

Andres Bravo

Biomedical innovator and applied health-AI researcher, working toward a physician-innovator path.

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Experience chronology

Research

Research Assistant in AI and Mental Health

University of Toronto / Unity Health Toronto collaboration

June–September 2026

Contributed to research and evidence synthesis at the intersection of mental health and AI. The scope includes research planning, prototype evaluation, and scientific communication with attention to safety and human oversight.

Research

AI4PH Data and Analytics Intern

Wellington-Dufferin-Guelph Public Health

May 2026–present

Developing an exploratory public-health analytics workflow with attention to survey context, equity, privacy, reproducibility, and human interpretation. Public methods are described in two Phiz articles.

Development

Accepted to the AI Career Accelerator Program

Amii

2026

Acceptance to an AI professional-development program.

Leadership

Workshop Designer and Facilitator

McMaster University

Completed August 2025

Designed and facilitated an academic workshop.

Development

Emory Morningside Global Health Case Competition

March 2025

Participation in an international student global-health case competition.

Development

Mary Heersink Intramural Global Health Case Competition

McMaster University

January 2025

Interdisciplinary student case-competition participation.

Service

Chrysalis Innovation Challenge Volunteer

SE Health

November 14, 2024

Volunteer support for a health-innovation event.

Service

Run for the Cure Participant

Canadian Cancer Society

October 2024

Community participation in Run for the Cure.

Development

Medventions Toronto Innovation Day Attendee

Sunnybrook

October 2024

Attendance and learning at a health-innovation event.

Research

Biomedical Innovation Graduate Project Lead

McMaster University

September 2024–August 2025

Academic venture work connecting clinical needs, workflow mapping, prototype thinking, and validation planning. MedPal, SanaPen, and AcuPoint are described as concepts or prototypes, with team contributions kept explicit.

Education

Master of Biomedical Innovation

McMaster University

September 2024–August 2025

Graduate education in biomedical innovation, including interdisciplinary academic venture work.

Education

Interventional Radiology Clinical Observation

St. Joseph's Healthcare Hamilton

September–December 2024

Observed interventional-radiology workflows as an educational placement.

Development

Partners in Health Canada Global Health Case Competition

September 2024

Team-based student case-competition participation.

Leadership

Director of Clinic

Medical Innovation and Global Health Association

July 2024–present

Student-association leadership supporting interdisciplinary learning and connection. This is an educational leadership role, not independent clinical management.

Research

Surgical AI Research Lead

Tufts Medical Center / UPMC

May 2024–present; institutional periods below

A continuing surgical-AI research role as the lab moved from Tufts to UPMC. The work connects video annotation, model evaluation, evidence synthesis, and research coordination with clinical and technical collaborators.

Tufts Medical Center

May 2024–September 2026

UPMC

September 2026–present

Research

AI Research Assistant

Tufts Medical Center

March–May 2024

Supported surgical-video annotation and collaborative research writing in thoracic AI.

Leadership

Peer Mentor

College of Biological Science, University of Guelph

September 2022–April 2023; September 2023–April 2024

Peer mentoring within the College of Biological Science.

Operations

Unit Clerk

Emergency Mental Health and Addictions, Homewood Health at Guelph General Hospital

July 2022–present

Administrative coordination in an emergency mental-health and addictions setting, with careful communication and confidential information handling. This work sits within the care team's support operations.

Service

Youth DiverSTEAM Symposium Chaperone

Ontario Hospital Association / UHN KITE

May 2022

Chaperone support at a youth STEAM symposium.

Service

Vaccination Clinic Volunteer

Wellington-Dufferin-Guelph Public Health

June–August 2021

Volunteer support in a vaccination-clinic setting.

Education

Bachelor of Science, Honours, Bio-Medical Science

University of Guelph

September 2019–June 2024

Undergraduate education in biomedical science.

Service

Cashier and Front End Team Member

Longo Brothers Fruit Markets

September 2017–July 2022

Front-end grocery service work, retained as part of the full professional history.

Service

Inpatient Visiting Program Volunteer

Guelph General Hospital

May 2017–June 2018

Volunteer participation in an inpatient visiting program.

Education

Secondary Education

Centennial Collegiate Vocational Institute

2015–2019

Secondary education retained in the complete résumé.

Research

AI Research Assistant

Harvard Medical School / Massachusetts General Hospital research collaboration

Dates not specified

Supported robotic-thoracic-surgery research through literature synthesis and video-annotation work with clinical and technical collaborators.

Service

Volunteer Spanish–English Medical Translator

Dates not specified

Volunteer language support in a community medical practice.

Leadership

Case Competition Marketing Executive

STEM Students Guelph Support Association

Dates not specified

Student-association communications and case-competition marketing.

Leadership

Discovery Mentor

UofT Discovery

Dates not specified

Mentoring within the UofT Discovery program.

Service

National Outreach Volunteer

American Lung Cancer Screening Initiative

Dates not specified

Volunteer outreach for a lung-cancer-screening education initiative.

Service

RBC Olympic Training Ground Regional Qualifier Volunteer

Canadian Sport Institute Ontario

Dates not specified

Volunteer event support at a regional qualifier.

Development

Brainterns Neurosurgery Program Participant

Lenox Hill / Northwell Health

Dates not specified

Remote educational participation in a neurosurgery learning program.

Education

Family Medicine Observation

Dates not specified

Educational observation in family medicine.

Publications, abstracts, and writing

Transformers in surgical artificial intelligence: A domain-stratified, study-level narrative review

2026 · JTCVS Open · journal narrative review

Co-authored a narrative review of transformer-based surgical AI. The synthesis considers where comparisons are meaningful and what validation remains necessary before clinical use.

Public evidence for Transformers in surgical artificial intelligence: A domain-stratified, study-level narrative review

Expanding the Generalizability of an AI-Based Model for Pulmonary Vasculature Segmentation in Robotic Lung Surgery

2025 · ISMICS · conference abstract

A collaborative conference abstract testing whether a segmentation model could transfer to another lobar setting.

Public evidence for Expanding the Generalizability of an AI-Based Model for Pulmonary Vasculature Segmentation in Robotic Lung Surgery

Generalizable Segmentation with Minimal Data: An AI Model to Improve Pulmonary Vasculature and Instrument Annotation Dataset Scarcity

2025 · STSA · conference abstract

A collaborative conference abstract examining annotation demands and data-efficient segmentation research.

Public evidence for Generalizable Segmentation with Minimal Data: An AI Model to Improve Pulmonary Vasculature and Instrument Annotation Dataset Scarcity

Expanded Generalizability of an AI-Based Model for Pulmonary Vasculature Segmentation in Robotic Lung Surgery: From Right to Left Lower Lobe

2025 · The Van Wickle Journal, Volume 1 · conference proceedings abstract

Co-authored a proceedings abstract on extending pulmonary-vasculature segmentation across anatomical settings.

Public evidence for Expanded Generalizability of an AI-Based Model for Pulmonary Vasculature Segmentation in Robotic Lung Surgery: From Right to Left Lower Lobe

Equity in AI for Public Health: Part 1 – Why Fairness Must Come First

August 5, 2026 · Phiz · public article

Why equity, privacy, and human judgment belong at the beginning of public-health AI work.

Public evidence for Equity in AI for Public Health: Part 1 – Why Fairness Must Come First

Equity in AI for Public Health: Part 2 – From Clusters to Careful Personas

August 19, 2026 · Phiz · public article

How survey design, stability checks, respectful language, and disclosure limits shape responsible exploratory analysis.

Public evidence for Equity in AI for Public Health: Part 2 – From Clusters to Careful Personas

Awards and recognition

MBI scholarship recognising community engagement in biomedical innovation

McMaster scholarship recognition for community engagement in biomedical innovation.

Inaugural MBI Pitch Competition — AcuPoint

Team recognition for an academic venture pitch.

MBI end-of-year final pitch — SanaPen

Team recognition for an academic venture pitch. This does not establish clinical validation or product deployment.

Entrance scholarship — University of Guelph

Entrance scholarship recognition. The formal award title and date remain to be reconciled.

Partners in Health Canada Global Health Case Competition — team recognition

Recognition for a collaborative student case proposal.

University of Guelph Dean's Honour List

Academic honour-list recognition recorded in the résumé.

Honours BSc graduation with distinction

Academic graduation distinction in biomedical science.

First-place team — McMaster intramural global-health case competition

Reported in February 2025

Part of an interdisciplinary student team recognised for its proposed response to a global-health case.

Public evidence for First-place team — McMaster intramural global-health case competition

Courses and training

Academic Research Integrity and Ethics — SGS101

Graduate research integrity and ethics training.

AODA Training — SGS201

Accessibility training recorded in the résumé.

Introduction to AI for Public Health

An introductory course in AI for public health.

Scaling Sports Medicine with AI

Professional development on lifelong mobility and cardiovascular health beyond sport.

Animal Facility Safety and Orientation

Research-facility safety and orientation training.

Animal Welfare Guidelines at TCP

Training in research animal-welfare guidelines.

Regulatory Oversight and Animal Ethics

Training in research oversight and animal ethics.

Smart Serve

Service training recorded in the résumé.

Indigenous Canada — University of Alberta, through Coursera

Completed September 27, 2025

Completed the University of Alberta's online course on Indigenous histories, perspectives, and contemporary issues in Canada.

Public evidence for Indigenous Canada — University of Alberta, through Coursera

Skills and tools

Python

R

pandas

NumPy

scikit-learn

Git / GitHub

Reproducible analysis workflows

Jupyter, VS Code, Kubeflow, configuration-driven scripts, GitHub Actions, pull requests, provenance documentation, and synthetic testing.

Exploratory public-health analytics

Data dictionaries, eligibility and routing-aware preprocessing, missingness analysis, mixed data, FAMD, clustering, model comparison, robustness checks, privacy suppression, and equity review.

Data visualization and scientific communication

Persona profiles, UMAP and t-SNE views, scientific figures, technical documentation, plain-language interpretation, presentations, and offline HTML materials.

Surgical computer vision

CVAT and Mosaic; anatomy, instrument, phase, and step annotation; dataset curation and harmonization; segmentation evaluation; research involving Mask R-CNN and XMem.

LLM and agent prototypes

OpenAI APIs, LangChain, LangGraph, Pydantic structured outputs, sequential agent workflows, and Gemini-based command parsing.

Web and interface development

React, TypeScript, Vite, HTML/CSS, Canvas 2D, Framer Motion, responsive interfaces, reusable components, and MkDocs. MedPal work also includes Next.js and Supabase.

AI-assisted development with human review

Agent-supported research, coding, documentation, and iteration, with human review and explicit limits on what generated outputs establish.

Biomedical innovation methods

Needs assessment, stakeholder interviews, requirements, user journeys, wireframing, patient and clinician UX, CAD and 3D modelling, early prototyping, usability walkthroughs, risk analysis, market assessment, business models, pitching, and implementation planning.

Research and evidence synthesis

Literature searching and screening, systematic-review support, narrative reviews, biostatistics, experimental design, protocol development, scientific writing, abstracts, manuscripts, tables, figures, ethics submissions, and interdisciplinary coordination.

Healthcare operations and governance research

Biomedical foundations, hospital administration, confidential documentation, PHIPA-related workflows, escalation processes, FDA and Health Canada pathway research, reimbursement and intellectual-property concepts, and project-level NIST AI RMF documentation.

Leadership and communication

Mentoring, workshop facilitation, stakeholder communication, project tracking, remote collaboration, event logistics, and knowledge translation.

Earlier laboratory and technical exposure

The career record also includes PCR, gene sequencing, cell culture, histology, and LLM fine-tuning. These are retained as source-reported experience rather than a current proficiency rating.

Evidence synthesis and scientific writing

Public evidence for Evidence synthesis and scientific writing

Responsible public-health analytics and communication

Public evidence for Responsible public-health analytics and communication

Interdisciplinary collaboration

Public evidence for Interdisciplinary collaboration

Languages — self-assessed

English — fluent, self-assessed

Spanish — advanced, self-assessed

French — basic, self-assessed

Italian — basic, self-assessed

Community participation and service

Member — Temerty Centre for AI Research and Education in Medicine

Participation in a multidisciplinary health-AI community at the University of Toronto.

CIAMI / GE Healthcare panel participation

Professional learning and panel participation recorded in the historical activity table.

Interests

Recreational co-ed soccer

Recreational participation, kept separate from professional credentials.

Running, cycling, strength training, and golf

Recreational interests recorded in the résumé.

Sketching, with earlier painting and sculpting

Creative interests described at their recorded scope, without claiming a current professional art practice.

How health AI behaves outside its development setting.

Public writing that makes uncertainty and responsible practice understandable.

Learning across clinical, technical, and public-health perspectives.