MUHAMMAD MUZAMMIL

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EDUCATION

University of Toronto — Toronto, ON
HBSc. in Computer Science, Minors in Mathematics and Statistics — Sep. 2021 – Present

- **Focuses**: Artificial Intelligence & Computer Vision
- **GPA**: 3.97/4.00
- **Anticipated graduation**: June 2026

The York School — Toronto, ON
International Baccalaureate & Ontario Secondary School Diploma — Sep. 2018 – Jun. 2021

- **IB Score**: 41/45
- **Overall Average**: 96.3%

EXPERIENCE

Research Student — September 2025 – Present
Koziarski Lab - The Hospital for Sick Children & Vector Institute - Toronto, ON

- **Supervision**: Dr. Michał Koziarski
- Developing deep learning methods to detect cell senescence in order to determine the efficacy of different senomorphic drug candidates

Undergraduate Research Assistant — May 2025 – Present
University of Toronto

- **Supervision**: Professor Babak Taati
- Assessing the effect of synthetic training data on the performance of a pain detection model
- Worked as a CSC495 student from May to August 2025, and now working as a volunteer

Teaching Assistant — September 2025 – December 2025
University of Toronto

- Hosted weekly office hours for **CSC207: Software Design**
- Assisted with exam invigilation, exam marking, and presentation reviews

January 2025 – April 2025

- Led two weekly two-hour lab sessions for **CSC148: Introduction to Computer Science**
- Assisted with exam invigilation, exam marking, and office hours

Undergraduate Research Assistant — May 2024 – December 2024
University of Toronto

- **Supervision**: Professors Alice Gao & Jonathan Calver
- Developed a simulator in C++ for the popular card game Hanabi. Repo: HanaSim
- Developed a game-playing agent for Hanabi based on techniques from reinforcement learning

Software Developer Intern September 2023 – April 2024
FnS Consulting Inc. - Toronto, ON

- Designed and developed an end-to-end web application for a risk management system
- Front-end: JavaScript/TypeScript, React, HTML/CSS
- Back-end: ASP.NET Core (C#)

Undergraduate Research Assistant May 2023 – August 2023
Intelligent Adaptive Interventions Lab - University of Toronto

- **Supervision**: Professor Joseph Jay Williams
- Assisted graduate students in human-computer interaction research in programming tasks, literature reviews, and administrative work

Director of Religious Education September 2022 – April 2023
University of Toronto Muslim Students' Association

- Organized and led events on campus to enhance students' knowledge of Islam

PUBLICATIONS

- Taati, B., **Muzammil, M.**, Zarghami, Y., Moturu, A., Kazerouni, A., Mihailidis, A., Reimer, H., & Hadjistavropoulos, T. (2025). SynPAIN: A Synthetic Dataset of Pain and Non-Pain Facial Expressions. *IEEE Journal of Biomedical and Health Informatics.* (UNDER REVIEW, arXiv)
- Zarghami, Y., **Muzammil, M.**, Adeli, V., Reimer, H., Hadjistavropoulos, T., & Taati, B. (2025). PainControl: Identity-Preserving Pain Expression Transfer with Generative Diffusion Models. *BioMedical Engineering OnLine.* (UNDER REVIEW)
- Reimer, H., Zarghami, Y., **Muzammil, M.**, Sabo, A., Moturu, A., Taati, B., & Hadjistavropoulos, T. (2025, October). Improving Pain Detection Algorithms with AI-Generated Images: Validation of AI-generated Images Depicting Pain Expressions [Poster presentation]. *In AGE-WELL Annual Conference*, [Montreal, Quebec, Canada].
- Moturu, A., **Muzammil, M.**, Goldenberg, A., & Taati, B. (2026). Sample Reweighting to Effectively Use Synthetically Generated Data during Model Training. *International Conference on Learning Representations* (UNDER REVIEW)

TECHNICAL SKILLS

Languages: C#, Python, JavaScript/TypeScript, GraphQL, Java, C/C++, SQL, HTML/CSS, R, MATLAB, Swift
Frameworks: React, Node.js, ASP.NET Core
Developer Tools: Git, Docker, VS Code, Visual Studio, PyCharm, IntelliJ, CLion
Libraries: pandas, NumPy, Matplotlib, PyTorch, scikit-learn
Databases: MySQL, MSSQL, FireBase
Cloud Technologies: Microsoft Azure
Mobile App Development: iOS, AndroidOS

SOFT SKILLS

Organization: Demonstrated ability to efficiently organize tasks in a centralized system and maximize productivity through strategic, detail-oriented planning
Collaboration: Collaborates effectively with individuals from diverse backgrounds to drive successful project outcomes
Problem-solving: Proactively identifies and resolves issues independently as they arise
Leadership: Leads with initiative, motivating team members and driving performance to consistently achieve project milestones
Mentorship: Experienced in mentoring peers, promoting growth, and building a culture of continuous improvement

ACHIEVEMENTS & AWARDS

Innis College Exceptional Achievement Award: 2024
Later Life Learning Scholarship: 2022 & 2023
University of Toronto Dean's List Scholar: 2022, 2023 & 2024
University of Toronto Scholars Award: 2021
Ontario Scholar Award: 2021
The York School Award of Excellence: 2021 (*Chemistry, Math, & Physics*)
The York School Head's List: 2021