2024 RMP Summer Student Program Positions

Supervisor(s)	Project Title	Duration	Proposed Start Date
Derek Tsang	Paediatric Radiation Research: Proton Therapy Comparative Service & Paediatric Radiation Registry	**CLOSED**	**CLOSED**
Tara Rosewall	Investigating the association between lifetime cannabis exposure and prostate cancer incidence: a case-control study.	**CLOSED**	**CLOSED**
Benjamin Lok	Clinical and translational correlatives of small cell lung cancer	**CLOSED**	**CLOSED**
Jennifer Croke	Option B: Optimizing Patient Tattoo and Ink-mark Options in Breast Radiotherapy	**CLOSED**	**CLOSED**
Jeff Winter jeff.winter@uhn.ca	**Project:** MR-guided biomarker-driven adaptive prostate radiation therapy on the integrated MR-Linac **Summer student deliverables:** - Analysis of the voxel-wise longitudinal ADC and IVIM changes in our cohort of patients treated on the MRL - Linear mixed-effects analysis on the ADC and IVIM data to determine clinical factors impacting the changes observed. - A tool within RayStation to incorporate accumulated doses after each fraction with the ADC and IVIM changes observed - Initial planning study demonstrating the value of biologically adaptive radiation therapy for focal dose escalation to gross tumour volumes	3.5 months	5/6/2024
Andrew McPartlin	Prevention of xerostomia following Head and Neck Radiotherapy	**CLOSED**	**CLOSED**
Hedi Mohseni hedi.mohseni@uhn.ca	**Project:** Investigation of the link between patient-related factors and treatment outcomes in radiopharmaceutical therapy in patients treated with Lu177- DOTATATE **Summer student deliverables:** - Literature review of RPT patient outcomes. - Reviewing patient charts (anonymized) and extracting relevant information. - Learning about the required statistical tools and relevant software. - Investigating possible links between outcomes and patient factors. - Generating a written report and presenting the results to the RMP theranostics research group.	3 months	6/1/2024
Hedi Mohseni hedi.mohseni@uhn.ca	**Project:** Dosimetric comparison of the effect of supine and prone treatment positions in pre-operative rectal cancer treatment	3 months	5/15/2024

	Summer student deliverables: - Literature review- A comprehensive review of the work done on dosimetric comparison of supine and prone treatments in the pelvis. - Getting familiar with using RayStation and relevant tools within RayStation such as importing CBCTs, image registration, and DVH analysis. - Performing dosimetric analysis and NTCP analysis. - Generating a report and presentation slides.		
Edward Taylor edward.taylor@uhn.ca	**Project:** Modelling the impact of lymphocyte irradiation during radiotherapy **Summer student deliverables:** - Develop an auto-contour model for carotids and potentially other lymphatic structures. - Collect the plan-specific factors described above and develop a model to predict RIL during RT. Prospective validation of this model and correlations with tumour control metrics will be undertaken as a future project. It is anticipated this work will be presented at international conference and in full paper format. - Identification of a predictive model of RIL is intended to enable RT plan optimisation to minimize incidence of lymphopenia and improve outcomes in HNC patients at Princess Margaret Cancer Centre. Future work in collaboration with therapy will focus on the feasibility of optimising RT plans to achieve this.	3 months	6/1/2024
Vickie Kong	Assessing and comparing the resource utilization between non-adaptive and an adaptive radiotherapy workflow	**CLOSED**	**CLOSED**
Catarina Lam	Referral Process Assessment & Benchmarking	**CLOSED**	**CLOSED**
Leigh Conroy Leigh.Conroy@uhn.ca	**Project:** Design and Development of a Programmable Motion Phantom for Cardiac Radioablation Studies **Summer student deliverables:** - As a Robotic, Electrical or Electronic Engineering Summer Student, you will work on developing a two-axis motor controller system to drive a moving dynamic CT cardiac phantom. - Collaborate with our Medical Physicist and biomedical engineering team to design and develop a two-axis motor controller system capable of precise and dynamic movement for the CT cardiac phantom. - Utilize your expertise in Arduino and ESP32 programming to interface with the motor	3 months	5/1/2024

	controller and implement PID control algorithms for accurate motor positioning. - Integrate encoder feedback systems to provide real-time feedback on motor position and speed, ensuring smooth and precise movement of the cardiac phantom. - Conduct thorough testing and optimization of the motor controller system to ensure reliability, accuracy, and safety in a medical imaging environment. - Document all aspects of the design and development process, including schematics, code, test results, and troubleshooting procedures.		
Srini Raman	MRI – characterization of prostate volume changes and seed displacement after LDR brachytherapy for prostate cancer	**CLOSED**	**CLOSED**
Srini Raman	Comprehensive Evaluation of an Automated Radiotherapy Scheduling Platform	**CLOSED**	**CLOSED**
Rachel Glicksman	Dosimetric predictors of toxicity in hypofractionated prostate radiotherapy	**CLOSED**	**CLOSED**