

Abdelrahman Zayed

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Research interests

NATURAL LANGUAGE PROCESSING, FAIRNESS, AND RESPONSIBLE AI.

Education

Sep 2020-
Dec 2024

PH.D. IN COMPUTER SCIENCE.
MILA (QUEBEC AI INSTITUTE), MONTRÉAL, CANADA.

- Cumulative GPA : 4.0/4.0
- **Supervisor** : Professor Sarath Chandar

May 2018-
April 2020

MASTER OF SCIENCE IN ELECTRICAL AND COMPUTER ENGINEERING.
CONCORDIA UNIVERSITY, MONTRÉAL, CANADA.

- Cumulative GPA : 4.2/4.2
- **Supervisor** : Professor Hassan Rivaz

July 2016

BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING.
CAIRO UNIVERSITY, GIZA, EGYPT.

- Summa Cum Laude
- Cumulative GPA : 3.92/4.0 (Top 3 %)

Academic Experience

May 2020-
Aug 2020

GRADUATE RESEARCH ASSISTANT, **MILA (QUEBEC AI INSTITUTE).**
MONTRÉAL, CANADA.

- **Supervisor** : Professor Sarath Chandar
- Worked on the application of constraints to the output of neural networks.

May 2018-
April 2020

GRADUATE RESEARCH ASSISTANT, **IMAGE PROCESSING AND CHARACTERIZATION OF TISSUE LABORATORY.**
PERFORM CENTRE, MONTRÉAL, CANADA.

- **Supervisor** : Professor Hassan Rivaz
- Applied machine learning in ultrasound imaging for detecting cancer tumours.

May 2019-
Jan 2020

GRADUATE RESEARCH ASSISTANT, **NEURAL ABC LABORATORY.**
CONCORDIA UNIVERSITY, MONTRÉAL, CANADA.

- **Supervisor** : Professor Christopher J. Steele
- Developed a model of the structural connections of the human brain to predict the effects of brain lesions.

Oct 2016-
Dec 2016

GRADUATE RESEARCH ASSISTANT, **CAIRO UNIVERSITY.**
CAIRO, EGYPT.

- **Supervisor** : Professor Mohamed Khairy
- Worked on Optical Wireless Communications in 5G Networks.

Industrial Experience

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| June 2024-present | RESEARCH INTERN, HUAWEI NOAH'S ARK LAB.
MONTRÉAL, CANADA. <ul style="list-style-type: none">• Supervisor : Mehdi Rezagholizadeh• Working on hallucination detection in LLMs. |
| May 2021-July 2022 | RESEARCH INTERN, MICROSOFT RESEARCH.
MONTRÉAL, CANADA. <ul style="list-style-type: none">• Supervisor : Samira Shabanian• Developed social bias mitigation methods for LLMs based on data augmentation and attention modulation. |

Teaching experience

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| Fall 2021 | LEAD TEACHING ASSISTANT.
POLYTECHNIQUE MONTRÉAL, CANADA. <ul style="list-style-type: none">• Instructor : Professor Sarath Chandar, Ph.D• Conducted tutorials and graded assignments/exams for an introductory course in machine learning (INF8245E).• Supervised other teaching assistants. |
| Fall 2020 | TEACHING ASSISTANT.
POLYTECHNIQUE MONTRÉAL, CANADA. <ul style="list-style-type: none">• Instructor : Professor Sarath Chandar, Ph.D• Conducted tutorials and graded assignments/exams for an introductory course in machine learning called (INF8953CE). |
| Fall 2016 | TEACHING ASSISTANT.
CAIRO UNIVERSITY, GIZA, EGYPT. <ul style="list-style-type: none">• Instructor : Professor Heba Mourad, Ph.D• Conducted tutorials and graded exams for an undergraduate course in Analog Communications (ELCN306). |

Scholarships and Awards

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| 2024-2026 | FRQNT PH.D. SCHOLARSHIP (33,334\$). |
| 2024 | RESPONSIBLE AI SCHOLARSHIP (1,160\$). |
| 2022-2023 | MICROSOFT FUNDING FOR AMBITIOUS PROJECTS (60,000\$ PER YEAR). |
| 2020-2024 | GRADUATE RESEARCH ASSISTANTSHIP FROM MILA (30,000\$ PER YEAR). |
| 2019 | QBIN SCHOLARSHIP FOR MASTER'S STUDENTS (5,000\$). |
| 2019 | CAE SCHOLARSHIP IN ENGINEERING EXCELLENCE FROM CONCORDIA UNIVERSITY (2,434\$). |
| 2018-2020 | GRADUATE RESEARCH ASSISTANTSHIP FROM CONCORDIA UNIVERSITY (15,000\$ PER YEAR). |
| 2018 | MERIT SCHOLARSHIP FROM CONCORDIA UNIVERSITY (5,000\$). |
| 2011-2016 | MEDAL OF DISTINCTION WITH HONOR IN UNDERGRADUATE STUDIES FROM CAIRO UNIVERSITY. |

Publications

- 1-**A. ZAYED**, GONCALO MORDIDO, IOANA BALDINI , SARATH CHANDAR “WHY DON’T PROMPT-BASED FAIRNESS METRICS CORRELATE ?” - ACL main 2024.
- 2-**A. ZAYED**, GONCALO MORDIDO, SAMIRA SHABANIAN, IOANA BALDINI , SARATH CHANDAR “FAIRNESS-AWARE STRUCTURED PRUNING IN TRANSFORMERS” - AAAI 2024.
- 3-**A. ZAYED**, GONCALO MORDIDO, SAMIRA SHABANIAN, SARATH CHANDAR “SHOULD WE ATTEND MORE OR LESS ? MODULATING ATTENTION FOR FAIRNESS” - COLM 2024.
- 4-**A. ZAYED**, PRASANNA PARTHASARATHI, GONCALO MORDIDO, HAMID PALANGI, SAMIRA SHABANIAN, SARATH CHANDAR “DEEP LEARNING ON A HEALTHY DATA DIET : FINDING IMPORTANT EXAMPLES FOR FAIRNESS AND PERFORMANCE” - AAAI 2023.
- 5-**A. ZAYED** AND H. RIVAZ “FAST STRAIN ESTIMATION AND FRAME SELECTION IN ULTRASOUND ELASTOGRAPHY USING MACHINE LEARNING” - IEEE TUFFC, 12 MAY 2020.
- 6-**A. ZAYED**, Y. ITURRIA-MEDINA, A. VILLRINGER, B. SEHM AND C. STEELE “RAPID QUANTIFICATION OF WHITE MATTER DISCONNECTION IN THE HUMAN BRAIN” - IEEE EMBC 2020.
- 7-**A. ZAYED**, G. CLOUTIER AND H. RIVAZ “AUTOMATIC FRAME SELECTION USING CNN IN ULTRASOUND ELASTOGRAPHY” - IEEE EMBC 2020.
- 8-**A. ZAYED** AND H. RIVAZ “AUTOMATIC FRAME SELECTION USING MLP NEURAL NETWORK IN ULTRASOUND ELASTOGRAPHY” - ICIAR 2019.
- 9-**A. ZAYED** AND H. RIVAZ “FAST APPROXIMATE TIME-DELAY ESTIMATION IN ULTRASOUND ELASTOGRAPHY USING PRINCIPAL COMPONENT ANALYSIS” - IEEE EMBC 2019.

Paper review

CONFERENCE ON NEURAL INFORMATION PROCESSING SYSTEMS (NEURIPS), 2023.
THE INTERNATIONAL CONFERENCE ON MACHINE LEARNING (ICML), 2022.
IEEE TRANSACTIONS ON MEDICAL IMAGING (TMI), 2020.

Volunteering

Aug 2024	TAUGHT PROBABILITY TO UNDER-REPRESENTED HIGH SCHOOL STUDENTS.
July-Aug 2022	CO-ORGANIZED CoLLAs (LIFELONG LEARNING CONFERENCE).
July-Dec 2020	HELPED KIDS WITH MATH HOMEWORK AT JEUNESSE UNIE YOUTH CENTER.
July-Aug 2020	HELPED WITH EVENTS COORDINATION AT MARCHÉ AHUNTSIC-CARTIERVILLE.
June-Aug 2020	COOKED AND WASHED DISHES AND POTS AT TABLÉE DES CHEFS.
July-Aug 2020	FILTERED THE DONATIONS AT LE MAGASIN DU CHAÎNON.

Languages

ENGLISH, FRENCH AND ARABIC.

Skills and Hobbies

PYTHON (PYTORCH/TENSORFLOW)-MATLAB-C/C++-JAVA.
WINDOWS OPERATING SYSTEM-LINUX OPERATING SYSTEM.
PIANO AND CELLO.
KICKBOXING.
READING.