previous studentship years, you will be supported by our group of talented lab members in addition to directly by Dr. Khosravani. We have a vibrant lab culture, in-person and remote gatherings, and an open-door communication policy.	
Specific skills you're looking for in summer student(s). -great team player, interest in neuroscience and complexity science are welcome -interest in ML for health as applied to quality improvement -deep learning - proficiency in python, algorithms and commonly used frameworks -data science concepts, familiarity with data preprocessing, feature extraction from sources such as audio and image data	
Primary location of research	Sunnybrook Health Sciences Centre
Where will the student's research be conducted?	Combination of both
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Are you a T-CAIREM member?	- Yes, I'm a T-CAIREM member

T-CAIREM • 2024 Call for Faculty Supervisors: Summer Research Studentships #3

POTENTIAL SUPERVISOR'S INFORMATION

Name	Jose Zariffa
Phone number	(416) 597-3422
Preferred email address	jose.zariffa@utoronto.ca
Your primary university/hospital/research institution affiliation	UHN-University Health Network
Primary department you're appointed to/affiliated with	Institute of Biomedical Engineering
Appointment level	- Associate Professor - TAHSN-affiliated Scientist
Supervisor's primary research interests Rehabilitation engineering; computer vision; upper limb function; neural engineering; bioelectric signal processing.	
Website	https://bme.utoronto.ca/faculty-research/core-faculty/jose-zariffa/
Briefly describe the research that the student(s) will be involved in. Regaining hand function is the top priority for individuals paralyzed following cervical spinal cord injuries. Increasing the amount of high-quality rehabilitation that can be delivered at home may be crucial to improving the recovery of hand function. To this end, we are exploring the use of augmented reality (AR) systems to provide detailed feedback on hand function during interactions with real everyday objects. The student will work on integrating deep learning algorithms for postural tracking of the hand into AR systems.	
Specific skills you're looking for in summer student(s). Previous experience applying deep learning algorithms to video data; software engineering; experience with virtual or augmented reality software development would be ideal.	
Primary location of research	KITE Research Institute - Toronto Rehab - University Health Network
Where will the student's research be conducted?	Combination of both
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T-CAIREM • 2024 Call for Faculty Supervisors: Summer Research Studentships #4

POTENTIAL SUPERVISOR'S INFORMATION

Name	Sheena Josselyn
Phone number	(416) 813-7654
Preferred email address	sheena.josselyn@sickkids.ca
Your primary university/hospital/research institution affiliation	University of Toronto
Primary department you're appointed to/affiliated with	SicKids/Neurosciences and Mental Health
Appointment level	- Full Professor
Supervisor's primary research interests memory, mice, learning, neurons, ML	
Website	https://jflab.ca/
Briefly describe the research that the student(s) will be involved in. The student will help acquire and analyze both behavioural data and advanced neuronal data examining what happens in the brain when a mouse learns and remembers a certain episode. In my lab, we used several advanced techniques (optogenetics, two-photon imaging) to better understand the brain. The student will become immersed in this.	
Specific skills you're looking for in summer student(s). Coding, understanding of stats/machine learning, interest in the brain/neuroscience	
Primary location of research	SickKids RI
Where will the student's research be conducted?	In-lab
T-CAIREM membership Faculty who are new to the field of health AI research and are not members of T-CAIREM, please see the Membership section of our web site for details on becoming a member. Membership is free.	
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T-CAIREM • 2024 Call for Faculty Supervisors: Summer Research Studentships #5

POTENTIAL SUPERVISOR'S INFORMATION

Name	Laleh Seyyed-Kalantari
Phone number	(647) 975-9079
Preferred email address	lsk@yorku.ca
Your primary university/hospital/research institution affiliation	York University
Primary department you're appointed to/affiliated with	EECS
Appointment level	- Assistant Professor
Supervisor's primary research interests AI in healthcare AI fairness Deep learning in medical imaging Large language models	
Website	https://responsibleai.eecs.yorku.ca/About.html
Briefly describe the research that the student(s) will be involved in. The research will be focus on de-biasing of AI models in medical imaging application	
Specific skills you're looking for in summer student(s). Familiarity and hands-on skill in machine learning Familiarity and hands-on skill in deep learning (computer vision) Familiarity with AI fairness is an asset	
Primary location of research	York University
Where will the student's research be conducted?	Combination of both
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T-CAIREM • 2024 Call for Faculty Supervisors: Summer Research Studentships #6

POTENTIAL SUPERVISOR'S INFORMATION

Name	Apurva Narayan
Phone number	(226) 600-3176
Preferred email address	apurva.narayan@uwo.ca
Your primary university/hospital/research institution affiliation	Western University
Primary department you're appointed to/affiliated with	Computer Science
Appointment level	- Assistant Professor
Supervisor's primary research interests AI and ML in health Sciences AI for DNA Nanotechnology	
Website	https://anarayan.com
Briefly describe the research that the student(s) will be involved in. Developing AI driven in-silico techniques for discovering functional nucleic acids	
Specific skills you're looking for in summer student(s). AI and DNA Nanotechnology (Python, R, Bioinformatics)	
Primary location of research	London, ON
Where will the student's research be conducted?	Remotely
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T-CAIREM • 2024 Call for Faculty Supervisors: Summer Research Studentships #7

POTENTIAL SUPERVISOR'S INFORMATION

Name	Mark Boulos
Phone number	(416) 480-4473
Preferred email address	mark.boulos@utoronto.ca
Your primary university/hospital/research institution affiliation	Sunnybrook Health Sciences Centre
Primary department you're appointed to/affiliated with	Medicine (Neurology)
Appointment level	- Associate Professor

Supervisor's primary research interests
sleep, stroke, polysomnography, ambulatory medical devices, imaging

Website	https://sunnybrook.ca/research/team/member.asp?t=10&m=586&page=527

Briefly describe the research that the student(s) will be involved in.
The Sleep Laboratory at Sunnybrook Health Sciences Centre collects a rich dataset of overnight physiological polysomnography and health questionnaire data from ~1000 participants who attend a sleep study each year. The student will assist with analysis of this data from all consenting participants who are tested at the sleep laboratory. The database will involve raw polysomnography data, aggregated sleep study metrics, medical comorbidities and health questionnaire data, as well as medication information. The student will have the opportunity to analyze data this extensive sleep and health database using AI techniques, via close supervision by myself and expert AI collaborators.

Specific skills you're looking for in summer student(s).
- Knowledge in statistics and/or AI techniques and prior research experience would be an asset
- Strong organizational skills
- Outstanding interpersonal skills
- Strong written communication skills
- Interest in sleep medicine and/or related disciplines (e.g. neurology, respirology, anesthesiology, psychiatry, etc.)

Primary location of research	Sunnybrook Research Institute
Where will the student's research be conducted?	Combination of both

T-CAIREM membership
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T-CAIREM • 2024 Call for Faculty Supervisors: Summer Research Studentships #8

POTENTIAL SUPERVISOR'S INFORMATION

Name	Vitor Mendes Pereira
Phone number	(647) 965-0212
Preferred email address	vitormpbr@hotmail.com
Your primary university/hospital/research institution affiliation	University of Toronto
Primary department you're appointed to/affiliated with	Medicine/Surgery
Appointment level	- Full Professor

Supervisor's primary research interests
Brain Aneurysm prevention
Neurointerventional Surgery Surgical Safety
Robotic Neurointervention
Surgical Automation

Briefly describe the research that the student(s) will be involved in.
It will depend on student level but there is opportunity for:
Imaging annotation.
Synoptic reporting coding.
Algorithm development.
Algorithm validation.
Virtual reality research.
Computational fluid dynamics.

Specific skills you're looking for in summer student(s).
Imaging file processing experience.
Coding and algorithm creation.

Primary location of research	St Michaels Hospital
Where will the student's research be conducted?	Combination of both

T-CAIREM membership
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T-CAIREM • 2024 Call for Faculty Supervisors: Summer Research Studentships #9

POTENTIAL SUPERVISOR'S INFORMATION

Name	Benjamin Haibe-Kains
Phone number	(416) 294-6281
Preferred email address	benjamin.haibe.kains@utoronto.ca
Your primary university/hospital/research institution affiliation	University of Toronto
Primary department you're appointed to/affiliated with	Medical Biophysics
Appointment level	- Full Professor
Supervisor's primary research interests Artificial Intelligence, Machine Learning, Cancer, Radiomics, Genomics, Biomarker Discovery	
Website	https://www.bhklab.ca
Briefly describe the research that the student(s) will be involved in. Federated learning provides an opportunity for machine learning algorithms to learn across multiple datasets without the need of centralized data. This project will have two parts: (1) assist in the deployment of an federated network within our institution. This network will act as a foundation for a future national project; (2) development of tools and scripts to standardize both imaging and tabular data that will be used in the network. These tools and scripts will need to be generalizable across data sources from different institutions. With this network and tools in place, data analysis across federated nodes will be performed.	
Specific skills you're looking for in summer student(s). Advanced python scripting and basic command line coding skills are necessary. Computed tomography imaging and clinical data knowledge within the realm of oncology is considered an asset. Beyond these technical skills, a desire to learn, collaborate and question will serve you well!	
Primary location of research	Princess Margaret Cancer Centre, PMCRT, Toronto
Where will the student's research be conducted?	Combination of both
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T-CAIREM • 2024 Call for Faculty Supervisors: Summer Research Studentships #10

POTENTIAL SUPERVISOR'S INFORMATION

Name	Kenneth Croitoru
Phone number	(416) 586-7800
Preferred email address	ken.croitoru@sinaihealth.ca
Your primary university/hospital/research institution affiliation	Mount Sinai Hospital
Primary department you're appointed to/affiliated with	Gastroenterology
Appointment level	- Full Professor
Supervisor's primary research interests Inflammatory bowel Machine learning Microbiome Omics Pre-clinical disease Gastroenterology Sequencing Subclinical inflammation Bayes Statistics Diet Crohn's disease Prospective cohort	
Website	http://croitorulab.com/
Briefly describe the research that the student(s) will be involved in. Epidemiological research has shown the impact of specific diets on the onset of Chronic disease. Our team discovered that the microbiome and subclinical markers of inflammation are associated with onset of Crohn's disease. We conducted a pilot study to identify dietary components for personalized interventions to prevent or delay the onset of Crohn's disease, by collecting daily dietary data and stool samples. The student will develop a Bayesian model to predict inflammatory response using baseline microbiome and dietary data. This project will lead to the development of personalized dietary recommendations to prevent onset of Chronic diseases.	
Specific skills you're looking for in summer student(s). Machine Learning Applications in Medical Research Environmental Determinants of Health Research Statistical Analysis and Data Interpretation Programming languages (R, Python) Interdisciplinary Collaboration	
Primary location of research	Mount Sinai Hospital, Toronto
Where will the student's research be conducted?	Combination of both
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T-CAIREM • 2024 Call for Faculty Supervisors: Summer Research Studentships #11

POTENTIAL SUPERVISOR'S INFORMATION

Name	Elham Dolatabadi
Phone number	(647) 706-9756
Preferred email address	edolatab@yorku.ca
Your primary university/hospital/research institution affiliation	York University
Primary department you're appointed to/affiliated with	Faculty of Health
Appointment level	- Assistant Professor
Supervisor's primary research interests Machine Learning for Health, Multimodal Learning, Causal Inference, Ambient Intelligence	
Website	https://www.insight4healthlab.com/
Briefly describe the research that the student(s) will be involved in. The i4Health research lab, in collaboration with Vector Institute, is conducting a research project at the intersection of multimodal learning and foundation model. The aim is to extend the application of foundation models for health within Canada, considering the unique characteristics of our population and disease patterns. We aim to build Generalist Multimodal AI models using national and provincial healthcare data. Our models will integrate and analyze medical records, genomics, and medical images to generate clinical insights and predictions. The research student will assist with building multimodal benchmark datasets, instructions and prompts, and evaluation tasks for the foundation models.	
Specific skills you're looking for in summer student(s). Proficiency in Linux environment, using git-based workflows, and writing in Python/R, Foundations of Machine Learning	
Primary location of research	York University and Vector Institute
Where will the student's research be conducted?	Combination of both
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T-CAIREM • 2024 Call for Faculty Supervisors: Summer Research Studentships #12

POTENTIAL SUPERVISOR'S INFORMATION

Name	Andrew Sage
Phone number	(289) 339-3741
Preferred email address	andrew.sage@uhn.ca
Your primary university/hospital/research institution affiliation	UHN-University Health Network
Primary department you're appointed to/affiliated with	Toronto General Hospital Research Institute
Appointment level	- Assistant Professor
Supervisor's primary research interests ex vivo organ perfusion, digital twins, transplantation, data forecasting, time-series analysis	
Website	https://sagelabuhn.ca/
Briefly describe the research that the student(s) will be involved in. A digital twin (DT) is a precise in silico model, simulating real-time system changes. While common in engineering, healthcare has only recently adopted this concept. Though challenging for the human body, applying digital twins to ex vivo (i.e., isolated) lungs presents innovative potential with less complexity. The Sage Lab at UHN is leveraging the ex vivo lung perfusion (EVLP) platform to create a digital twin for human lungs.	
Specific skills you're looking for in summer student(s). Skills needed: Strong Python coding; AI and ML algorithm design and optimization; data handling, cleaning, and transformation for medical datasets; data analysis and visualization using tools like pandas, NumPy, Matplotlib, Seaborn; model evaluation and optimization; basic healthcare knowledge; research abilities.	
Primary location of research	Toronto General Hosptial
Where will the student's research be conducted?	Combination of both
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T-CAIREM • 2024 Call for Faculty Supervisors: Summer Research Studentships #13

POTENTIAL SUPERVISOR'S INFORMATION

Name	Wendy Tsang
Phone number	(416) 340-4397
Preferred email address	wendy.tsang@uhn.ca
Your primary university/hospital/research institution affiliation	UHN-University Health Network
Primary department you're appointed to/affiliated with	Cardiology
Appointment level	- Associate Professor

Supervisor's primary research interests
Echocardiography, Valvular Heart Disease

Briefly describe the research that the student(s) will be involved in.
Using AI to improve echocardiographic diagnosis and management.

Specific skills you're looking for in summer student(s).
Basic programming/coding
Familiarity with basic statistics

Primary location of research	Toronto
Where will the student's research be conducted?	Combination of both

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T-CAIREM • 2024 Call for Faculty Supervisors: Summer Research Studentships #14

POTENTIAL SUPERVISOR'S INFORMATION

Name	Bryan Ross
Phone number	(416) 710-0317
Preferred email address	bryan.ross@mcgill.ca
Your primary university/hospital/research institution affiliation	McGill University
Primary department you're appointed to/affiliated with	Medicine
Appointment level	- Assistant Professor

Supervisor's primary research interests
COPD, remote patient monitoring, remote wearable technology, cardiorespiratory physiology, prevention and treatment of exacerbations of COPD.

Briefly describe the research that the student(s) will be involved in.
Funded prospective clinical research project which leverages near-continuous vital sign collection and daily lung function test from outpatients with COPD who are at high risk of exacerbations.

Specific skills you're looking for in summer student(s).
Keen, excellent attitude, hard working, interested in innovation in research and clinical care. Clinical background helpful but not mandatory. Coding experience helpful but not mandatory.

Primary location of research	Research Institute of the McGill University Health Centre (RI-MUHC)
Where will the student's research be conducted?	Combination of both

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T-CAIREM • 2024 Call for Faculty Supervisors: Summer Research Studentships #15

POTENTIAL SUPERVISOR'S INFORMATION

Name	Abigail Ortiz
Phone number	(416) 535-8501
Preferred email address	Abigail.ortiz@utoronto.ca
Your primary university/hospital/research institution affiliation	CAMH-Centre for Addiction and Mental Health
Primary department you're appointed to/affiliated with	Psychiatry
Appointment level	- Associate Professor

Supervisor's primary research interests
Artificial intelligence
Time series analyses
Episode detection and forecasting in mood disorders
Mood regulation
Bipolar disorder
Sensors and wearable devices

Briefly describe the research that the student(s) will be involved in.
Algorithm development
Time series analyses
Clinical application of different machine learning algorithms
Signal processing

Specific skills you're looking for in summer student(s).
Proficient in Python, R, Matlab
Computational biology; computer science
Mathematical modelling
Biomedical engineering

Primary location of research	CAMH
Where will the student's research be conducted?	Combination of both

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T-CAIREM • 2024 Call for Faculty Supervisors: Summer Research Studentships #16

POTENTIAL SUPERVISOR'S INFORMATION

Name	Nihal Haque
Phone number	(416) 756-6871
Preferred email address	nihal.haque@nygh.on.ca
Your primary university/hospital/research institution affiliation	North York General Hospital
Primary department you're appointed to/affiliated with	Medicine
Appointment level	- Assistant Professor

Supervisor's primary research interests
ChatGPT, Large language models, delirium, chatbots, education

Briefly describe the research that the student(s) will be involved in.
Development and deployment of an AI assisted ipad app to reduce agitation in patients admitted to hospital with delirium.

Specific skills you're looking for in summer student(s).
Ability to alter and modify code for ipad apps. Proficiency in Swift and Python programming languages.

Primary location of research	North York General Hospital
Where will the student's research be conducted?	Remotely

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T-CAIREM • 2024 Call for Faculty Supervisors: Summer Research Studentships #17

POTENTIAL SUPERVISOR'S INFORMATION

Name	Ervin Sejdic
Phone number	(416) 946-8765
Preferred email address	ervin.sejdic@utoronto.ca
Your primary university/hospital/research institution affiliation	University of Toronto
Primary department you're appointed to/affiliated with	Electrical and Computer Engineering/North York General Hospital
Appointment level	- Associate Professor
Supervisor's primary research interests Artificial intelligence, medical devices, swallowing, gait, machine learning, signal processing, image processing	
Website	https://www.ece.utoronto.ca/people/sejdic-e/
Briefly describe the research that the student(s) will be involved in. There are a number of project that I have at North York General hospital (e.g., delirium app, swallowing assessment, gait assessment).	
Specific skills you're looking for in summer student(s). Programming skills, medical/clinical expertise	
Primary location of research	North York General Hospital
Where will the student's research be conducted?	Combination of both
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Are you a T-CAIREM member?	- No, but I will register on the T-CAIREM website

T-CAIREM • 2024 Call for Faculty Supervisors: Summer Research Studentships #18

POTENTIAL SUPERVISOR'S INFORMATION

Name	Mohamed Abdalla
Phone number	(437) 221-2604
Preferred email address	mohamed.abdalla@thp.ca
Your primary university/hospital/research institution affiliation	Trillium Health Partners
Primary department you're appointed to/affiliated with	Institute for Better Health
Appointment level	- TAHSN-affiliated Scientist

Supervisor's primary research interests
Machine Learning, Natural Language Processing, Computer Vision, Clinical AI, Health Systems Research

Website	https://www.cs.toronto.edu/~msa/

Briefly describe the research that the student(s) will be involved in.
To diagnose osteoporosis, dual-energy X-ray absorptiometry (DXA) is used to measure bone mineral density. Currently, radiologists manually interpret the results of the DXA test to arrive at a diagnosis. This is time-consuming and can be automated to reduce errors and increase efficiency. The student will be expected to lead this project to deployment and draft publication. The project will entail: literature review, algorithm development, silent deployment, and manuscript preparation. By the end of the summer the student will have gained familiarity with both the research process and will have developed an AI tool that is evaluated for real-world deployment.

Specific skills you're looking for in summer student(s).
We are looking for students with experience in programming and machine learning. We prefer candidates who know python and have demonstrated experience (personal/course projects) with open-source machine learning libraries (PyTorch, Tensorflow, Keras). However, we are flexible on the specific language/packages. Knowledge of the clinical task is not required.

Primary location of research	Institute for Better Health (Fully Remote)
Where will the student's research be conducted?	Remotely

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T-CAIREM • 2024 Call for Faculty Supervisors: Summer Research Studentships #19

POTENTIAL SUPERVISOR'S INFORMATION

Name	Cynthia Lokker
Phone number	(289) 788-3272
Preferred email address	lokkerc@mcmaster.ca
Your primary university/hospital/research institution affiliation	McMaster University
Primary department you're appointed to/affiliated with	Health research methods, evidence, and impact
Appointment level	- Assistant Professor
Supervisor's primary research interests NLP, information retrieval and summarization, evidence-based medicine, knowledge translation	
Website	https://experts.mcmaster.ca/display/lokkerc
Briefly describe the research that the student(s) will be involved in. Training models to identify and summarize high-quality, clinically ready research articles to support a range of users including practicing clinicians. We are developing a series of models to support clinicians, publishers, systematic reviewers, and guideline developers to facilitate their work. We have a dataset of ~200,000 articles labelled for various features (article type, study purpose, methodologic rigor, etc) to use for training. We are applying a responsible AI framework to our work.	
Specific skills you're looking for in summer student(s). experience with NLP training (Python) and reporting of results; a basic understanding of evidence based medicine and the medical literature; familiarity with huggingface; excellent written and oral communication skills; document management	
Primary location of research	McMaster University, Hamilton, ON; can be fully virtual or hybrid
Where will the student's research be conducted?	Combination of both
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Are you a T-CAIREM member?	- Yes, I'm a T-CAIREM member

T-CAIREM • 2024 Call for Faculty Supervisors: Summer Research Studentships #20

POTENTIAL SUPERVISOR'S INFORMATION

Name	Marta Maslej
Phone number	(416) 834-3771
Preferred email address	marta.maslej@camh.ca
Your primary university/hospital/research institution affiliation	CAMH-Centre for Addiction and Mental Health
Primary department you're appointed to/affiliated with	Krembil Centre for Neuroinformatics
Appointment level	- TAHSN-affiliated Scientist
Supervisor's primary research interests Predictive Modelling, Natural Language Processing, Large Language Models, Generative AI, AI Implementation, Human-Computer Interaction, Clinical Decision Support, Psychiatry, Health Equity.	
Website	https://www.camh.ca/en/science-and-research/science-and-research-staff-directory/martamaslej
Briefly describe the research that the student(s) will be involved in. The future deployment of AI-based clinical support in psychiatry is thought to rely on successful human-AI teaming, which involves AI enhancing human abilities to process information or make decisions. Unfortunately, current evidence suggests that clinicians may over-rely on biased or incorrect AI information, which can undermine effective teaming and negatively impact patient care. This project involves a series of experiments to identify factors that modulate reliance on biased AI recommendations, using a case scenario from emergency psychiatry. Findings will provide the critical evidence informing a larger research program into effective and responsible integration of AI into psychiatric care.	
Specific skills you're looking for in summer student(s). Experimental research/methods; Biostatistics; Research experience in Psychology, Human-Computer Interaction, or AI implementation; Data analysis in R or Python; Clinical expertise/interest in Psychiatry/Mental Health.	
Primary location of research	Krembil Centre for Neuroinformatics, Centre for Addiction and Mental Health
Where will the student's research be conducted?	Combination of both
T-CAIREM membership Faculty who are new to the field of health AI research and are not members of T-CAIREM, please see the Membership section of our web site for details on becoming a member. Membership is free.	
Are you a T-CAIREM member?	- Yes, I'm a T-CAIREM member

T-CAIREM • 2024 Call for Faculty Supervisors: Summer Research Studentships #21

POTENTIAL SUPERVISOR'S INFORMATION

Name	Marta Maslej
Phone number	(416) 834-3771
Preferred email address	marta.maslej@camh.ca
Your primary university/hospital/research institution affiliation	CAMH-Centre for Addiction and Mental Health
Primary department you're appointed to/affiliated with	Krembil Centre for Neuroinformatics
Appointment level	- TAHSN-affiliated Scientist
Supervisor's primary research interests Predictive Modelling; Machine Learning; Natural Language Processing; Generative AI; AI Implementation; Human-Computer Interaction; Clinical Decision Support; Psychiatry; Health Equity.	
Website	https://www.camh.ca/en/science-and-research/science-and-research-staff-directory/martamaslej
Briefly describe the research that the student(s) will be involved in. Generative AI and large language models (LLMs) are offering new opportunities to enhance mental health care. LLMs can facilitate the review of clinical notes, by providing psychiatrists with summaries of key patient information. However, the use of such LLM-based tools is limited by their potential for bias and 'hallucinations', requiring extensive evaluation prior to implementation. This project aims to develop LLM-based summarization tools to support care of depression and acute psychiatric illness. Specifically, co-design with clinicians and extensive evaluation will ensure their use confers positive impacts on clinical processes and care, while identifying unexpected negative impacts or inequities.	
Specific skills you're looking for in summer student(s). Research experience with Generative AI/LLMs (e.g., prompting, few-shot learning, bias mitigation); Natural Language Processing; Text Summarization; Interest in Implementation Science and/or Clinical-decision support; Clinical expertise/interest in Psychiatry or Mental Health.	
Primary location of research	Krembil Centre for Neuroinformatics, Centre for Addiction and Mental Health
Where will the student's research be conducted?	Combination of both
T-CAIREM membership Faculty who are new to the field of health AI research and are not members of T-CAIREM, please see the Membership section of our web site for details on becoming a member. Membership is free.	
Are you a T-CAIREM member?	- Yes, I'm a T-CAIREM member

T-CAIREM • 2024 Call for Faculty Supervisors: Summer Research Studentships #22

POTENTIAL SUPERVISOR'S INFORMATION

Name	Azadeh Yadollahi
Phone number	(416) 275-4315
Preferred email address	azadeh.yadollahi@uhn.ca
Your primary university/hospital/research institution affiliation	UHN-University Health Network
Primary department you're appointed to/affiliated with	KITE-Toronto Rehabilitation Institute
Appointment level	- Associate Professor

Supervisor's primary research interests
Signal processing, machine learning, deep learning, sleep apnea, cardiorespiratory disorders, biomedical technology development

Briefly describe the research that the student(s) will be involved in.
There are two potential projects:

1) To develope a machine/deep learning model for predicting respiratory failure in patients who are taking opioids.

2) To develop a computer/mobile application for SpO2 analysis and visualization of the results

Specific skills you're looking for in summer student(s).
Biomedical signal processing, machine/deep learning, time series analysis, python programming, statistical analysis

Primary location of research	KITE-Toronto Rehabilitation Institute
Where will the student's research be conducted?	Combination of both

T-CAIREM membership
Faculty who are new to the field of health AI research and are not members of T-CAIREM, please see the Membership section of our web site for details on becoming a member. Membership is free.

Are you a T-CAIREM member?	- Yes, I'm a T-CAIREM member

T-CAIREM • 2024 Call for Faculty Supervisors: Summer Research Studentships #23

POTENTIAL SUPERVISOR'S INFORMATION

Name	Girish Kulkarni
Phone number	(416) 946-2246
Preferred email address	girish.kulkarni@uhn.ca
Your primary university/hospital/research institution affiliation	UHN-University Health Network
Primary department you're appointed to/affiliated with	Surgical Oncology
Appointment level	- Full Professor

Supervisor's primary research interests
artificial intelligence in oncology, cost-effectiveness, augmented clinical decision-making, bladder cancer, prostate cancer

Website	https://uofturology.ca/directory/faculty/kulkarni-girish/

Briefly describe the research that the student(s) will be involved in.
Our group has recently developed PROGRxN – an AI tool to predict the risk of tumour progression in patients with non-muscle invasive bladder cancer (NMIBC). Currently, PROGRxN makes predictions based on only information available at initial diagnosis of NMIBC. The student will:

1. Conduct an implementation analysis to examine how PROGRxN may influence clinical decision-making of urologists when given clinical vignettes of NMIBC patients.
2. Assist in developing an updated model, PROGRxN-Time, that incorporates longitudinal follow-up data.
3. Evaluate the predictive benefit of incorporating longitudinal follow-up data.

Specific skills you're looking for in summer student(s).
1. Proficiency in Excel, data collection, and basic statistical analysis.
2. Experience in bladder cancer terminology is an asset, but not required.
3. Coding experience (Python) is not required. Existing code is available and students will be taught how to transform longitudinal data to be used in PROGRxN.

Primary location of research	Princess Margaret Cancer Centre
Where will the student's research be conducted?	Combination of both

T-CAIREM membership
Faculty who are new to the field of health AI research and are not members of T-CAIREM, please see the Membership section of our web site for details on becoming a member. Membership is free.

Are you a T-CAIREM member?	- Yes, I'm a T-CAIREM member

T-CAIREM • 2024 Call for Faculty Supervisors: Summer Research Studentships #24

POTENTIAL SUPERVISOR'S INFORMATION

Name	Hans Katzberg
Phone number	(416) 340-3662
Preferred email address	hans.katzberg@utoronto.ca
Your primary university/hospital/research institution affiliation	UHN-University Health Network
Primary department you're appointed to/affiliated with	Medicine (neurology)
Appointment level	- Associate Professor

Supervisor's primary research interests
Neuromuscular disorders, MRI neurography, Neuromuscular ultrasound, Neurodiagnostics, Nerve conduction and electromyography

Website	https://hdkneuro.com

Briefly describe the research that the student(s) will be involved in.
Dr. Katzberg's research interests including the development of novel diagnostic for patients with neuromuscular diseases including neuropathies, neuromuscular junction disorders and myopathies. The T-CAIREM student will be involved in signal processing from neuromuscular diagnostic techniques including neuromuscular ultrasound, MRI neurography and electromyography signals. These are currently captured in clinical practice as well as clinical trials and are usually manually and qualitatively assessed. The student will have the opportunity to work with existing and prospectively datasets collected through research grants from national and international foundations including a CIHR funded study evaluating oculography for neuromuscular junction disorders.

Specific skills you're looking for in summer student(s).
The student will have experience in machine learning algorithms, proficiency in signal processing techniques as well as competence in programming languages such as Python or MATLAB for effective data manipulation and visualization. Familiarity with neuroimaging, tractography and EMG data analysis are additional benefits to application.

Primary location of research	Toronto General Hospital
Where will the student's research be conducted?	Combination of both

T-CAIREM membership
Faculty who are new to the field of health AI research and are not members of T-CAIREM, please see the Membership section of our web site for details on becoming a member. Membership is free.

Are you a T-CAIREM member?	- Yes, I'm a T-CAIREM member

T-CAIREM • 2024 Call for Faculty Supervisors: Summer Research Studentships #25

POTENTIAL SUPERVISOR'S INFORMATION

Name	Puneet Seth
Phone number	(416) 671-5114
Preferred email address	puneetsethmd@gmail.com
Your primary university/hospital/research institution affiliation	University of Toronto
Primary department you're appointed to/affiliated with	Family and Community Medicine
Appointment level	- Assistant Professor

Supervisor's primary research interests
EMR, ambient scribe, clinical decision support

Website	https://medium.com/@psethmd

Briefly describe the research that the student(s) will be involved in.
I'm a physician technologist, who started and led a next-generation EMR company (InputHealth) for 8 years. Acquired by TELUS Health, where I was Chief Medical Director of Innovation, focused on integration of AI into clinical practices and impact on patient outcomes. My core domains of focus include:
- Impact of novel AI technologies on clinical practice (including LLMs)
- Integration of clinical decision support into EMRs
- Advancement and design of EMR

Specific skills you're looking for in summer student(s).
- Qualitative clinical research
- Systematic reviews
- Writing (both scientific and non-scientific - e.g. contributing to a blog for knowledge translation)

Primary location of research	Toronto
Where will the student's research be conducted?	Combination of both

T-CAIREM membership
Faculty who are new to the field of health AI research and are not members of T-CAIREM, please see the Membership section of our web site for details on becoming a member. Membership is free.

Are you a T-CAIREM member?	- Yes, I'm a T-CAIREM member

T-CAIREM • 2024 Call for Faculty Supervisors: Summer Research Studentships #26

POTENTIAL SUPERVISOR'S INFORMATION

Name	Constantin Polychronakos
Phone number	(438) 985-5511
Preferred email address	constantin.polychronakos@mcgill.ca
Your primary university/hospital/research institution affiliation	McGill University
Primary department you're appointed to/affiliated with	Pediatrics
Appointment level	- Full Professor

Supervisor's primary research interests
Genomics, diabetes, autoantigen, TCR, HLA, cell lineage, somatic, germline

Briefly describe the research that the student(s) will be involved in.
Machine learning to identify T-cell receptors binding a specific autoantigen (autoimmunity) or xenoantigen (normal host defense) in the context of an inidividual' HLA class II genotype.

Specific skills you're looking for in summer student(s).
Python coding
General understanding of linear algebra and calculus
General understanding of neural networks
Knowledge of predefined libraries like Numpy and Pandas desirable but not necessary (the student is expected to build the network from scratch.

Primary location of research	McGill University Health Centre Research Institute, Glen campus, Montreal
Where will the student's research be conducted?	Combination of both

T-CAIREM membership
Faculty who are new to the field of health AI research and are not members of T-CAIREM, please see the Membership section of our web site for details on becoming a member. Membership is free.

Are you a T-CAIREM member?	- Yes, I'm a T-CAIREM member

T-CAIREM • 2024 Call for Faculty Supervisors: Summer Research Studentships #27

POTENTIAL SUPERVISOR'S INFORMATION

Name	Michael Fralick
Phone number	(647) 403-6187
Preferred email address	mike.fralick@mail.utoronto.ca
Your primary university/hospital/research institution affiliation	University of Toronto
Primary department you're appointed to/affiliated with	Department of Medicine
Appointment level	- Assistant Professor

Supervisor's primary research interests
clinical epidemiology, internal medicine, artificial intelligence (AI) in medicine, machine learning, large language models (LLM)

Website	https://fralicklab.com/

Briefly describe the research that the student(s) will be involved in.
Every month, 83,000 articles are published on Medline. Of these, less than 1% will change medical practice, and nearly all articles that do are randomized controlled trials (RCTs). We have created a software tool called PaperScrape, which monitors Medline and identifies RCTs relevant to internal medicine. PaperScrape retrieves the abstract, identifies additional information using ClinicalTrials.gov, and makes a call to openAI's davinci API to generate a 3-sentence summary. Summaries are disseminated via a twice-monthly newsletter (Trial Files). Student's role includes enhancing prompt engineering, boosting accuracy, reducing hallucinations, and broadening the scope of Trial Files to additional medical fields.

Specific skills you're looking for in summer student(s).
Requirements: completed at least one year of medical school, self-motivated, strong critical thinking skills

Not required but an asset: familiar with natural language processing and/or machine learning

Primary location of research	Lunenfeld-Tanenbaum Research Institute, Sinai Health System (Toronto, Ontario)
Where will the student's research be conducted?	Combination of both

T-CAIREM membership
Faculty who are new to the field of health AI research and are not members of T-CAIREM, please see the Membership section of our web site for details on becoming a member. Membership is free.

Are you a T-CAIREM member?	- Yes, I'm a T-CAIREM member

T-CAIREM • 2024 Call for Faculty Supervisors: Summer Research Studentships #28

POTENTIAL SUPERVISOR'S INFORMATION

Name	Sun-Ho Lee
Phone number	(416) 586-7800
Preferred email address	Sun-Ho.Lee@sinaihealth.ca
Your primary university/hospital/research institution affiliation	Mount Sinai Hospital
Primary department you're appointed to/affiliated with	Gastroenterology
Appointment level	- Assistant Professor

Supervisor's primary research interests
Inflammatory Bowel Disease, Crohn's disease, Ulcerative Colitis, microbiome, metagenomics, biostatistics, bioinformatics, machine learning models, preclinical phase of IBD, prevention

Briefly describe the research that the student(s) will be involved in.
The proposed study will make use of samples collected from the CCC-GEM Project to identify and characterize bacterial, fungal, and viral functional capacities using Metagenome Assembled Genomes (MAG) analysis and their association with future development of UC. Additionally, an in-depth characterization of antibody epitope profiling against a large library of 340,000 microbial and environmental antigens will be applied to understand the immunogenic antigens that are characteristic during the pre-clinical phase of UC.
These approaches can break the boundaries of conventional methods and allow the identification of previously unidentified functional genomic signatures and strain-level precision analysis.

Specific skills you're looking for in summer student(s).
Machine Learning Applications in Medical Research
Statistical Analysis and Data Interpretation
Programming languages (R, Python)
Interdisciplinary Collaboration

Primary location of research	Mount Sinai Hospital
Where will the student's research be conducted?	Combination of both

T-CAIREM membership
Faculty who are new to the field of health AI research and are not members of T-CAIREM, please see the Membership section of our web site for details on becoming a member. Membership is free.

Are you a T-CAIREM member?	- Yes, I'm a T-CAIREM member

T-CAIREM • 2024 Call for Faculty Supervisors: Summer Research Studentships #29

POTENTIAL SUPERVISOR'S INFORMATION

Name	Lena Palaniyappan
Phone number	(519) 685-8054
Preferred email address	lena.palaniyappan@mcgill.ca
Your primary university/hospital/research institution affiliation	McGill University
Primary department you're appointed to/affiliated with	psychiatry
Appointment level	- Full Professor
Supervisor's primary research interests Language, psychosis, youth mental health, brain imaging	
Website	https://douglas.research.mcgill.ca/lena-palaniyappan/
Briefly describe the research that the student(s) will be involved in. Working on the full range of NLP measures (embeddings, semantics, acoustics, syntax) as markers for psychosis, schizophrenia and other severe mental disorders. Relating speech produced by patients to clinically relevant outcome such as diagnosis, symptom severity and prognosis.	
Specific skills you're looking for in summer student(s). NLP analysis from transcriptions of spoken text; classification algorithms training on multimodal or longitudional data, and relating these to other variables.	
Primary location of research	Douglas Mental health university institute, McGill university, Montreal
Where will the student's research be conducted?	Combination of both
T-CAIREM membership Faculty who are new to the field of health AI research and are not members of T-CAIREM, please see the Membership section of our web site for details on becoming a member. Membership is free.	
Are you a T-CAIREM member?	- No, but I will register on the T-CAIREM website

T-CAIREM • 2024 Call for Faculty Supervisors: Summer Research Studentships #30

POTENTIAL SUPERVISOR'S INFORMATION

Name	Mojgan Hodaie
Phone number	(416) 302-5990
Preferred email address	mojgan.hodaie@uhn.ca
Your primary university/hospital/research institution affiliation	UHN-University Health Network
Primary department you're appointed to/affiliated with	Surgery/Neurosurgery
Appointment level	- Full Professor - TAHSN-affiliated Scientist

Supervisor's primary research interests
Neurosurgery
Chronic pain
Trigeminal Neuralgia
Magnetic Resonance Imaging

Briefly describe the research that the student(s) will be involved in.
Trigeminal neuralgia (TN), a severe chronic pain condition, was shown to accelerate biological aging processes in the brain. Using brain imaging, epigenetics, and machine learning, we aim to: study the influence of pain relief on brain aging in TN, identify imaging and molecular indicators of fast-tracked brain aging, and assess the reversibility of brain aging. This study has the potential to uncover the mechanisms of chronic pain and the brain's resilience. Understanding these nuances may shed light on strategies to slow, reverse, or prevent accelerated aging, bridging the gap between biological and chronological age discrepancies in chronic pain conditions.

Specific skills you're looking for in summer student(s).
Experience in using MR data processing frameworks (FreeSurfer, FSL, MRTrix), or epigenetics (Illumina Microarray analysis)
Coding experience (Python, R)
Knowledge in statistics and machine learning
Biomedical expertise – neuroanatomy, neuroscience.
Written & Oral Communication skills

Primary location of research	Krembil Research Institute, Toronto Western Hospital, UHN
Where will the student's research be conducted?	In-lab

T-CAIREM membership
Faculty who are new to the field of health AI research and are not members of T-CAIREM, please see the Membership section of our web site for details on becoming a member. Membership is free.

Are you a T-CAIREM member?	- Yes, I'm a T-CAIREM member

T-CAIREM • 2024 Call for Faculty Supervisors: Summer Research Studentships #31

POTENTIAL SUPERVISOR'S INFORMATION

Name	Rageen Rajendram
Phone number	(647) 686-7639
Preferred email address	rageen@gmail.com
Your primary university/hospital/research institution affiliation	Holland Bloorview Kids Rehabilitation HospitalHospital for Sick Children
Primary department you're appointed to/affiliated with	Developmental Paediatrics
Appointment level	- TAHSN-affiliated Scientist

Supervisor's primary research interests
Machine learning, Developmental Disabilities, Autism

Briefly describe the research that the student(s) will be involved in.
The student will engage in research focused on Duchenne muscular dystrophy (DMD) patients at risk for sleep-disordered breathing (SDB). Using machine learning, the project aims to predict SDB in DMD patients by analyzing historical clinical data from electronic medical records, including demographics, respiratory symptoms, and pulmonary function test results. The student will play a pivotal role in extracting relevant data, training the model and exploring its interpretability to unveil the intricate mechanisms underlying SDB in DMD. This research holds promise in enhancing DMD patient care by facilitating early SDB detection and potentially reducing healthcare expenditures on sleep studies.

Specific skills you're looking for in summer student(s).
Python programming, Data Preprocessing/analysis, Interest/experience in Developmental disabilities, Machine Learning Frameworks, Understanding and working with clinical data

Primary location of research	Holland Bloorview Kids Rehabilitation Hospital, Toronto
Where will the student's research be conducted?	Combination of both

T-CAIREM membership
Faculty who are new to the field of health AI research and are not members of T-CAIREM, please see the Membership section of our web site for details on becoming a member. Membership is free.

Are you a T-CAIREM member?	- Yes, I'm a T-CAIREM member

T-CAIREM • 2024 Call for Faculty Supervisors: Summer Research Studentships #32

POTENTIAL SUPERVISOR'S INFORMATION

Name	Michael Hoffman
Phone number	(416) 634-8736
Preferred email address	michael.hoffman@utoronto.ca
Your primary university/hospital/research institution affiliation	UHN-University Health Network
Primary department you're appointed to/affiliated with	Princess Margaret Cancer Centre
Appointment level	- Associate Professor - TAHSN-affiliated Scientist

Supervisor's primary research interests
Machine learning techniques to better understand chromatin biology, transforming high-dimensional functional genomics data into interpretable patterns

Website	https://hoffmanlab.org/

Briefly describe the research that the student(s) will be involved in.
Developing new machine learning and computational methods for working with epigenomics data from ChIP-seq, ATAC-seq, cfMeDIP-seq, CUT&RUN, or others.

Specific skills you're looking for in summer student(s).
Coursework in biology, computer science, electrical engineering, statistics, or physics. Experience in Python and Unix environments.

Permission to work or study in Canada.

Not required, but preferred qualifications: Coursework in computational biology. Experience in R, C, and C++.

Primary location of research	Princess Margaret Cancer Centre, Toronto
Where will the student's research be conducted?	In-lab

T-CAIREM membership
Faculty who are new to the field of health AI research and are not members of T-CAIREM, please see the Membership section of our web site for details on becoming a member. Membership is free.

Are you a T-CAIREM member?	- Yes, I'm a T-CAIREM member

T-CAIREM • 2024 Call for Faculty Supervisors: Summer Research Studentships #33

POTENTIAL SUPERVISOR'S INFORMATION

Name	Thomas Purdie
Phone number	(647) 242-9870
Preferred email address	tom.purdie@uhn.ca
Your primary university/hospital/research institution affiliation	University of Toronto
Primary department you're appointed to/affiliated with	Medical Biophysics
Appointment level	- Associate Professor
Supervisor's primary research interests Machine Learning, Medical Physics, Radiation Oncology, Autoamted Quality Assurance Processes, Radiation Treatment Planning	
Website	https://medbio.utoronto.ca/faculty/purdie

Briefly describe the research that the student(s) will be involved in.
The student will work on an on-going project that is developing a quality radiation oncology platform using novel machine learning methods to prioritize radiation treatments for review by the expert radiation medicine team based on treatment complexity and highlight treatments with potential errors requiring attention prior to treatment approvals. The student will have access to already acquired radiation treatment data (e.g., imaging data, image segmentations, structured radiation treatment data) and associated supervised expert evaluations of radiation treatment quality. The student will engage with PhD students, radiation oncologists, and medical physicists for evaluating models and machine learning performance.

Specific skills you're looking for in summer student(s).
The student will be responsible for processing and curating data into relevant patient cohorts, and building machine learning models predicting radiation treatment quality using clinical data as inputs. The student will have experience with Python and some familiarity with machine learning and/or data processing.

Primary location of research	Princess Margaret Cancer Centre
Where will the student's research be conducted?	Combination of both

T-CAIREM membership
Faculty who are new to the field of health AI research and are not members of T-CAIREM, please see the Membership section of our web site for details on becoming a member. Membership is free.

Are you a T-CAIREM member?	- Yes, I'm a T-CAIREM member

T-CAIREM • 2024 Call for Faculty Supervisors: Summer Research Studentships #34

POTENTIAL SUPERVISOR'S INFORMATION

Name	Zahra Shakeri
Phone number	(617) 671-5057
Preferred email address	zahra.shakeri@utoronto.ca
Your primary university/hospital/research institution affiliation	University of Toronto
Primary department you're appointed to/affiliated with	Dalla Lana School of Public Health/IHPME
Appointment level	- Assistant Professor

Supervisor's primary research interests
AI for Public Health, Natural Language Processing, Information Visualization

Website	https://hivelab-uoft.ca/

Briefly describe the research that the student(s) will be involved in.
Agent-Based Models (ABMs) are mathematical simulations for complex systems with interacting agents. Our research project employs ABM to analyze potential health policy effects on Toronto's diverse diabetes patients, addressing disparities among racial groups. Diabetes exhibits significant management and prevalence differences among racial communities, influenced by various factors, including socio-demographic characteristics/healthcare access/culture/policies. Diabetes, a metabolic disease, results from the interplay of numerous exogenous and endogenous factors, leading to adverse health outcomes. ABM allows us to simulate intricate healthcare ecosystems, aiding our understanding of the dynamic relationships within this complex system and enabling informed policy decisions for improved health outcomes.

Specific skills you're looking for in summer student(s).
Agent-Based Modeling (ABM)
Data Analysis and Simulation
Healthcare Domain Knowledge
Programming and Computational Skills (R, Python)
Interdisciplinary Collaboration Skills

Primary location of research	University of Toronto
Where will the student's research be conducted?	Combination of both

T-CAIREM membership
Faculty who are new to the field of health AI research and are not members of T-CAIREM, please see the Membership section of our web site for details on becoming a member. Membership is free.

Are you a T-CAIREM member?	- Yes, I'm a T-CAIREM member

T-CAIREM • 2024 Call for Faculty Supervisors: Summer Research Studentships #35

POTENTIAL SUPERVISOR'S INFORMATION

Name	Melanie Courtot
Phone number	(647) 259-4240
Preferred email address	mcourtot@oicr.on.ca
Your primary university/hospital/research institution affiliation	Ontario Institute for Cancer Research
Primary department you're appointed to/affiliated with	Genome Informatics
Appointment level	- Assistant Professor

Supervisor's primary research interests
knowledge representation, data standards, data integration, ontologies, LLM-based mining

Website	https://medbio.utoronto.ca/faculty/courtot

Briefly describe the research that the student(s) will be involved in.
We can be flexible based on students' interests and skills.

Overall, we:
Research new methods for improving data quality,
Enable data integration at scale,
Deploy open-source cloud-based data platforms to make harmonized data discoverable, accessible and reusable globally.

Exemplar projects include:
(1) 80% research, 20% development
- new standards for data access requests representation
- data mining of genomic lab reports
(2) 60% development, 40% research
- schema migration tool when dictionaries are updated
- dictionary viewer (generic version of https://docs.icgc-argo.org/dictionary)
(3) data processing
- pipeline benchmarking and QC

Specific skills you're looking for in summer student(s).
knowledge representation (ontologies, json schema)
programming (JavaScript/TypeScript, React)
bioinformatics (python, genomics, nextflow)

Primary location of research	Ontario Institute for Cancer Research
Where will the student's research be conducted?	Combination of both

T-CAIREM membership
Faculty who are new to the field of health AI research and are not members of T-CAIREM, please see the Membership section of our web site for details on becoming a member. Membership is free.

Are you a T-CAIREM member?	- Yes, I'm a T-CAIREM member

T-CAIREM • 2024 Call for Faculty Supervisors: Summer Research Studentships #36

POTENTIAL SUPERVISOR'S INFORMATION

Name	Mark Bayley
Phone number	(416) 597-3422
Preferred email address	mark.bayley@uhn.ca
Your primary university/hospital/research institution affiliation	UHN-University Health Network
Primary department you're appointed to/affiliated with	KITE - Toronto Rehab
Appointment level	- Full Professor

Supervisor's primary research interests
Stroke, Brain Injury, Knowledge Translation, Prognostic Factors, Health Services Research

Briefly describe the research that the student(s) will be involved in.
This is a two-arm project:
Arm 1 – developing and testing a supervised learning model for predicting outcomes from concussion in a general adult population. Using both a 473-person training dataset, and a 266-person testing dataset. The goal of 'Arm 1' is to determine the most sensitive variable(s) (and/or cluster(s)) for predicting a prolonged recovery from concussion.
Arm 2 – conducting a scoping review on the use of AI and machine learning in acute concussion care and management. The goal of 'Arm 2' is to identify opportunities for innovation in this field.

Specific skills you're looking for in summer student(s).
Proficiency in at least one programming language (i.e., Python, TensorFlow), understanding of machine learning principles (including supervised learning), proficiency in statistical analysis, academic writing experience, problem-solving/critical thinking skills

Primary location of research	Hull-Ellis Concussion and Research Clinic, Toronto Rehabilitation Institute - UHN, Toronto, ON.
Where will the student's research be conducted?	In-lab

T-CAIREM membership
Faculty who are new to the field of health AI research and are not members of T-CAIREM, please see the Membership section of our web site for details on becoming a member. Membership is free.

Are you a T-CAIREM member?	- Yes, I'm a T-CAIREM member

T-CAIREM • 2024 Call for Faculty Supervisors: Summer Research Studentships #37

POTENTIAL SUPERVISOR'S INFORMATION

Name	Kieran Campbell
Phone number	(778) 512-2802
Preferred email address	kierancampbell@lunenfeld.ca
Your primary university/hospital/research institution affiliation	Mount Sinai Hospital
Primary department you're appointed to/affiliated with	Molecular Genetics
Appointment level	- Assistant Professor

Supervisor's primary research interests
We are interested in computational cancer immunology and developing machine learning tools for bulk and single-cell sequencing data.

Website	https://www.camlab.ca

Briefly describe the research that the student(s) will be involved in.
Students will begin by preparing datasets to be suitable for subsequent machine learning tasks. Additionally, students will have the opportunity to build computational pipelines capable of handling large volumes of data, which is essential for the scope of our work. As part of their responsibilities, they will analyze these datasets to gain valuable insights into the complex interactions between the immune system and cancer. Moreover, students will be actively involved in the development of novel machine learning tools, leveraging their computational skills to further our understanding of immune-cancer interactions and contribute to cutting-edge research in the field.

Specific skills you're looking for in summer student(s).
- Programming skills in either R or python
- Quantitative coursework (math/statistics/computer science)
- Desire to learn new skills
- Curiosity and interest in computational biology, machine learning, cancer and/or cancer immunology

Primary location of research	Mount Sinai Hospital
Where will the student's research be conducted?	Combination of both

T-CAIREM membership
Faculty who are new to the field of health AI research and are not members of T-CAIREM, please see the Membership section of our web site for details on becoming a member. Membership is free.

Are you a T-CAIREM member?	- Yes, I'm a T-CAIREM member

T-CAIREM • 2024 Call for Faculty Supervisors: Summer Research Studentships #38

POTENTIAL SUPERVISOR'S INFORMATION

Name	Zahra Shakeri
Phone number	(617) 671-5057
Preferred email address	zahra.shakeri@utoronto.ca
Your primary university/hospital/research institution affiliation	University of Toronto
Primary department you're appointed to/affiliated with	Dalla Lana School of Public Health/IHPME
Appointment level	- Assistant Professor
Supervisor's primary research interests AI for Public Health, Health Informatics, Information Visualization, Social Media Analysis, Natural Language Processing	
Website	https://hivelab-uoft.ca/
Briefly describe the research that the student(s) will be involved in. Diabetes-related stigma presents a significant burden to affected individuals, impacting their well-being and disease management. With the growing prominence of online platforms as go-to health information sources, addressing this stigma within these digital environments is crucial. This study explores the potential of Large Language Models (LLMs) in detecting and assessing the reach of diabetes-related stigma across diverse digital sources and conversations. The overarching aim is to create an open-source and publicly accessible web-based platform to highlight the nuances of this ongoing issue, providing potential strategies to reduce the harmful effects of stigma associated with diabetes.	
Specific skills you're looking for in summer student(s). Natural Language Processing (NLP) Web Development Data Analysis & Visualization Digital Health Literacy Machine Learning (specifically, training and fine-tuning LLMs)	
Primary location of research	University of Toronto
Where will the student's research be conducted?	Combination of both
T-CAIREM membership Faculty who are new to the field of health AI research and are not members of T-CAIREM, please see the Membership section of our web site for details on becoming a member. Membership is free.	
Are you a T-CAIREM member?	- Yes, I'm a T-CAIREM member