Suraj Bansal
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EDUCATION

McMaster University, Hamilton ON   *September 2021 - May 2024*

Bachelor of Health Sciences (Honours) Candidate (GPA: 3.96/4.00) | *Certificates:* Health Innovation Bootcamp
Relevant Coursework: Clinical Biochemistry, Drug Discovery and Biotechnology, Statistics for Biomedical Engineering, Cellular Biology, Bioinformatics, Immunology, Anatomy and Physiology, Epigenetics, Clinical Epidemiology and Biostatistics
Honors: Dean's List (2021-22, 2022-23, 2023-24) | *Awards*: Faculty of Health Sciences Achievement Award ($1,000)

PROFESSIONAL EXPERIENCE

Princess Margaret Cancer Centre, UHN: John Dick Lab, *Student Researcher* | Toronto, ON   *Sep. 2020 - Present*

- Spearheaded a literature screen to identify and re-analyze 95 preclinical RNA-sequencing studies using gene expression deconvolution to quantify interpatient heterogeneity in drug response and predict clinical responses to treatment in AML.
- Performed single-cell transcriptomic analysis of the tumor micro-environment in MC38 mouse models of colorectal cancer treated with immune checkpoint blockade, in partnership with clinician-scientists at the German Cancer Research Centre.
- Led the development of a cloud-powered bioinformatics pipeline for automated transcriptomic meta-analysis (ranging from unsupervised cell clustering to survival analysis) of 20 bulk- and single-cell RNA-sequencing datasets to streamline exhaustive drug target characterization in AML (currently used in 11 external collaborations across 8 labs).

Hamilton Social Medicine Response Team (HAMsMART), *Research Student* | Hamilton, ON   *Sep. 2022 - Present*

- Conducted patient recruitment, chart review, and reflexive thematic analysis for a primary care-embedded safer supply program for prescribing pharmaceutical-grade opioid alternatives to people with treatment-refractory opioid use disorder
- Spearheaded study recruitment, reflexive thematic analysis, statistical analysis, and knowledge translation for a mixed methods study evaluating the health of 20 people service restricted from emergency homeless shelters in Hamilton

Center for Addiction and Mental Health (CAMH), *National Youth Advisor* | Toronto, ON   *Aug. 2022 - Present*

- Longitudinally advised the development of various mental health and substance use policies, systems, and services
- Liaised with peer-investigators at University of Manitoba to co-create a trauma-informed patient and public engagement evaluation tool to evaluate the quality and integrity of patient and public engagement in health research across Canada

Sidewalk Labs (Google) Toronto Waterfront Project, *Innovation Consultant* | Toronto, ON   *Oct. 2019 - Jan. 2020*

- Led a 4-person team to build a mobile application to reduce household expenditures by 27% through a sharing economy digital infrastructure; presented our recommendation to Sidewalk Labs C-suite; placed 1st of 80 proposals.

LEADERSHIP AND VOLUNTEERING EXPERIENCE

The Hamilton Homelessness Mortality Project, *Project Co-Lead* | Hamilton, ON   *Sep. 2022 - Present*

- Conducted a quarterly data collection and statistical analysis of mortality of people experiencing homelessness in Hamilton; featured in 16 provincial and national news articles (e.g. Globe and Mail, CBC News, Global News, Hamilton Spectator)

National Council of Undergraduate Academia, *Founding Chairman* | Canada   *Jan. 2023 - Present*

- Liaised with 15 student-run Undergraduate research journals to launch a national platform for promoting inter-journal collaboration and participating in themed discussions (e.g. optimizing editorial workflows) at bimonthly meetings.

The Meducator Undergraduate Health Sciences Journal, *Editor-in-Chief* | Hamilton, ON   *Sep. 2021 - May 2024*

- Managed a $10,000 budget and oversaw 7 subteams consisting of 90 members to lead bi-annual publication efforts
- Initiated and led Canada's first collaborative undergraduate publication with McGill Science Undergraduate Journal
- Grew an academic writing mentorship program (50 students) with professor-run workshops and end-stage publication

McMaster University President's Advisory Committee (PACBIC), *R3 Member* | Hamilton, ON   *Sep. 2022 - Present*

- Contributing to the Race, Racialization and Racism Working Group (R3) to identify and address issues affecting BIPOC communities within the University, and the broader McMaster community to advise the development of anti-racism policy

Keeping Six—Hamilton Harm Reduction Action League, *Volunteer* | Hamilton, ON   *Sep. 2022 - May 2024*

- Provided weekly street outreach to 20+ homeless people by engaging in 1:1 conversation, distributing healthcare, harm reduction, and hygiene supplies, and connecting people to local housing and employment resources
- Assisted with patient intake and shadowed physician-patient consultations for the Hamilton safer opioid supply clinic

York Region District School Board Student Senate, *Prime Minister* | York Region, ON   *Sep. 2018 - Jun. 2021*

- Managed a $30,000 portfolio and led 10 executives in launching a bi-annual mental health conference and monthly meetings attended by 500+ students from 33 YRDSB secondary schools (increased attendance by 1,500% across 3 years)
- Launched weekly symposiums on improving education delivery and student wellbeing during COVID-19 (300 attendees)

Ryde AI, *Project Lead and Co-Founder* | Toronto, ON   *Mar. 2020 - Dec. 2020*

- Built an open-source mobile application to connect vehicle hardware with cloud-powered self-driving features (e.g. automated lane centering, adaptive cruise control) using Bluetooth technology
- Hired and led 3 engineers to place as finalists for investment competitions at Khosla Ventures, Amazon, and Stanford

RESEARCH PUBLICATIONS

Published Manuscripts

Andy G.X. Zeng, **Suraj Bansal** (2nd), … John E. Dick. A cellular hierarchy framework for understanding heterogeneity and predicting drug response in Acute Myeloid Leukemia. (In Press). *Nature Medicine.* May 2022. DOI:10.1038/s41591-022-01819-x.

Published Abstracts

Suraj Bansal, Andy G.X. Zeng, … John E. Dick. ATLAS-AML: an automated bioinformatics pipeline for target characterization in Acute Myeloid Leukemia. *Experimental Hematology.* August 2023. DOI: 10.1016/j.exphem.2023.06.130.

Robert Vanner, … **Suraj Bansal** (4th), … John E. Dick. Somatic TET2 Mutations Prime the Immune System for Response to Immune Checkpoint Blockade. November 2023. *Blood.* DOI:10.1182/blood-2023-177740.

Grace Egan, … **Suraj Bansal** (4th), … Aaron D. Schimmer. XPO2 Is Essential for a Subset of AML Cells and Is a Biomarker for Poor Response and Survival in Pediatric and AYA AML. November 2023. *Blood.* DOI:10.1182/blood-2023-180968.

Amanda Tajik, … **Suraj Bansal** (17th), … Kristin Hope. Identifying stress granules as determinants of leukemia stem cell maintenance and stress adaptation. November 2023. *Blood.* DOI:10.1182/blood-2023-180919.

Manuscripts Under Review

Suraj Bansal, Stephanie Di Pelino, … Claire Bodkin. Nowhere to Go: A parallel convergent mixed methods study examining the health of people who experience emergency shelter service restrictions. *BMC Public Health.* (Preprint on medRxiv; DOI: 10.1101/2024.05.07.24306964)

Andy G.X. Zeng, … **Suraj Bansal** (5th), … John E. Dick. Precise single-cell transcriptomic mapping of normal and leukemic cell states reveals unconventional lineage priming in acute myeloid leukemia. *Blood.* (Preprint on bioRxiv; DOI: 10.1101/2023.12.26.573390)

Abstracts Under Review

David Chen, **Suraj Bansal (2nd)**, … John E. Dick. Identification of surface markers of malignant cell states in acute myeloid leukemia using explainable machine learning. *Experimental Hematology.*

David Kealy, … **Suraj Bansal (5th)**, … Katherine Bridge. Hypoxia-Inducible Factor-1 is pathologically activated by PIM1 phosphorylation in JAK2V617F myeloproliferative neoplasms, initiating a non-canonical hypoxic response that drives disease progression. *Hemasphere.*

Oral Presentations

Suraj Bansal, Gessie Stearns, … Claire Bodkin. A Statistical Analysis of Mortality in People Experiencing Homelessness in Hamilton. *The Ontario Public Health Convention.*

Suraj Bansal, Andy G.X. Zeng, … John E. Dick. ATLAS-AML: an automated bioinformatics pipeline for target characterization in Acute Myeloid Leukemia. *International Society for Computational Biology Student Council Symposium.*

Suraj Bansal, Andy G.X. Zeng, … John E. Dick. A cloud-based computational target characterization pipeline to advance precision medicine in Acute Myeloid Leukemia. *University of Toronto T-CAIREM AI in Medicine Summer Research Conference.*

Suraj Bansal, Andy G.X. Zeng, … John E. Dick. ATLAS-AML: an automated bioinformatics pipeline for target characterization in Acute Myeloid Leukemia. *University of Toronto Temerty Faculty of Medicine Research Showcase.*

Poster Presentations

Suraj Bansal, Andy G.X. Zeng, … John E. Dick. ATLAS-AML: An automated bioinformatics pipeline for target characterization in Acute Myeloid Leukemia. *International Society for Experimental Hematology 52nd Annual Scientific Meeting.*

Suraj Bansal, Andy G.X. Zeng, … John E. Dick. An exhaustive machine learning analysis identifies novel therapy targets in TP53-mutated Acute Myeloid Leukemia. *Till & McCulloh Meeting.*

Suraj Bansal, Stephanie Di Pelino, … Claire Bodkin. Nowhere To Go: A convergent mixed methods study of the health of people who experience emergency homeless shelter service restrictions. *McMaster University Bachelor of Health Sciences Poster Day.*

Suraj Bansal, Gessie Stearns, … Claire Bodkin. Homelessness prematurely kills 92 people in Hamilton. Insights from a community-based mortality monitoring project. *McMaster University Bachelor of Health Sciences Poster Day.*

SELECT HONOURS AND AWARDS

Recipient (1 of 16), UofT Molecular Genetics Undergraduate Research Opportunity Program ($5,625.00)	2024
Recipient (1 of 1), The Bachelor of Health Sciences Program Scholarship ($2,500.00)	2023
Finalist (1 of 5), Wilfred Laurier Design for Change Innovation Challenge on Homelessness	2023
Recipient (1 of 20), UofT T-CAIREM AI in Medicine Summer Research Studentship ($7,200.00)	2022
Recipient (1 of 1), York Region Portraits of Giving Young Adult Honoree	2022
Recipient (1 of 1), Ontario Public Schools' Association Jack A. MacDonald Award of Merit ($500.00)	2021
Recipient (1 of 1), Ontario Student Voice Award: Entrepreneurship Category ($1,000.00)	2021
Recipient (1 of 1), Richmond Hill Volunteer Youth Achievement Award	2021

SKILLS AND INTERESTS

Languages and Libraries: Python, R, Javascript, SQL, Keras, Tensorflow, ScanPy, Seurat, RShiny, Pandas, Scikit-learn

Interests and Hobbies: Machine Learning, Self-Driving Cars, Café-Hopping, Food Culture, Squash, Acoustic Guitar