

Wanda Maximoff

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HIGHLIGHTS OF QUALIFICATIONS

- Currently enrolled in McMaster University's Biomedical Engineering PhD Program, with specialty in signal processing and biomedical instrumentation with EMG and EEG sensing
- Proven research expertise in applications of AI in medical image processing through thesis work
- Extensive medical laboratory experience through clinical placements and academic research

EDUCATION

Doctor of Philosophy, Biomedical Engineering (Co-op)

McMaster University, Hamilton ON

Sept 2028 – Apr 2031

- Relevant coursework: Cellular Bioelectricity, Biomedical Instrumentation and Measurement, Biomedical Signal Modelling and Processing

Master of Applied Science, Electrical Engineering

University of Toronto, Toronto ON

Sept 2025 – Apr 2027

- Thesis: Biomedical Signals and Signal Processing Methods on EEG and EMG data to Detect Diseases using AI

Bachelor of Applied Science, Engineering Physics

Queen's University, Kingston ON

Sept 2020 – Apr 2025

WORK EXPERIENCE

Medical Device Technologist

Jul 2027 – Aug 2028

Sunnybrook Health Sciences, North York ON

- Applied advanced knowledge of biomedical systems to maintain, calibrate, and troubleshoot critical medical devices including EEG/EMG systems, infusion pumps, and patient monitoring equipment
- Collaborated with clinical engineering staff to ensure compliance with safety standards and hospital protocols, exemplifying attention-to-detail and communication skills
- Participated in device performance testing and contributed to documentation for preventive maintenance and incident reporting
- Integrated AI-based tools for signal analysis by using master's thesis research in EEG/EMG disease detection

Biomaterials Development Intern

Sept 2023- Aug 2024

MedBioTech Solutions Inc., Toronto ON

- Contributed to the design and evaluation of biocompatible materials for implantable devices, focusing on polymer blends and bioresorbable composites
- Performed material characterization using techniques such as DSC, TGA, SEM, and contact angle measurements to assess thermal, mechanical, and surface properties
- Supported in-vitro testing to evaluate degradation rates and cytotoxicity in compliance with ISO 10993 standards
- Collaborated with biomedical and mechanical engineers to refine material formulations for improved tissue integration and mechanical performance, demonstrating adaptability and teamwork skills

RESEARCH EXPERIENCE

Graduate Researcher Sept 2025 – Feb 2027

University of Toronto, CRANIA NeuroModulation Institute

- Participated in a collaborative specialization program bridging electrical engineering and biomedical engineering in Neuroscience
- Performed data collection for master’s thesis about signal processing of EEG and EMG signals, supervised jointly by faculty from engineering and medicine
- Applied advanced signal processing techniques (e.g., time-frequency analysis, feature extraction) to enhance diagnostic accuracy by 12%

Undergraduate Research Assistant – Clinical Brain-Computer Interface (BCI) Program Jan – Apr 2023

Holland Bloorview Kids Rehabilitation Hospital, Toronto ON

- Assisted in EEG data collection and preprocessing for children with severe physical disabilities using non-invasive BCI systems in the Bloorview Research Institute’s PRISM Lab
- Gained hands-on experience with BCI software platforms and signal processing tools (e.g., OpenBCI, MATLAB, Python)
- Participated in interdisciplinary team meetings with clinicians, occupational therapists, and engineers to align research with clinical goals, showing adaptability and communication skills

Leadership Experience

Events Officer – McMaster Engineering Graduate Society Sept 2029 – Present

McMaster University, Hamilton ON

- Organized 5 large events (50-100 people) targeted for graduate students to connect with peers and professionals in industry and academia, highlighting adaptability, project and event management skills
- Produced promotional materials and outreached on social media platforms to advertise all upcoming events, demonstrating marketing, communication and digital literacy skills

Skills

Programming Languages/Libraries: Python (NumPy, SciPy, pandas, Matplotlib, PyTorch, Scikit-learn, OpenCV, OpenBCI), MATLAB (EEGLAB, Signal Processing Toolbox)

Software Tools: OpenViBE, BCI2000, Git/Github, Visual Studio, Simulink, KiCAD, PSpice, MS Office

Technical Skills: Soldering, Signal Processing, Oscilloscope, Multimeter

Publications

- Nguyen, T. H., Patel, R. S., Maximoff, W., & Chen, L. (2029). *Real-time classification of motor imagery EEG signals using deep learning for assistive neurotechnology applications*. Joint research paper, University of Toronto, Toronto, ON.
- Maximoff, W. (2027). *Biomedical Signals and Signal Processing Methods on EEG and EMG Data to Detect Diseases Using AI*. Master’s thesis, University of [Your University], Toronto, ON