

# GRACE ATTALLA

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## SUMMARY

**Biomedical engineering student** who has experience in neuromodulation, brain computer interface (BCI) research, data analysis and clinical trial operations. An adaptable technical contributor and dedicated team member who enjoys multidisciplinary roles and working with others on challenging problems.

## EDUCATION

<b>B.A.Sc Engineering Science, Biomedical Systems Engineering Major</b> University of Toronto, Toronto, ON	<b>3.85 GPA</b> 2021-2026
<ul style="list-style-type: none"><li>Major Awards: Full-ride scholarship, 4 years, \$140k CAD. University of Toronto's most prestigious scholarship for Canadian students (National Scholarship). One of fifteen students selected across all faculties.</li></ul>	

## EXPERIENCE

<b>DR. ANDRES LOZANO LAB, RESEARCH STUDENT</b> <i>Member of research team developing neuromodulation techniques</i>	<b>SEPT 2025 - PRESENT</b>
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- Developing fMRI biomarkers to optimize spinal cord stimulation parameters in individuals with chronic pain
- Analyzing current state of focused ultrasound neuromodulation clinical trials (publication in preparation).

<b>ATTUNE NEUROSCIENCES, RESEARCH ENGINEERING INTERN</b> <i>Clinical stage company developing transcranial ultrasound stimulation therapies for neuropsychiatric disorders.</i>	<b>DEC 2024 - PRESENT</b>
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- Spearheaded clinical trial for chronic pain including study design, data analysis and clinical operations.
- Developed custom data analytics package to efficiently uncover population and brain region specific insights.
- First author publication in preparation.

<b>EMOTIV, BRAIN COMPUTER INTERFACE INTERN</b> <i>Member of neurotechnology team developing portable EEG headsets and BCI software.</i>	<b>JUNE 2024 – DEC 2024</b>
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- Designed and developed a variety BCI smart home applications with an aim to improve the accessibility of BCI use, working closely with the CEO and COO.

<b>BCI FOR PEDIATRICS LAB, RESEARCH STUDENT</b> Alberta Children's Hospital, Dr. Adam Kirton <i>Member of multidisciplinary research team developing BCIs for children with cerebral palsy.</i>	<b>MAY 2023 - AUG 2023</b>
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- Optimized and assessed machine learning model (MediaPipe) for pose estimation use in clinical BCI setting to analyze physical fatigue.
- Increased model performance by 17% with combination of multiple machine learning models.
- Systematically informed experimental designs to enhance model performance.

<b>SPINAL CORD INJURY ELECTRICAL STIMULATION LAB, RESEARCH STUDENT</b> Hotchkiss Brain Institute, Dr. Aaron Phillips <i>Member of research team conducting a clinical trial to assess feasibility of epidural spinal stimulation neuromodulation in individuals with spinal cord injuries to restore hemodynamic stability.</i>	<b>MAY 2022 - AUG 2022</b>
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- Designed, fabricated, validated and clinically implemented a custom leg brace to enable spasticity testing under a tight 1 month timeline. Device was approved by senior clinician-scientists.
- Interacted extensively with spinal cord injury participants to conduct and refine 9 clinical testing procedures.

- Developed, implemented and trained PhD team members on 11 standard operating procedures for clinical trial which increased experimental efficiency.

### QUANTIFYING LEARNING ECOSYSTEM LAB, RESEARCH ANALYST

APR 2021 - AUG 2021

Mount Royal University, Dr. David Finch

*Member of career development research team quantifying the Calgary learning ecosystem.*

### JOY TO JOB, CO-FOUNDER & HEAD OF GROWTH

2020 - PRESENT

*Co-founder of a non-profit start up that connects students with professionals to aid in their career exploration.*

## PUBLICATIONS & PRESENTATIONS

### FOCUSED ULTRASOUND NEUROMODULATION PAIN SUPPRESSION

Nov 2025

- First author paper in preparation

### THE CURRENT STATE OF LOW-INTENSITY FOCUSED ULTRASOUND

Nov 2025

- In preparation

### (1<sup>ST</sup> PLACE) 3 MINUTE THESIS COMPETITION, BCI USE IN AI VIDEO ANALYSIS

JAN 2024

- Women in Science and Engineering Conference

### ORAL PRESENTATION & ABSTRACT

AUG 2023

- University of Calgary Biomedical Engineering Research Symposium

### POSTER PRESENTATION & ABSTRACT

AUG 2022

- University of Calgary Hotchkiss Brain Institute Undergraduate Research Symposium

## PROJECTS

### MULTICLASS BRAIN TUMOR SEGMENTATION

JAN 2024-MAY 2024

- Used PyTorch machine learning library to segment multiple classes of glioma tumors from a 3D MRI dataset.

### TISSUE PLASMINOGEN ACTIVATOR (TPA) IMPACT ON ENDOTHELIAL CELLS

JAN 2024-MAY 2024

- Fluorescence-imaged endothelial cells in blood clots post tPA as menstrual stem cell intervention proxy.

### BREATHING FEEDBACK SYSTEM, UNIVERSITY OF TORONTO DESIGN TEAM

SEPT 2022-MAY 2023

- Developed vibrational feedback system to provide breathing biofeedback for Anahana Wellness Corporation.

### PARKINSON'S FREEZE OF GAIT AI DRIVEN STIMULI

FEB 2021

- 1<sup>st</sup> place in University of Toronto biomedical engineering design competition for AI driven stimuli concept.

## SKILLS

- Python (Pandas, SciPy, PyTorch, NumPy), MATLAB, Data Analysis, CAD, 3D Printing

- Clinical Trial Design, Clinical Data Collection (EEG, MRI, focused ultrasound), Academic Writing

## VOLUNTEERING

### ENGINEERING AMBASSADOR, UNIVERSITY OF TORONTO

JAN 2023 - PRESENT

- Chosen to speak on panels with Vice Dean, and present to prospective students, families and donors at recruitment events as a representative of the engineering faculty. Resulted in full time hired position.

## OTHER AWARDS

- University of Toronto Exceptional Opportunities Research Award, 2022 & 2023 (\$3.5k)
- University of Toronto Engineering Dean's Merit Award (\$10k)
- Loran Provincial Award (\$2k)