

MURAD MASTROUK

BSc Cognitive Science & Psychology, University of Toronto

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Profile

As a cognitive scientist working at the intersection of computational neuroscience, psychology, and philosophy, I use predictive processing and Bayesian modelling to investigate foundational questions about how perception, affect, and embodiment shape the phenomenological structure of experience as well as the mechanisms underlying social processes.

Education

University of Toronto

Toronto, ON

Honours Bachelor of Science (HBSec), Cognitive Science & Psychology

2021 – 2026

- Cognitive Science Program Award (2026), *President*: Cognitive Science & Artificial Intelligence Student Association, *Editor*: Cognitive Science Undergraduate Journal, *Editor-in-Chief*: Inkblot Undergraduate Psychology Journal

COG-SUP Sorbonne Université & Université Paris Cité

Paris, France

Master's in Cognitive Science: Psychology Track

2026 – 2028

- Incoming Masters Student (M1)

Research Experience

Research Assistant

Dec. 2025 – Present

Stanford University Muslim Mental Health & Islamic Psychology

Remote

- Contributing a book chapter on Islamic contemplative traditions, developing a novel comparative framework mapping epistemological convergences between theological and secular paradigms.
- Directing experimental design and grant-writing initiatives for the IPH research group, coordinating methodological frameworks for survey based studies.

Research Assistant

Sept, 2025 – Present

Social Perception and Cognition Lab, University of Toronto

Toronto, ON

Protest Cognition

- Conducting exploratory analysis of 150+ protest events, isolating pre-escalation acoustic cues to design a three-way comparative study between human threat perception, deep learning prediction, and cognitive architectures (ACT-R).
- Utilizing Contrastive Language-Audio Pre-training (CLAP) and Pretrained Audio Neural Networks (PANN's) to formalize auditory features.

Cross-Cultural Musical Cognition

- Conducting a computational analysis of musical performances to understand gendered auditory cues.
- Extracting auditory descriptors to examine pitch, tonality, and style (MIRToolBox MATLAB).
- Assisting in the formalization of a Brunswick Lens model of gendered auditory cues in musical performances.

Researcher & Psychosocial Support

Jan, 2025 – Present

Dardasheh Wanabqa

Remote

- Lead a mental health survey with 300+ Syrians, triangulating data with WHO's HeRAMS reports to inform culturally grounded policy in post-conflict settings.
- Designed culturally responsive therapeutic workshops grounded in trauma-informed care, aiming to improve coping outcomes and resilience among Syrians amid ongoing instability and resource limitations.

Lead Researcher

May, 2024 – Jan, 2025

Hull Services

Calgary, AB / Hybrid

- Led a mixed-methods study on therapeutic duration and psychosocial outcomes for 1,500+ youth across 8 therapeutic care programs to inform provincial policy for children and youth mental health.
- Performed parametric/ non-parametric analyses using Meta's Prophet forecasting, ARIMA, & Random Forest modelling.
- Co-authored research reports with Dr. Ernie Alama informing strategies for therapeutic care optimization.

Research Associate

Oct, 2023 – Jun, 2024

Princess Margaret Cancer Centre - UHN

Toronto, ON

- Interpreted and extracted correlative pharmacokinetic data for Phase 1 oncology trials, providing critical insights to principal investigators and pharmaceutical partners.
- Systematized 1,000+ source documents to ensure data integrity and regulatory compliance, and audit readiness as part of the NIH's only clinical trial conducted outside the U.S.

Independent Research Project

Sept, 2023 – May, 2024

Cognitive Science Department

Toronto, ON

- Conducted a systematic review of 100+ peer-reviewed studies on altered states of consciousness using NLP-based article screening (spaCy, NLTK) and meta-analytic techniques (R 'metafor').
- Designed a multidimensional model linking altered cognition to enhanced problem representation, reduced functional fixedness, and improved creative problem solving, contributing to emerging bayesian models of constraint relaxation.

Technical Skills

Languages: English (Native), Arabic (Intermediate), Circassian (Beginner), French (Elementary)

Research Tools:

Quantitative & Statistical: Python, R, Jamovi, Stata
Computational & Modeling: MATLAB, ACT-R, NEURON
Qualitative: NVivo, ATLAS.ti
Workflow: Zotero, Overleaf, GitHub
Research: Qualtrics, REDCAP, Maktaba Shamela

Certifications:

Health Canada Division 5 (Drugs for Clinical Trials)
Good Clinical Practice (ICH-GCP)
Red Cross Psychological First Aid
Human Research Protection Training (U.S. Dept. of Health and Human Services)

Presentations & Talks

Mastrouk, M. (Apr 2025). *Therapeutic Duration and Psychosocial Readiness*. Psychology Undergraduate Research Conference, Toronto.

Mastrouk, M. (Oct 2024). *The Cognitive Science of Pedagogy & Learning*. Cognitive Science Student Association, Toronto.

Mastrouk, M. (Feb 2024). *Hypo-Egoic Cognition & Pivotal Mental States*. Seminar on the Self, Toronto.

Mastrouk, M. (Nov 2023). *Meta-Learning Neural Networks in Metacognitive Models*. Computational Cognition Seminar, Toronto.

Mastrouk, M. (Oct 2023). *Interoception: A Critical Sense of Wellbeing*. UofT Buddhism, Psychology, Mental Health Association, Toronto.

Mastrouk, M. (Feb 2023). *Insight Problem Solving in Altered States of Consciousness*. Confluence Undergraduate Conference, Toronto.

Publications

Skinner, R., El-Sayed, D., Dawoud, R., **Mastrouk, M.**, Zia, B., Awaad, R. (2027). *Islamic Contemplation: An Indigenous Islamic Alternative to Mindfulness*. Book manuscript with Routledge. (In Preparation)

Khan, S. F., Elsayed, D., Qazi, S., & **Mastrouk, M.**, Awaad, R. (2026). *Pearls from the Past: A Glimpse of Classical Islamic Psychology Across Modern Subdisciplines*. (In Review)

Aurora, A., & **Mastrouk, M.** (2026) *Cross-Linguistic Variation in Consciousness Terminology and Its Methodological Consequences* (In Preparation)

Mastrouk, M. & Neuenswander, K. (2026). *A Predictive Processing Account of Political Revolution*. (In Preparation)