Curriculum Vitae (6-page Format)

Jan 2024

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I. ACADEMIC BACKGROUND

Degrees	***Institution***	***Country***	***Month/Year***
Ph.D.	Université de Sherbrooke	Canada	09/1990
M.Sc.A.	Université de Sherbrooke	Canada	12/1986
B.Sc.	Université Laval	Canada	12/1983

II. EMPLOYMENT HISTORY

Position	***Dates***	***Organisation***
Emeritus Professor	06-20/. . .	Electrical Engineering, Polytechnique Montreal
Chair Professor	01-19/. . .	School of Engineering, Westlake University
Professor	06-98/…	Electrical Engineering, Polytechnique Montreal
Director	06-99/19	ReSMiQ interuniversity research center, Quebec
Adjunct Professor	09-11/…	Electrical & Computer Engineering, Laval University
Advisory Professor	09-06/…	School of Microelectronics, Shanghai University
Adjunct Professor	09-17/…	School of Computer Sciences, Wuhan University
Canada Research Chair	04-01/06-15	Electrical Engineering, Polytechnique Montreal
Director	06-96/05-04	Electronic Division, École Polytechnique
Adjunct Professor	11-95/08-98	Electrical Engineering, McGill University
Associate Professor	06-94/05-98	Electrical & Computer Eng., École Polytechnique
Assistant Professor	09-91/05-94	Electrical & Computer Eng., École Polytechnique
Post-Doctoral Fellow	01-91/08-91	Biomedical Engineering, McGill University

III. HONORS AND AWARDS

2022 Fellow of the Royal Society of Sciences of Canada (FRSC)
2022 Chinese Government Friendship Award;
2022 Hangzhou Outstanding Talent Award;

2021 Chinese Zhejiang Weslake Friendship Award
2019 Chinese Hangzhou Qianjiang Friendship Ambassador Award
2019 National High-level Talent Program Award
2018-… Elected Vice-President Publications of the IEEE Circuits and Systems Society;
2016 Recipient of one of the five awards of the Council of the Arab League Ambassadors;
2015 Recipient of the Shanghai City Award for International Collaboration;
2014 Recipient of the Polytechnique Montreal First Research and Innovation Award;
2013 Recipient of the Queen-Elizabeth II Diamond Jubilee Medal;
2013-… Member of the Board of Governers of the IEEE Circuits & Systems Society;
2012 Recipient of the ACFAS - Jacques-Rousseau Award for Multidisciplinarity Research contributions;
2012-… Advisory Professor at Shanghai JiaoTong University, Shanghai, China;
2012 Member of the international selection committee of the biomedical reseacher of the year;
2012 President of the Analog Signal Processing Committee of the IEEE Circuits & Systems Society;
2011-12 Chair of the Distinguished Lecture Program of the IEEE Circuits and Systems Society;
2011-12 Distinguished Lecturer of the IEEE Solid-State Circuits Society;
2010 Recipient of the Desjardins intercultural office achievement Award;
2008 Elected Officer of the National Order of Quebec for outstanding contributions;
2008 Recipient of the Lebanese Embassy in Canada Achievements Award;
2007 Fellow of the Engineering Institute of Canada for contributions to Engineering practices;
2006 Recipient of the American University of Science and Technology Achievements Award;
2006-10 Honorory Professor at Shanghai JiaoTong University, China;
2005 Recipient of the J. A. Bombardier Award for Research innovation and technology transfer;
2005 Medal of Honor from the President of Lebanon for outstanding achievements;
2005-07 Elected President of the BiOCAS technical committee of the IEEE Circuits & Systems Society;
2004 Recipient of the Montreal Lebanese Islamic Center's Award for career achievement;
2004 Fellow of the IEEE for my contributions to implantable medical devices;
2004-06 Elected Distinguished Lecturer of the IEEE Circuits & Systems Society;
2004-… Invited Professor at Université de Metz, France;
2003 Recipient of the Barbara Turnbull Award from the Canadian Institutes of Health Research (CIHR);
2003 Scientific Achievement Award from the American Biographical Institute;
2002 Recipient of the Canadian Islamic Congress's Award for career achievements;
2001-03 Founder and President of Cortivision, a startup company;
2001 Fellow of the Canadian Academy of Engineering;
2001 One of my projects is among the top ten discoveries of the Year by Québec Science Magazine;
2000-… Awarded Canada Research Chair in Smart Medical Devices;
1999 Invited Professor at Université de Sfax, Tunisia.

IV. OTHER AWARDS

2020 Best Springer Scientific Reports' journal paper award by Canadian Epilepsy League;
2019 First place demonstration award from IEEE Sensors competition;
2014 Co-recipient of the 1st best paper award from IEEE-SBCCI 2014;
2014 Co-recipient of the 1st place award from MDETEQ State competition;
2013 Co-recipient of the best ReSMiQ Innovation Day Award;
2012 Co-recipient of the best poster presentation at the 11th MIOMD Conference;
2010 Co-recipient of the best Texpo project award from CMC Microsystems annual workshop;
2010 Co-recipient of the best student science and society award from ACFAS 2010;
2010 Co-recipient of the best poster presentation award from ReSMiQ-ACFAS 2010;
2009 Co-recipient of the 2009 Excellence In Technology Award from the Society for Technology in Anesthesia. A Robot Prototype for Intranenous Catheter Placement;
2008 Co-recipient of the Best IEEE Solid-State Society Chapter of the year;
2008 Co-recipient of the 1st best paper award from IEEE NEWCAS 2008;
2008 Co-recipient of the 3rd best paper award from IEEE NEWCAS 2008;

2006 Nominated one of best Electrical Engineering Professors of the year at Ecole Polytechnique;
2004 Co-recipient of Myril B. Reed Best Paper Award of the 46th IEEE-MWSCAS.
1997 Award for academic excellence awarded by École Polytechnique de Montréal;
1989 Medal of Merit for academic excellence by the Université de Sherbrooke during my Ph.D. studies.

V. OTHER DISTINCTIONS AND ACHIEVEMENTS

2020 General Chair of the IEEE Engineering, Medicine and Biology Society Conference;
2018 General Chair of the IEEE International Life Sciences Conference;
2018-19 General Co-Chair of the IEEE-International AICAS, and ISOCC;
2016 General Chair of the IEEE International Symposium on Circuits and Systems;
2015-... Editor-in-chief of the IEEE Transactions on Biomedical Circuits and Systems Journal;
2015-… General Co-Chair of the IEEE-International SBB;
2013-... Associate Editor of the IEEE Transactions on Biomedical Engineering Journal;
2013-… Chair of the IEEE Biomedical Engineering Award committee;
2012-… General co-Chair of the annual IEEE NEWCAS Conference;
2012-… General co-Chair of the annual IEEE Int'l Conf. on Microlectronics;
2011-… Editorial Board, the IEEE Life Sciences Portal;
2011-… General Chair of the IEEE Int'l Conf. on Electronics, Circuits and Systems;
2011-… General co-Chair of the IEEE Int'l Conf. on Microlectronics;
2011-12 Guest Editor of the IEEE J. of Emerging and Selected Topics SI on Brain-Machine Interfaces;
2011 Member of the Quebec's technology mission to India;
2011 General Chair of the Brain-Computer Interface Workshop (CAS-FEST 2010);
2011 General Co-Chair of the ACFAS-ReSMiQ's Workshop;
2010 Member of the Quebec's technology mission to China;
2010-… Advisory Board, Int'l Symposium on Medical Information and Communication Technology;
2010-13 Deputy Editor-in-Chief of the IEEE Transactions on Circuits and Systems II (TCAS-II);
2010-… Advisor for Springer Publisher in the field of Analog and biomedical books;
2010-… General Chair of the ACFAS-ReSMiQ's Workshop;
2009-… Technical Program Co-Chair of the Int. Biomedical Circuits and Systems (BiOCAS2009);
2009-… Member of the International Editorial Board of the Journal of Healthcare Engineering;
2009 Elected Toronto, Madison and Stanford Who's Who;
2008-… Member of the Editorial Board of the International Journal of Circuit Theory and Applications;
2008-… Member of the NSERC scholarship committee;
2008 Member of the Quebec technology mission to Taiwan;
2007 Member of FRSQ-FQRNT new joint support for R&D medical technology committee;
2007-… Member of the Steering Committee of the IEEE Trans. on Biomedical Circuits and Systems Journal;
2007-14 Associate Editor of the IEEE Transactions on Biomedical Circuits and Systems Journal;
2007 Member of Canada Bio & nanotechnology mission to India;
2007-… Member of the International Advisory Board of the Emirates Journal of Engineering Research (EJER);
2007-… General Chair of the Int. Biomedical Circuits and Systems (BiOCAS2007);
2007-… General Chair of the Int. Midwest Symposium on Circuits and Systems (MWSCAS2007);
2007 Member of the scientific committee of Marseille IMNP institute;
2006-… Member of Prompt Scientific Coordination Committee;
2006 Technical program co-Chair of the Int. Midwest Symposium on CAS (MWSCAS2006);
2006-… General Chair of the IEEE International NEWCAS conference
2006 General Co-Chair of the IEEE Int. Conf. On Electronics, Circuits and Systems (ICECS2006);
2006 Co-Chair of the IEEE Int. Computer Architecture for Machine Perception and Sensors (CAMPS2006);
2005 Member of the Quebec technology mission to China.
2005-07 Member of the International Biotechnology council, IEEE CAS representative;
2005 General Chair of the Int. Functional Electrical Stimulation Society Conference (IFESS2005);
2004-07 Member of the Evaluation Committee of the Institut National de Recherche Scientifique;
2004 Editor of the Springer Mixed-signal letters for the Americas;

2004-… Member of the Editorial Board of the Journal of Applied Sciences;
2004-… Guest Editor of the Kluwer Analog integrated Circuits and Signal Processing Journal;
2004-… Member of the Canadian Arthritis Network (Canadian Network of Centre of Excellence);
2003-… Member of the Board of Directors of Montreal rehabilitation interdisciplinary research ctr. (CRIR);
2003-… Member/Chair of IEEE Technical Program Committee (ISCAS, MWSCAS, ICM, ICSICT, etc);
2003-… Investigator of a $21M Pan-Canadian grant application from CFI to acquire an EDA Laboratory;
2003-05 Vice-President of the BiOCAS technical committee of IEEE Circuits & Systems Society;
2002-… Founder & general chair of the IEEE International NEWCAS Conference;
2002-06 Member of the Board of Directors of the Int. Functional Electrical Stimulation Society (IFESS);
2001-… Member of the scientific coordination committee of Victhom Human Bionic;
2001-05 Member of the scientific coordination committee of Prompt-Quebec;
2001-… Guest Editor of the Kluwer/Springer Analog integrated Circuits and Signal Processing Journal;
2000-… Interviews with news media: newspapers, magazines, TV, and radio (prestigious TV reports);
2000 Recipient of a major CFI grant ($8.2M) to establish an advanced microelectronics assembly facility;
1999-… Founder and Chair of the IEEE Solid-State Circuits Society (SSCS) Montreal Chapter;
1999-... Scientific Advisor to several Canadian companies (Victhom Human Bionic, Scanview, etc);
1988-90 Ph.D. scholarship (12k$/year), FRSQ (Fonds de la Recherche en Santé du Québec).
1995-… Co-Founder of the IEEE Int. Conf. on Electronics, Circuits and Systems (ICECS);
1994-… Founder and director of the Polystim Neurotechnologies Laboratory;
1991-... General Chair / Co-Chair of IEEE Int. Conferences (ICECS, ICM, NewCAS, etc.).

VI. SUMMARY OF RESEARCH CONTRIBUTIONS

Citations: 15850, H-Index: 57 (Jan 2024)

Publications (Summary)	**Last 6 years**	**Total**
Refereed **Journal publications** (published/accepted)	148	**350**
Refereed **conference papers**	98	**598**
Invited talks / **Keynote** speeches	120	**365**
Patents (Awarded and Pending)	34	**47**
Books and book chapters	11	**25**
Refereed abstracts and posters	23	**116**
Technical reports count and list are not included in this CV	125	**315**
Total (Publications)	**434**	**1501**

Students and Other Personal Supervision (Appendix D)	**Supervised**	**Completed**
Ph.D.	20	**62**
M.A.Sc.+M.Eng.	0	**132**
Postdoctoral Fellows, Research assistants and associates, Hosted faculties	17	**100**
Hosted Invited Faculties	0	**10**
Undergraduate training R&D projects	0	**349**
Total (Students and Other Personal)	**37**	**653**

Note 1: Samples of recently published papers (see next 2 pages please)

LIST OF RECENT PUBLICATIONS (Jan 2024)

(Refereed Journal Publications: Published and Accepted)

[350] XU Y., YANG J., MING W., WANG S., **SAWAN M.**, "Shorter latency of real-time epileptic seizure detection via probabilistic prediction", ***Expert Systems with Applications,* 2024**, 236, 121359.

[349] ULLAH F., TARKHAN M., FREDJ Z., SU Y., WANG T., **SAWAN M.**, NGUYEN DK., "A Stable Undoped Low-voltage Memristor Cell Based on Titania (TiOx)", ***IOP Nano Express Journal***, Vol 5, No.1, **2024**.

[348] RONG G., **SAWAN M.**, "Tamm Plasmon Polariton Biosensors based on Porous Silicon: Design, Validation and Analysis", ***MDPI Biosensors Journal***, Vol. 13, No. 12, **2023**, pp. 1026.

[347] XIA F., Li H., Li Y., LIU X., XU Y., FANG C., HOU Q., LIN S., ZHANG Z., YANG J., **SAWAN M.**, "Minimally Invasive Hypoglossal Nerve Stimulator Enabled by ECG Sensor and WPT to Manage Obstructive Sleep Apnea", ***MDPI Sensors Journal***, Vol. 23, No. 21, **2023**, pp. 8882.

[346] YAN S., SUN J., CHEN B., WANG L., BIAN S., **SAWAN M.**, TANG H., WEN L., MENG G., "Manipulating Coupled Field Enhancement in Slot-under-Groove Nanoarrays for Universal Surface-Enhanced Raman Scattering", ***ACS Nano Journal***, Vol. 17, No. 22, **2023**, pp. 22766–22777.

[345] SONG X., FREDJ Z., ZHENG Y., RONG G., BIAN S., **SAWAN M.**, "Biosensors for Waterborne Virus Detection: Challenges and Strategies", ***Journal of Pharmaceutical Analysis***, Vol. 13, No. 11, **2023**, pp. 1252-1268.

[344] WU H., CHEN J., LIU X., ZOU W., YANG J., **SAWAN M.**, "An Energy-Efficient Small-Area Configurable Analog Front-End Interface for Diverse Biosignals Recording", ***IEEE Transactions on Biomedical Circuits and Systems***, Vol. 17, No. 4, **2023**, pp. 818-830.

[343] LIN Y., CHEN C., MA Z., SABOR N., WEI Y., ZHANG T., **SAWAN M.**, WANG G., ZHAO J., "Emulation of Brain Metabolic Activities Based on A Dynamically Controllable Optical Phantom", ***AAAI: Cyborg and Bionic Systems Journal***, Vol. 4, ID 47, **2023**. doi:10.34133/cbsystems.

[342] RONG G., XU Y., **SAWAN M.**, "Machine Learning Techniques for Effective Pathogen Detection Based on Resonant Biosensors", ***MDPI Biosensors Journal***, , Vol. 13, No. 9, **2023**, pp. 860.

[341] SU Y., BIAN S., PAN D., XU Y., RONG G., ZHANG H., **SAWAN M.**, "Heterogeneous-Nucleation Biosensor for Long-Term Collection and Mask-Based Self-Detection of SARS-CoV-2", ***MDPI Biosensors Journal***, Vol. 13, No. 9, **2023**, 858.

[340] FREDJ Z., WANG P., ULLAH F., **SAWAN M.**, "A Nanoplatform-based Aptasensor to Electrochemically Detect Epinephrine Produced by Living Cells", ***Microchimica Acta Journal***, Vol. 190, No. 9, **2023**, pp. 343.

[339] ESMAEILZADEH M., AUDET Y., ALI M., **SAWAN M.,** "A Wide-range Low-power Thyristor-based Delay Element with Improved Temperature Sensitivity", ***IEEE Transactions on Circuits and Systems II: Express Briefs***, Vol.70, No. 7, **2023**, pp.2370-2374.

[338] WU D., YANG J., **SAWAN M.**, "Transfer Learning on Electromyography (EMG) Tasks: Approaches and Beyond", ***IEEE Transactions on Neural Systems & Rehabilitation Engineering Journal***, Vol. 31, **2023**, pp. 3015-3034

[337] **SAWAN M.**, "Lessons Learned from Serving as VP Publications of the IEEE CAS Society", ***IEEE Circuits and Systems Magazine***, 2nd Quarter, Vol. 23, No. 2, **2023**, pp.49-54.

[336] WANG C., FANG C., ZOU Y., YANG J., **SAWAN M.**, "SpikeSEE: An Energy-Efficient Dynamic Scenes Processing Framework for Retinal Prostheses ", ***Neural Networks Journal***, Vol. 164, **2023**, pp. 357-368.

[335] ASSAF H., SAVARIA Y., ALI M., NABAVI M., **SAWAN M.**, "A Memristive Cell with Long Retention Time in 65 nm CMOS Technology."***Advanced Electronic Materials***, Vol. 9, No. 6, **2023.**

[334] LI H., TROCAN M., **SAWAN M.,** GALAYKO D., "ICRICS: Iterative Compensation Recovery for Image Compressive Sensing", ***Signal, Image and Video Processing Journal***, Vol. 17, **2023**, pp.2953-2969.

[333] HOSSEINI S.M., MAGHAMI M.H., AMIRI P., **SAWAN M.**, "A 13.56 MHz Low-Power, Single-Stage CMOS Voltage-Boosting Rectifier for Wirelessly Powered Biomedical Implants", ***MDPI Electronics Journal***, Vol. 12, No. 14, **2023**.

[332] FREDJ Z., SINGH B., BAHRI M., QIN P., **SAWAN M.**, "Enzymatic Electrochemical Biosensors for Neuro-transmitters Detection: Recent Achievements and Trends", ***Chemosensors Journal***, Vol. 11, No. 7, **2023**.

[331] CHEN J., YANG J., **SAWAN M.**, "Emerging Trends of Integrated-mixed-signal Chips in ISSCC 2023", Journal of Semiconductors, Vol. 44, No. 5, **2023**.

[330] FANG C., WANG C., ZHAO S., TIAN F., YANG J., **SAWAN M.**, "A 510 uW 0.738-mm 6.2-pJ/SOP Online Learning Multi-Topology SNN Processor with Unified Computation Engine in 40-nm CMOS", ***IEEE Transactions on Biomedical Circuits and Systems***, Vol. 17, No. 3, **2023**, pp. 507-520.

[329] ZHAO S., YANG J., WANG J., LIU T., ZHANG S., **SAWAN M.**, "A 0.99-to-4.38 uJ/class Event-Driven Hybrid Neural Network Processor for Full-Spectrum Neural Signal Analyses", ***IEEE Transactions on Biomedical Circuits and Systems***, Vol. 17, No. 3, **2023**, pp. 598-609.

[328] Wang T., CHEN YH., **SAWAN M.,** "Exploring the Role of Visual Guidance in Motor Imagery-based Brain-computer Interface: An EEG Microstate-specific Functional Connectivity Study", ***MDPI Bioengineering Journal***, Vol. 10, No. 3, **2023**, pp.281.

[327] CHEN YH., YANG J., BEIER K., WU H., **SAWAN M.**, "Challenges and Future Trends in Wearable Closed-loop Neuromodulation to Efficiently Treat Methamphetamine Addiction", ***MDPI Frontiers in Psychiatry-Addictive Disorders Journal***, Vol. 14, **2023**.

[326] FREDJ Z., **SAWAN M.**, "Advanced Nanomaterials-based Electrochemical Biosensors for Catecholamines Detection: Challenges and Trends", ***ù Biosensors Journal***, Vol. 13, No. 2, **2023**, pp.211.

[325] WU D., ZHAO S., YANG J., **SAWAN M.**, "Software-hardware Co-design for Energy-efficient Continuous Health Monitoring via Task-aware Compression", ***IEEE Transactions on Biomedical Circuits and Systems***, Vol. 17, No. 2, **2023**.

[324] ZHENG Y., SONG X., FREDJ Z., BIAN S., **SAWAN M.**, "Challenges and Perspectives of Multi-virus Biosensing Techniques: A Review", ***Analytica Chimica Acta Journal,*** Vol. 1244, **2023**, doi: 10.1016/j.aca.2023.340860.

[323] WANG C., FANG C., ZOU Y., YANG J., **SAWAN M.**, "Artificial Intelligence Techniques for Retinal Prostheses: A Comprehensive Review and Future Direction", ***J. Neural Eng.***, Vol. 20, No. 1, **2023**.

[322] TIAN F., YANG J., ZHAO S., **SAWAN M.**, "NeuroCARE: A Generic Neuromorphic Edge Computing Framework for Healthcare Applications", ***Frontiers Neurosciences Journal***, Vol. 17, **2023**.

[321] GAGLIANO L., DING T.Y., TOFFA D. H., BEAUREGARD, L., ROBERT M., LESAGE F., **SAWAN M.**, NGUYEN D.K., BOUASSI, E., "Decrease in smart wear-based nocturnal sleep efficiency precedes epileptic seizures", To Appear in ***Frontiers in Neurology***, **2023**, Vol. 13, doi: 10.3389/fneur.2022.1089094.

[320] ELSAYEGH B., LEDUC-PRIMEAU F., **SAWAN M.**, DUMOULIN C., "The State of Pelvic Floor Muscle Dynamometry: A Scoping Review", ***Neurology and Urodynamics***, Vol. 42, **2023**, pp. 478-499.

[319] WU D., SHI Y., WANG Z., YANG J., **SAWAN M.**, "CSP-Net: Joint Compression and Classification Network for Epilepsy Seizure Prediction", ***IEEE Transactions on Neural Systems and Rehabilitation Engineering,*** Vol. 31, **2023**, pp. 841-850, doi: 10.1109/TNSRE.2023.3235390.

[318] RONG G., ZHENG Y., LI, X., GUO M., SU Y., BIAN S., DANG B., CHEN Y., ZHANG Y., SHEN L., JIN H., YAN R., ZHU P., WEN L., **SAWAN M.**, "A High-throughput Fully Automatic biosensing platform for efficient COVID-19 detection", ***Biosensors and Bioelectronics***, Vol. 220, 114861, **2023**.

[317] GAGLIANO, L., BOU ASSI, E., **SAWAN, M.**, NGUYEN, D.K., "Epileptic Prodromes: Insights from Surveying 196 Patients and 150 Caregivers", ***The Canadian Journal of Neurological Sciences***, Vol. 50, No. 1, **2023**, pp. 72-82.

[316] KARIMI M., ALI M., HASSAN A., BOSTANI R., VAISBAND B., **SAWAN M**., GOSSELIN B., "A 7.6-ns Delay Subthreshold Level-Shifter Leveraging a Composite Transistor and a Voltage-Controlled Current Source", ***IEEE-ACCESS,*** Vol. 10, **2022**, pp. 132432-132447.

[315] ESMAEILZADEH M., AUDET Y., ALI M., **SAWAN M.,** "A Low-offset VCO-based Time-domain Comparator Using a Phase Frequency Detector with Reduced Dead and Blind Zones", ***IEEE-TCAS-I,*** **2022**, pp. 1-13.

[314] ZHENG W., CHEN Y., **SAWAN M.**, "Longitudinal Data to Enhance Dynamic Stroke Risk Prediction", ***MDPI Healthcare Journal,*** Vol. 10, No. 11, **2022**.