Hailey Sae Hyun Ahn

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EDUCATION

McGill University *2021-Present*
- MSc Medical Physics (GPA: 4.00/4.00)

University of British Columbia (UBC) *2017-2021*
- BSc Honours in Biophysics (GPA: 3.88/4.00)

RESEARCH & WORK EXPERIENCE

Jewish General Hospital / Lady Davis Institute – Enger Lab
Master's Student – Radiochemistry detector development for PET radionuclide production *May 2022 – Present*
- Development of a small, portable, easy-to-use radiation detector to follow the transfer of radioactivity during the automated synthesis of PET radionuclides.
- Used micro-surface-mount electronics, microprocessor, silicon photomultipliers, and plastic scintillation fibers to construct the prototype detector.
- Performed Geant4 Monte Carlo simulations on various detector constructions to test the efficiency of the detector components and determine the optimal detector configuration.

BC Cancer Research Centre – QURIT Lab
Honours Thesis Student – Tumor Growth Modeling for PET imaging *Aug 2020 – Aug 2021*
- Development of a simulation algorithm for tumor growth while considering realistic parameters, such as oxygen & glucose diffusion coefficient, metabolic rates, and angiogenesis that affect its progress.
- Development of a translation tool to convert simulated images to Positron Emission Tomography (PET) images for analysis on the evolution of image properties with tumor growth.
- Aiming to understand the effects of tumor heterogeneity and varying microenvironments in tumor progression captured via PET imaging.

UBC Life Sciences Institute -Van Petegem Lab
Undergraduate Research Assistant *Sept 2019-April 2020*
- Contributed to the study of the regulation of Ryanodine receptors and its role in cardiac arrythmia by preparing cell cultures, then extracting and purifying proteins such as Calmodulin.
- Utilized databases such as ExPASy, PubMed, and NCBI tools to search for primer sequencing and library research for vectors.
- Studied recent journals on Calcium Dependent Activation/Inhibition of ion channels and participated in the lab journal club.

UBC Department of Mathematics / Physics
MATH100, PHYS119 Teaching Assistant *Sept-Dec 2019, Jan-April 2021*
- Facilitated workshops by explaining concepts in calculus and asking fundamental questions to help students come up with their way of solving a question.
- Recognized what each student was struggling with and corrected any misconception to ensure they had an accurate understanding of the concepts that may appear on their exams.

Private Tutor *Dec 2016-June 2019*

High school physics, math, and chemistry

- Listened attentively to find suitable ways of communicating with individuals who have different personalities, capabilities, and interests.
- Took responsibility in teaching the material until students showed signs of understanding.
- Demonstrated professionalism by preparing the materials for each tutoring session beforehand.

CONFERENCE PROCEEDINGS

Society of Nuclear Medicine and Molecular Imaging (SNMMI) 2022 Conference (Poster presentation):
I. Klyuzhin, H. Ahn, A. Rahmim. **Selection of optimal radiomics features for tumor phenotype differentiation using stochastic tumor growth modeling.** Journal of Nuclear Medicine 2022, 63 (supplement 2) 3178.

Society of Nuclear Medicine and Molecular Imaging (SNMMI) 2021 Conference (Oral presentation):
H. Ahn, Y. Oloumi, A. Rahmim, I. Klyuzhin. **Linking radiomic PET features with metabolic tissue parameters using a hybrid mathematical model of tumor growth.** Journal of Nuclear Medicine 2021, 62 (supplement 1) 114.

SKILLS

Computer:

- Programming languages: Python, Java, C++, HTML, CSS, SQL
  - Tumor growth modelling project developed in Java
  - Geant4 simulations for radiochemistry detector is in C++
  - Personal webpage: https://hailey-ahn.github.io/My-Web-Page/home.html

Laboratory:

Biochemistry, Molecular Biology

- PCR, SDS-PAGE, Agarose gel electrophoresis, Transformation, Protein crystallization, Fast protein liquid chromatography, Bradford assay, PyMOL

Physics, Electronics

- Microcontroller, AC/DC Circuitry, Oscilloscope, Digital Multimeters

LEADERSHIP EXPERIENCE

McGill University

Medical Physics Student Council (MPSC): Friday Morning Talk Coordinator *Sept 2022 - present*

- Scheduled Friday Morning Talks for the student speakers and adjusted the schedule when speakers were not available for the week.
- Organized and moderated the meetings at the Jewish General Hospital by setting up the systems prior to the meeting and introducing the speakers at the beginning of the talk.
- Communicated with the speakers, the administrator, and the Medical Physics Unit about the presentations each week.

University of British Columbia

Science Undergraduate Society (SUS): Associate Vice President, Administration *May-Dec 2019*

- Took meeting minutes at the Science Undergraduate Society's council meeting and compiled them for publication after councillors' approvals.
- Assisted the vice president of administration with various tasks including organizing the Clubs Commissioners meetings and reaching out to individual clubs for scheduling events.
- Held one-on-one meetings with each science club representative to discuss how SUS can support each club.

Science Undergraduate Society: Events Coordinator & Sports Working Group *June 2018-May 2019*

- Planned events and summarized weekly meetings using Excel spreadsheets, Gantt charts, and documents for effective communication within the working group.
- Established sponsorships from various organizations and scheduled meet up times for the smooth operation/transition between events.

UBC PHAS Outreach Program: Metro Vancouver Physics Circle *Sept 2018-Nov 2019*

- Prepared higher-level physics problem set for high school students and helped organize biweekly lectures and problem-solving sessions.
- Guided students through the problem sets by explaining any unfamiliar concepts and encouraged group discussions to share each other's approach to a question.

Imagine Day Orientation Leader *Mar-Nov 2018*

- Communicated effectively with the newly admitted UBC students and introduced the campus to a group of students to foster a welcoming environment.
- Made appropriate recommendations to the resources available on campus throughout their transition into university.

AWARDS & SCHOLARSHIPS

- CIHR Canada Graduate Scholarships – Master's Program (2021-2022)
- McGill Graduate Excellence Fellowship (2021)
- UBC Radiology Research Day 2nd place presentation, Burrard Medical Imaging Non-Clinical Trainee Research Award (2021)
- UBC Science Scholar (2017-2018)
- UBC Dean's Honour List (2017-2020)
- UBC Trek Excellence Scholarship (2018)
- UBC Dean of Science Scholarship (2018)