BRAHIM BRAHMI | Assistant Professor, Ing, Ph.D.

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• 14-2860 Place de Darlington, H3S 1L5, Montreal, QC, Canada
• (+1) 4385053428 • LinkedIn
• Blog • Google Scholar

Professional profile

- **8 years** of teaching engineering students, including **Industrial Automation**, **Mechatronics, Robotics**, **Control Systems** and **Network and Computer Hardware**.
- Member of the Professional Engineers (OIQ) and Senior Member of IEEE.
- More than **100 technical papers** in international journals and conferences, my **h-index is 21**.
- Development and Evaluation of **Digital Twin, IIoT** using **PTC Thingworx** and **Vuforia**.
- Commercialization of a novel physics-driven **VR/AR surgical training device** for a spinal operation with **visual, audible, and haptic feedback**.
- Good experience in the **supervision of undergraduate and graduate students**.
- Proficient in academic research related to **drafting proposals** and applying for **grant funding**.
- Extensive knowledge on **Wearable robots, Industrial Modular robots, Drone robots, Mobile manipulators, Spinal robotics devices, Haptics and Tele-operation, and a Humanoid robot**.
- More than **5 years of industry experience**.
- More than **10 years of experience** in **Design, Development, and Control of Bio-Mechatronics and Robotics Systems**.
- Extended knowledge in **Artificial Intelligence** and **Machine Learning Techniques**.
- Extended knowledge in **Aeronautics, Robotics, and Power Electronics**.
- Well-versed with the utilization of **Linear and Nonlinear Control approaches**.
- Advanced expertise in **Electrical and Automation Engineering**. Also, experienced in **consultancy and testing services** as a professional engineer.

Education

ÉCOLE DE TECHNOLOGIE SUPÉRIEURE (ÉTS)
2015 -2019
Ph.D. in Electrical Engineering, Mention: Excellent
Montreal, Canada
Thesis title: Nonlinear control of an exoskeleton robot 7-DOFs Robot to realize an active and passive rehabilitation task.

LVIV POLYTECHNIC NATIONAL UNIVERSITY
2013-2015
Master in Electrical and Computer Engineering, Mention: Excellent
Lviv, Ukraine
Dissertation title: Nonlinear controls of a quadrotor unmanned aerial vehicle" comparative study.

IVANO-FRANKIVSK NATIONAL TECHNICAL UNIVERSITY OF OIL AND GAS
2012 - 2013
Certificate in Mathematic
Ivano-Frankivsk,Ukraine

Mention: Excellent

UNIVERSITY OF SCIENCE AND TECHNOLOGY (EQUIVALENCE OBTAINED IN QUEBEC)
2005-2011
BS.C. in Electrical and Automation Engineering, Mention: Excellent
Oran, Algeria
Dissertation title: Lateral control of a vehicle based on a sliding mode controller.

LICENSES & CERTIFICATIONS

MEMBER OF THE PROFESSIONAL ENGINEERS (OIQ)
03/2023 - Present
Ordre des ingénieurs du Québec
Credential ID 6021030

SENIOR MEMBER, IEEE
Aug-2024
IEEE (Institute of Electrical and Electronics Engineers)
Credential ID 0044120

ASSOCIATE SAFETY PROFESSIONAL (ASP)
Oct-2023
ASP Construction
Montreal, Canada
Credential ID 0044120

SIMDUT 2015
jun 2024-Jun 2027
LeCampus
Montreal, Canada
Credential ID 0044120

TEACHING EXPERIENCES

ASSISTANT PROFESSOR, KING FAHD UNIVERSITY OF PETROLEUM AND MINERALS
09/2024 - Present
Courses Title:
Dhahran, Saudi Arabia

- Senior design course
- Digital control systems
- Optimal control

PROFESSOR, COLLEGE AHUNTSIC
08/2021 - 08/2024
Courses Title:
Montreal, Canada

- Robotics concepts
- Regulation of industrial processes
- Industrial measurements
- Introduction to Interface Controls
- Electrical Circuits AC and DC
- Sensors and actuators in robotics
- Project 1: Installation of a robotic network
- Supervision industry
- Network troubleshooting and documentation
- Measurements and Instrumentation
- Electrotechnical diagrams (AutoCAD)
- Network physical components
- Power Electronics
- Automation 1
- Automation 2
- Advanced automation
- Project 1 – Automation Project
- Industrial Electrical Distribution
- Renewable Energy
- Electrotechnics and Automation
- Industrial interfaces (IoT)
- Electricity and electronics in nuclear medicine
- Advanced Automation
- Physical Components of Computer
- Network and Computer Hardware
- Industrial maintenance

LECTURER, UNIVERSITE DU QUÉBEC EN ABITIBI-TÉMISCAMINGUE

Summer 24
Rouyn-Noranda, Canada

Courses Title:

- GEN4303 Adaptive and Optimal Controls
- GEN4303 Design and control of industrial robots

TEACHING ASSISTANT, ÉCOLE DE TECHNOLOGIE SUPÉRIEURE (ÉTS)

01/2016 - 12/2021
Montreal, canada

Courses Title:

- Sensors and actuators
- Automatic and mechatronic
- Industrial instrumentation
- Real-time digital Control
- Instrumentation and control of industrial processes
- Control systems
- Electronic circuit
- Linear control systems
- Modeling and control of robotics systems

PROFESSIONAL EXPERIENCES

ASSISTANT PROFESSOR

09/2024 - Present
Dhahran, Saudi Arabia

King Fahd University of Petroleum and Minerals

Key Works:

- Teaching and Curriculum Development: University teaching, course design, student supervision, laboratory instruction.
- Research and Publications – Research grants, peer-reviewed articles, interdisciplinary collaboration, conference presentations..
- Leadership and Industry Collaboration – Research team supervision, university committees, accreditation, industry partnerships.

PROFESSOR

08/2021 - 08/2024

Collège Ahuntsic

Montreal, Canada

Key Works:

- Teach courses in engineering.
- Advise undergraduate and graduate students.
- Conduct research and publish findings in peer-reviewed journals.
- Serve on departmental and college committees.
- Give lectures for theory classes as well as relevant labs in Modeling and control, Industrial instrumentation, and measurement.
- Responsible for preparing and conducting exams, grading students, and advising them in their courses and academic matters.
- Organize department seminars, conferences, open days.
- Recruitment of students for various research projects.
- Writing grant applications.
- Supervision and co-supervision of research work of Masters and Doctorate students.

LECTURER

summer 24 to present

School of Engineering, Universite du Québec en Abitibi-Témiscamingue

Rouyn-Noranda, Canada

Key Works:

- Developed and delivered undergraduate and graduate courses in the Electrical/Mechanical and Automation departments.
- Utilized diverse teaching methods to enhance student engagement and learning outcomes.
- Created and graded exams, assignments, and projects, providing timely and constructive feedback.
- Conducted research in Intelligent control and robotics and published findings in peer-reviewed journals.
- Presented research at national and international conferences.
- Secured research funding through grants and managed grant proposals and research budgets.
- Advised and mentored students on academic, career, and personal development matters.
- Supervised undergraduate and graduate research projects, theses, and dissertations.
- Participated in the development and revision of academic programs and courses.
- Served on departmental, faculty, and university-wide committees and organized academic events.

POSTDOCTORAL RESEARCHER WITH INDUSTRIAL PARTNER (CAE, MONTREAL)

07/2019 - 08/2021

Department of Mechanical Engineering, McGill University

Montreal, Canada

Key Works:

- Co-supervision of research work of Masters and Doctorate students.
- Participation in the writing of grant applications.
- Worked in haptics, within an augmented reality simulation, leveraging real-time physics-driven computation.
- Created a gravity compensation subroutine (to be run on the haptic driver) to compensate for tooling weight.
- Created a velocity estimation routine for improved damping.
- Improved interfacing with a computer to augment communication with the haptic device.
- Published research in peer-reviewed journals and presented at conferences.
- Assisted with the development of course materials and teaching of undergraduate courses.

TEACHING ASSISTANT

01/2016 - 12/2021

École de technologie supérieure (ÉTS)

Montreal, Canada

Key Works:

- Assisted professors in teaching undergraduate courses in engineering.
- Graded assignments and exams.
- Led review sessions and office hours.
- Delivered lectures for theory classes as well as relevant labs in Modeling and Control of Robotic Systems, Automatic and Mechatronic, and Industrial Instrumentation.
- Was responsible for preparing and conducting exams, grading students, and advising them in their courses and academic matters.
- Organized department seminars and symposiums.

LEAD COATCH

10/2019 - 06/2020

FIRST Robotics Canada, College of Montreal

Montreal, Canada

Key Works:

- Supervising the FIRST robotics team through their strategy, design, build, and competition process, providing guidance and instruction, and promoting sound engineering, safe practices, and professional behavior.
- Supporting and mentoring the student leaders in the FIRST Robotics program to become more thoughtful and effective in their work.
- Chaperoning team trips to workshops and competitions.

ROBOTICS COORDINATOR

02/2018 - 06/2019

NAOVA Team, École de technologie supérieure (ÉTS)

Montreal, Canada

Key Works:

- NAOVA Team, École de technologie supérieure (ÉTS), University of Montréal.
- Create and support a team of robotics competition type RoboCup.
- Support and supervise the activities of the group in the design of a humanoid robot's control for specific purposes with specific constraints.
- Support and supervise the activities of the group in various areas: (Design CAD, Mechanical, Electronics, pressure system, Programming).

RESEARCH ASSISTANT

01/2017 - 09/2021

GREPCI Laboratory, École de technologie supérieure (ÉTS)

Montreal, Canada

Key Works:

- Developed 'Robotics Research Lab.' Also served as a lab-in-charge of the 'Robotics research lab' that requires laboratory development, maintaining laboratory equipment, ensuring a safe environment in the lab, providing technical assistance, and advising students in their research.
- Mentor graduate students (Bachelor, Masters, and Ph.D.).
- Manage "Robotics and Mechatronics Lab".
- Responsible for preparing and conducting exams, grading students, and advising them in their courses and academic matters.
- Designed and developed an exoskeleton robot to assist upper-limb motion.
- Developed and implemented both linear and nonlinear control strategies to maneuver wearable robots.
- Analyzed upper-limb biomechanics and developed a passive robotic rehabilitation protocol.
- Developed LabVIEW-based user interface to control a 7DoFs anthropomorphic exoskeleton robot.

RESEARCH ASSOCIATE (VISITOR)

01/2018 - 04/2022

Bio-Robotics Lab, University of Wisconsin-Milwaukee

Wisconsin, USA

Key Works:

- Developed Bio-Robotics Research Lab.
- Mentored graduate students (Bachelor, Masters, and Ph.D.).
- Designed and developed exoskeleton robots to assist upper-limb motion.
- Engaged in research activities for distributed control over exoskeleton robots, focusing on the design of a generalized Distributed Second Order Nonlinear Dynamics.
- Developed a LabVIEW-based user interface/Digital Twin for tele-rehabilitation to control a 7DoFs anthropomorphic exoskeleton robot.
- Writing grant applications.

RESEARCH VISIT

09/2017 - 12/2017

Center of Excellence DEWS, University of L'Aquila

Aquila, Italy

Key Works:

- Research Activities for Controlling Rehabilitation Robots.
- Develop an advanced control for physical human-robot interaction for an Exoskeleton using EMG signals.
- Real-time implementation of nonlinear controllers designed on the 7 degrees of freedom exoskeleton robot.
- Development of new control theories.

INTERNSHIP RESEARCH

06/2014 - 08/2014

Lviv Polytechnic National University

Lviv, Ukraine

Key Works:

- Control design specialist for ADVANCED CONTROL FOR THE 3D MOTION OF QUADROTOR TYPE UAV.
- Robust control of the quadrotor to overcome external perturbations.

ELECTRONIC TECHNICIAN
2019 - 2012

Entreprise Tous corps d'état .INC
Saida, Algeria

Key Works:

- Design, implement, maintain, and improve electrical instruments.
- Co-supervision of the maintenance and instrumentation team.
- Statistical study of process operating time data.
- Optimization of energy linked to the operating time of conveyors, motors, pumps... etc.
- Development of optimization programs for train unloading and ship loading.

INTERNSHIP
02/2009 - 03/2012

Cement production society
Saida, Algeria

Key Works:

- Experience in programming of PLC, electronic instruments, electrical diagrams and drives.

ACHIEVEMENTS

THE DEVELOPMENT AND EVALUATION OF A NOVEL SURGICAL SPINE VIRTUAL REALITY
2019/2021

(McGill University, CAE Montreal)
Montreal, Canada

PROPOSED ADVANCED CONTROL STRATEGIES FOR AN EXOSKELETON ROBOT ASSISTING UPPER-LIMB MOVEMENTS.
2015- present

(ETS, College Ahuntsic)
Canada

DEVELOPMENT OF NOVEL IIOT BASED FRAMEWORK FOR TELEOPERATION OF COLLABORATIVE ROBOT
2023/2024

(Wisconsin Milwaukee University)
USA

MOTOR IMAGERY PERFORMANCE THROUGH EMBODIED DIGITAL TWINS IN A VIRTUAL REALITY ENABLED BRAIN-COMPUTER INTERFACE ENVIRONMENT
2024

(Wisconsin Milwaukee University, College Ahuntsic)
USA, Canada

COMMERCIALIZATION OF A NOVEL PHYSICS-DRIVEN VR/AR SURGICAL TRAINING DEVICE OF A SPINAL OPERATION WITH VISUAL, AUDIBLE, AND HAPTIC FEEDBACK
08/2021

(McGill University)
Montreal, Canada

DESIGNED AND DEVELOPED A WEARABLE ROBOT FOR REHABILITATION AND TELE-REHABILITATION
2015- present

ETS, WI, College Ahuntsic — Montreal, Canada

CO-FOUNDER OF THE 'BIO-ROBOTICS RESEARCH LAB', ETS AND HAVE BEEN LEADING A FIVE-MEMBER RESEARCH TEAM OF THIS LAB. — 01/2015 08/2021
ETS — Montreal, Canada

ÉTS-MARSE REHABILITATION ROBOT FUNCTIONALITY TEST WITH REAL STROKE PATIENTS — 2018-2019
ETS — Montreal, Canada

PROPOSED INTELLIGENT VISION-BASED CONTROLLERS FOR UNMANNED SYSTEMS TO REALIZE ITS APPLICATIONS IN AGRICULTURE — 2019
ETS — Montreal, Canada

CREATE AND DEVELOP AN INTELLIGENT CONTROL FOR A TEAM OF ROBOTICS COMPETITION TYPE ROBOCUP — 2018-06/2019
NAOVA team, ETS — Montreal, Canada

DEVELOPED A NEW HAMMERING MECHANISM FOR SURGEON TRAINING SIMULATOR — August 2020-Juin 2021
McGill university, CAE — Montreal, Canada

MULTIFUNCTIONAL ROBOTIC ASSISTIVE ARM (MR2A) FOR ACTIVITIES OF DAILY LIVING ASSISTANCE — Sep2020- Aug 2023
ÉTS — Montreal, Canada

INTEGRATION OF ELECTRIC VEHICLES INTO THE POWER GRID — Feb 2020-Dec 2021
Concordia University — Montreal, Canada

CREATE AND SUPERVISED A ROBOTICS TEAM FOR FIRST ROBOTICS CANADA COMPETITION — Oct 2019-Juin 2020
College de montreal — Montreal, Canada

SUPERVISION OF MANY ACADEMIC WORKS FOR GRADUATE AND UNDERGRADUATE STUDENTS — 2016-present
ETS, WI, McGill university, college ahuntsic — Montreal, Canada

GRANTS & AWARDS

ADAPTIVE LEARNING CONTROL DESIGN FOR SAFE AND EFFICIENT HUMAN-ROBOT COLLABORATION IN DYNAMIC INDUSTRIAL ENVIRONMENTS — 05/2025
IRC-IMR, (Accepted) — Dhahran, Saudi Arabia

SMART ROBOTIC EXOSKELETON INTEGRATED INTO WHEELCHAIRS: IMPROVED REHABILITATION AND MOBILITY — 09/2024
PART grants, Quebec (submitted) — Montreal, Canada

DEVELOPMENT OF A MODULAR REHABILITATION ROBOT TO IMPROVE MOBILITY AT HOME: TOWARDS INCREASED AUTONOMY FOR PEOPLE WITH REDUCED MOBILITY 09/2024
PART grants, Quebec Montreal, Canada

TOWARDS AN AUTONOMOUS URBAN GREENHOUSE: OPTIMIZATION, DIGITALIZATION, AND INTELLIGENT SUPERVISION FOR EFFICIENT ENERGY MANAGEMENT 09/2024
PART grants, Quebec Montreal, Canada

CREATING A SUSTAINABLE LABORATORY FOR RENEWABLE ENERGY AND ENERGY SYSTEMS 04/2024
Mobilize grants, CRSNG Montreal, Canada

DEVELOPMENT, CONTROL, AND DIGITALIZATION OF SOLAR RENEWABLE ENERGY 03/2024
College and Community Social Innovation Fund CRSNG (submitted) Montreal, Canada

MULTIFUNCTIONAL ROBOTIC ASSISTIVE ARM FOR ACTIVITIES OF DAILY LIVING ASSISTANCE 09/2020 08/2023
funded by Disability and Rehabilitation Research Projects (DRRP) Program Wisconsin, USA

A NOVEL SURGICAL SPINE INTO A PHYSICS-DRIVEN VIRTUAL REALITY TRAINING PLATFORM 06/2019 08/2021
funded by collaborative research and development grant and CAE Montreal Montreal, Canada

DESIGN A NEW LOWER-LIMB EXOSKELETON ROBOT 2019-2021
funded by National Science Foundation (NSF) Wisconsin, USA

ÉTS-MARSE REHABILITATION ROBOT FUNCTIONALITY WITH REAL STROKE SUBJECTS 09/2018-06/2019
funded by Centre for Interdisciplinary Research in Rehabilitation Montreal, Canada

THE BEST PAPER AWARD 05/2018
5th International Conference of Control, Dynamic Systems, and Robotics (CDSR'18)) Niagara Falls, CA

AWARD OF EXCELLENCE OF ELECTRICAL ENGINEERING DEPARTMENT 2018
École de Technologie Supérieure (ÉTS) Montreal, Canada

FIELD OF EXPERTISES

Research Interests

1. Bio-robotics: wearable robots, rehabilitation robotics, exoskeleton robots (for rehabilitation & motion assistance), human-assist robots, service robots, surgical robots, medical robots, human-machine interface.
2. Collaborative Robots, Mobile Robots, Haptic system, Mobile manipulators, Industrial robots, Marine robots, Air robots.

3. Intelligent system and Control - nonlinear control, artificial intelligence, neural networks, fuzzy systems, fuzzy-neuro control, adaptive control, Data-Driven control, Optimal and predictive control, control using bio-logical signals such as electromyogram signals, Design telerobotic rehabilitation systems using artificial intelligence for training rehabilitation robots, fundamental motion control concepts for nonholonomic/underactuated vehicle systems, such as watercraft, landcraft, aircraft, and spacecraft. Tolerant active intelligent control of the faults of exoskeleton robots.
4. IIOT, Mixed-Reality, Augmented Reality, Digital Twin, Teleoperation.
5. Digitalization, Automation, and intelligent maintenance of industrial processes.
6. Control applied on Smart Grid and renewable energy
7. Design of surgical simulators and control of haptic systems.

Skills

PROGRAMMING LANGUAGE Matlab/Simulink | C/C++ | Python | Robot Operating System (ROS) | PLC-Programming: Allen Bradly, OMRON and SIEMENS

SOFTWARE Solidworks | RSLOGIX-500 | RSLOGIX 5000 | Studio 5000 | TIA Portal | SCADA system | Intouch | WinPLC 7 | LabView | PvSystem | PVsol | Multisim | AutoCAD

HARDWARE Atmega 32 | Arduino | National Instrument | FPGA | STM32 | PLC-Hardware: Allen Bradly, OMRON and SIEMENS.

TEACHING

- Design and implementation of courses (face-to-face, online and hybrid format).
- Integration of information and communications technologies,
- Utilized diverse teaching methods to enhance student engagement and learning outcomes.
- Evaluation of learning progression and the degree of acquisition of information,
- Participated in the development and revision of academic programs and courses
- Preparation, conduct and correction of exams,
- Advise students in choosing courses,
- Supervision of student works,
- Animation of seminars, conferences and symposia,
- Grant application writing.

LANGUAGES **Fluent:** English | **Fluent:** French | **Native:** Arab | **Fluent:** Ukrainian | **Mid:** Russian

Student Supervision

Undergraduate student

1. Prototype: "Solar Panels with Optimized Tilting Mechanism". Raid Najib Gadhi, Naif Althiyabi, KFUPM, Saudi Arabia. Supervisor: **Brahim Brahmi**, KFUPM. Defended (2025).

2. Prototype: "CubeSat Solar Activity Monitoring". Abdullah Al-Ghamdi, Mohammed Alzaher, KFUPM, Saudi Arabia. Supervisor: **Brahim Brahmi**, KFUPM. Defended (2025).
3. Emory Salberg: " Develop and Evaluation of Digital Twin of XArm6 robot using PTC Thingworx and Vuforia". Mohammad Habibur Rahman, University of Wisconsin-Milwaukee, USA. Co-Supervisor: **Brahim Brahmi**, McGill university, Canada. Defended (2020-2021).
4. NAO group for Intelligent control of Humanoid robot type NAO. Lead coach: **Brahim Brahmi**, McGill university, Canada. (2018-2019).
5. Robotics robot for First robotic Canada competition, College of Montreal. Lead coach: **Brahim Brahmi**, McGill university, Canada. (2019-2020)
6. Michael Grizenko-Vida: "Design of a torque feedback handle for a surgical simulator" Mark Driscoll, McGill university, Canada. Co-Supervisor: **Brahim Brahmi**, McGill university, Canada. Defended,(2019)

Master students

1. Housseme Eddine Oularbi:" Intelligent monitoring and maintenance system for a robotic exoskeleton' Maarouf Saad, ETS-Canada. Co-Supervisor: **Brahim Brahmi**, College Ahuntisc, Canada, Defended [2024-2025].
2. Mostefaoui Abdelhak:" Development of an Intelligent Approach to Identify and Avoid Singularities in a 7 DOF Robotic Exoskeleton during Active Rehabilitation' Maarouf Saad, ETS-Canada. Co-Supervisor: **Brahim Brahmi**, College Ahuntisc, Canada, Defended [2024-2025].
3. Clémence Auclair: "Installation and simulation of new EMG sensors on an exoskeleton arm with 7 degrees of freedom for active rehabilitation of the upper limbs." Maarouf Saad, ETS-Canada. Co-Supervisor: **Brahim Brahmi**, McGill University, Canada. Defended.[2018-2019]
4. GUERNIOU Axelle: "Non-linear control of a mobile manipulator robot." Maarouf Saad, ETS-Canada. Co-Supervisor: **Brahim Brahmi**, ETS-Canada. Defended.
5. Radouane BENZAKI: "Development of a graphical interface to simulate the movements of a robotic exoskeleton arm." Maarouf Saad, ETS-Canada. Co-Supervisor: **Brahim Brahmi**, McGill University, Canada. Defended.[2017-2018].
6. Ahmed Tanvir: "Development and control of a novel 3-DoF exoskeleton robot aimed for home-based Forearm and wrist rehabilitation." Mohammad Habibur Rahman, University of Wisconsin-Milwaukee, USA. Co-Supervisor: **Brahim Brahmi**, McGill University, Canada. Defended.[2019-2020].
7. Brittany Stott: "Working on automating the control system of the robotic spine. Evaluating the correlation of spinal stability and intrabdominal pressure." Mark Driscoll, McGill University, Canada. Co-Supervisor: **Brahim Brahmi**, McGill University, Canada. Defended. [2019-2020].
8. Vincent Cordier: "Development of wireless communication for an Arduino robot / design of an ergonomic user interface." Co-Supervisor: **Brahim Brahmi**, ETS-Canada. Defended.[2020-2021].
9. Abdelbasset Nasri: "Non-linear control of a mobile robot." Co-Supervisor: **Brahim Brahmi**, ETS-Canada. Defended.[2020-2021].
10. Alaa Marouan: "Adapting a virtual interface of a haptic robot PHANTOM Omni in collaborative environment for the development of medical simulators and virtual teleoperation." Co-Supervisor: **Brahim Brahmi**, ETS-Canada. Defended. [Sep 2020 - Apr 2021].
11. Michael Grizenko-Vida: "Design of a new hammering mechanism for a surgical simulator." Mark Driscoll, McGill University, Canada. Co-Supervisor: **Brahim Brahmi**, McGill University, Canada. Defended. [Aug 2020 - 2021].
12. Asif Al Zubayer Swapnil: "Intelligent therapeutic robot: design, development, and control." Mohammad Habibur Rahman, University of Wisconsin-Milwaukee, USA. Co-Supervisor: **Brahim Brahmi**, McGill University, Canada. Defended.[2018-2020].

13. Emory Salberg: "Coordination control and obstacle avoidance of a team of mobile robots in an Unknown Dynamic Environment." Mohammad Habibur Rahman, University of Wisconsin-Milwaukee, USA. Co-Supervisor: **Brahim Brahmi**, McGill University, Canada. Defended.[2020-2022].

PhD students

1. Sneha Patel: "Optimization of finite element method tissue deformation optimized for parallel computing." Mark Driscoll, McGill university, Canada. Co-Supervisor: **Brahim Brahmi**, McGill university, Canada. Defended.[2021].
2. Trevor Cotter: "Finite element-based virtual reality surgical simulators and integrating torque haptics" Mark Driscoll, McGill university, Canada. Co-Supervisor: **Brahim Brahmi**, McGill university, Canada. Defended. [2021]
3. Ibrahim El-Bojairami: "Programming muscle pressure-force relationships for accurate modelling in biomechanical simulations" Mark Driscoll, McGill university, Canada. Co-Supervisor: **Brahim Brahmi**, McGill university, Canada. Defended. [2022].
4. Khaled El-Monajjed: " The multiscale simulation of spinal stability with focus on the involvement of the intra-abdominal pressure" Mark Driscoll, McGill university, Canada. Co-Supervisor: **Brahim Brahmi**, McGill university, Canada. Defended. [2020].
5. Ahmed Tanvir: "Development and control of a novel 3-DoF exoskeleton robot aimed for home-based Forearm and wrist rehabilitation" Mohammad Habibur Rahman, University of Wisconsin-Milwaukee, USA. Co-Supervisor: **Brahim Brahmi**, McGill University, Canada. Ongoing.

PROFESSIONAL MEMBERSHIPS

MEMBER OF THE PROFESSIONAL ENGINEERS (OIQ) — 03/2023 - Present
Ordre des ingénieurs du Québec — Montreal, Canada

SENIOR MEMBRE OF INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS — 2018 - Present
IEEE

PROFESSIONAL SERVICES

THESIS AND EXAMINATION COMMITTEE — 05/2019-till date
University of Wisconsin-Milwaukee, École de Technologie Supérieure (ÉTS) — Canada, USA

EVALUATOR OF COLLEGE RESEARCH PROJECTS — 06/2024-till date
Research and Transfer Assistance Program (PART) — Quebec, Canada

EVALUATOR OF CRSNG — 05/2024-till date
Natural Sciences and Engineering Research Council of Canada — Government of Canada

EVALUATION OF ARTICLES FOR SCIENTIFIC, LITERARY OR ARTISTIC JOURNALS — 2015-till date

IEEE/ASME Transactions on Mechatronics, IEEE Transaction on Industrial Electronics, IEEE Transactions on Control Systems Technology, IEEE Transactions on Robotics and Automation, IEEE Transaction System, Man and Cybernetics: System, Robotica, Robotics & Autonomous Systems, Elsevier

ASSOCIATE EDITOR
2019-till date

IEEE Canadian Journal of Electrical and Computer Engineering

INTERNATIONAL INDEXED CONFERENCES
2017-till date

Program committee member for 4 international conferences

14th International Multi Conference on Systems, Signals and Devices (SSD), March 28 to 31, 2017. Marrakech, Morocco.

5th International Conference on Renewable Energy in Developing Countries (REDEC), March 24 to 26, 2020. Marrakech, Morocco

PUBLICATIONS

Patents

1. **Invention Id: IP-0024**, **Title:** A Low-cost, Readily Manufacturable Emergency Ventilator

Book Chapter

Published

1. **Brahim Brahmi**, Maarouf Saad, and Mohammad Habibur Rahman. "Advanced Impedance Electromyographic-Based Control for an Upper Limb Exoskeleton Robot." In Design and Control of Rehabilitation Robots: From Concept to Therapy, pp. 271-301. Cham: Springer Nature Switzerland, 2025.
2. **B. Brahmi**, M. H. Rahman, M. Saad, C. Ochoa Luna, Islam Rasedul. Design Development and Control of an Upper Extremity Exoskeleton Robot for Rehabilitation. (Wearable Robotics: Systems and Applications - Book Chapter Contribution).
3. **Brahmi, B.**, Saad, M., Ochoa-Luna, C., Rahman, M. H., Brahmi, A. (2019). Cartesian Sliding Mode Control of an Upper Extremity Exoskeleton Robot for Rehabilitation. In New Developments and Advances in Robot Control (pp. 201-220). Springer, Singapore.
4. Md Rasedul Islama, **Brahim Brahmi**, Tanvir Ahmed, Md.Assad-Uz-Zaman, Mohammad Habibur Rahman. Exoskeletons in Upper limb Rehabilitation: a review to find key challenges to improve functionality. Control Theory Applications in Biomedical Engineering Applications in Physiology and Medical Robotics, Elsevier (publication October 2020).
5. Walid Alqaisi, Claude Ziad El-Bayeh, Khaled Alzaareer, Mohamed Zellagui, Aymen Flah, **Brahim Brahmi**. Multi-Criteria Decision-Making (MCDM) methods for micro-grids: An overview. Innovation and Technological Advances for Sustainability, CRC Press (publication Nov 2024).

In-press

1. **B. Brahmi**, Maarouf Saad, M. H. Rahman, and Abdelkrim Brahmi .An Adaptive Backstepping Integral Terminal Sliding Mode Control for a 7-DoF Uncertain Exoskeleton Robot Incorporating Quasi-Time Delay Estimation. Control Systems. Design of Bio-Robotics and Bio-mechatronic with advanced applications.Springer Series "Studies in Systems, Decision and Control,

Under Review

1. **B. Brahmi**, Maarouf Saad, M. H. Rahman.Advanced Impedance Robust Control Technique for a Wearable Upper Limb Exoskeleton Robot. Design and Control of Rehabilitation Robots: From Concept to Therapy. Design of Bio-Robotics and Bio-mechatronic with advanced applications.https://www.springer.com/series/13304

Guest Editor

1. Special Issue "Intelligent and Advanced Control for Human-Centric Robotic Actuation and Interaction" in Actuators journal.
2. Special Issue "Advanced Techniques in Control and Path Planning for Autonomous and Collaborative Robots in Dynamic Environments" Special Issue.
3. Special Issue "Wearable Robotics" in Micromachines journal.
4. Special Issue "Aerodynamics, Stability, Guidance, Navigation and Control of Micro-air Vehicles: Recent Advances and Challenges" in Drones journal.
5. Special Issue "Rehabilitation Robots: Design, Development, and Control" in Sensor Journal.
6. Special Issue "Advancements in Sensing Technologies and Control Mechanisms for Assistive Robotics: Enhancing Human–Robot Interaction and Assistance" in Sensor Journal.

Journals

Published papers

1. **B. Brahmi**, Jawhar Ghommam, and Maarouf Saad. "Disturbance observer-based backstepping-super twisting control for robust trajectory tracking in robot manipulators." IEEE/ASME Transactions on Mechatronics (2025).
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