

Curriculum Vitae

Address Biomedical Engineering Program, Department of Electrical and Computer Engineering, Faculty of Engineering, Beirut Arab University, Dibbieh, Lebanon.

Education

- 2022-2023 **Future Master Class program 60-120 credits**, *Linnaeus University, Sweden Co-funded by the Erasmus+ Programme of the European Union.*
Certificate of Course Completion: Artificial Intelligence (AI) for Medicine on July 2022.
- 2022-2023 **Computer Science and System Engineering**, *Università degli Studi di Genova, Italy.*
Certificates of Courses Completion: Computer Science and System Engineering PhD level courses
(I) Computer Vision Cash Course 2022;
(II) Deep Learning: a hands on introduction 2022.
- 2020 **SCMPCR E-Learning Program (ELP-01)**, *South Asia Centre for Medical Physics and Cancer Research (SCMPCR).*
Certificate of Attendance on June 27th, July 15th and July 25th
(1) RE-Focussing Brachytherapy Physics in Radiation Oncology Course;
(2) Operational Radiation Protection Practices in Radiology Course;
(3) Current Practice of Imaging in Modern Treatment of Radiotherapy Course.
- 2019-2020 **Erasmus+ Programme of the European Union+ Capacity Building in Higher Education 598524-EPP-1-2018-1-ES-EPPKA2-CBHE-JP**, *Co-funded by the Erasmus.*
Certificate of Course Completion
(1) DIGITAL SKILLS Course;
(2) FEMALE EMPOWERMENT IN HIGHER EDUCATION Course;
(3) SOFT SKILLS Course;
(4) SUSTAINABILITY IN HIGHER EDUCATION Course.
- 2017-2019 **Albert Einstein College of Medicine, New York, U.S.A.**
Diploma: Human Subjects Research Basic Course
(1) Responsible Conduct of Research for Administrators-Basic CITI Course Certified;
(2) IRB Members-Basic/Refresher CITI Course Certified;
(3) Data or Specimens Only Research-Basic/Refresher CITI Course Certified;
(4) Social & Behavioral Research-Basic/Refresher CITI Course Certified;
(5) Students conducting no more than minimal risk research; Students - Class projects CITI Course Certified.
- 2016-2017 **American University of Beirut, Center for Continuing Medical Education (CME).**
Diplomas
(6) Biomedical Research-Basic CITI Course Certified;
(7) Responsible Conduct of Research for Engineers CITI Course Certified;
(8) Social and Behavioral Responsible Conduct of Research CITI Course Certified;
(9) Physical Science Responsible Conduct of Research CITI Course Certified
(10) Humanities Responsible Conduct of Research CITI Course Certified
(11) Good Clinical Practice CITI Course Certified.
- 2015-2016 **American University of Beirut, Faculty of Engineering and Faculty of Medicine.**
Post-Doctorate in Neuroengineering.
Research title: Seizure Initiation with Focal Electrically Administered Seizure Therapy (FEAST) (January 1st 2015 till July 31st 2016).
- 2014-2017 **François-Rabelais University of Tours in France.**
Doctor of Philosophy in Life and Health Sciences, specialty: Biomedical Signal Processing, with highest honors and congratulations of the jury
Dissertation: Analysis and Extraction of Complexity Parameters of Biomedical Signals.

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- 2011–2014 **Lebanese University, Doctoral School of Sciences and Technology.**
Doctor of Philosophy in Biomedical Engineering
 With highest honors and congratulations of the jury.
- 2009– 2011 **Lebanese University.**
Masters of Science in Biomedical Physics, specialty: Medical Imaging, with distinction
 Thesis: Optimization of the Frequency Parameters of Chirp Sequences Used in Contrast Ultrasound Imaging
- 2006–2009 **Lebanese University.**
Bachelor of Science in General Physics.

Academic Positions

- 2025–present **Associate Professor, Program Coordinator, LEBANON.**
 Biomedical Engineering Program, Department of Electrical and Computer Engineering, *Faculty of Engineering*, Beirut Arab University.
- 2019–2024 **Assistant Professor, Program Coordinator, LEBANON.**
 Biomedical Engineering Program, Department of Electrical and Computer Engineering, *Faculty of Engineering*, Beirut Arab University.
- 2018–2019 **Associate Professor, LEBANON.**
 Faculty of Public Health, the Neuroscience Research Center at the Faculty of Medical Sciences, and Doctoral School of Science and Technology, Lebanese University, Lebanon.
- 2015–2018 **Assistant Professor, LEBANON.**
 Department of Radiological Sciences, Faculty of Public Health, Doctoral School of Science and Technology, and Neuroscience Research Center at the Faculty of Medical Sciences, Lebanese University, Tripoli, Saida and Beirut, Lebanon, respectively.
- 2015–2019 **Assistant Professor, LEBANON.**
 Department of Biomedical Engineering, *Faculty of Engineering*, Lebanese International University.
- 2014–2016 **Assistant Professor, LEBANON.**
 Faculty of Health Sciences and Faculty of Literature and Humanities at Global University, Beirut.
- 2011–2014 **Research Assistant, FRANCE.**
 Ph.D. candidate at Imaging and Brain Laboratory, INSERM U930, Signal and Imaging Group, Faculty of Medicine, François-Rabelais University of Tours.
- 2010–2014 **Research and Teaching Assistant, LEBANON.**
 Master student then Ph.D. candidate at Signal and Image Laboratory, Department of Physics and Electronics, Faculty of Sciences, Lebanese University, Beirut.
- 2010–2011 **Training, LEBANON.**
 Department of Imaging, Bahman's Hospital including Quality Control, from October 2010 to January 2011. Beirut.

Awards

- 2025 **(1) Excellence in Teaching, Research and Community Service Award**, Trophy and Certificate of Recognition from President of Beirut Arab University Prof. Wael Abdu Salam, May 2nd 2025, Beirut Lebanon.
- 2025 **(2) LIRA-18 Fund Award**, ElderGuard: Smart Fall Detection and e-Health Monitoring Track 2-from the Lebanese Minister of Industry, European Union and the Jury of the Lebanese Industrial Research Achievements Forum of Technology and Industrial Innovation on April 2025.
- 2023 **(3) Women Researcher Award**, Domain of Intelligent Sensing, Subdomain: Telemedicine, Biomedical Robots, Healthcare System from 4th Edition of the International Research Awards on Sensing Technology-India, certificate of Excellence received on June 23rd, Memento received on December 5th 2023.
- 2022 **(4) LIRA 2022 Achievement Award**, from the Lebanese Minister of Industry George Boukshyan, the Region Manager of the Konrad Adenauer-Stiftung (KAS) German Company and the Jury of the Lebanese Industrial Research Achievements Forum of Technology and Industrial Innovation on 27th of July 2022.

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- 2019 **(5) Trophy of Appreciation, Hard Work and Love**, from the Minister of State for Parliamentary Affairs Prof. Mahmoud Komaty, the Director of the Faculty of Public Health, Lebanese University Prof. Hikmat Akoum, and from the Radiology Senior Students, Saida, Lebanon, 2019.
- 2018 **(6) LIRA-13 Achievement Award**, certificate from the Jury Committee of the Lebanese Industrial Research Achievements Forum of Technology and Industrial Innovation in Lebanon.
- 2011–2014 **(7) A Ph.D. Scholarship Award**, for 3 Years from the National Council For Scientific Research in Lebanon (CNRS-L) and the Lebanese University.
- 2013 **(8) Best Oral Presentation Award**, in Biomedical Engineering from the President of the Lebanese University Prof. Adnan Al Sayid Hussein. 3rd Doctoral Forum. Issued in Beirut, Lebanon.

University Committee Assignments

- 2024-present **Member of the Faculty of Engineering Research Committee and the Biomedical Engineering Program Committee**, *Faculty of Engineering*, Beirut Arab University.
- 2020-present **Member of the ABET Committee**, *Faculty of Engineering*, Beirut Arab University.
- 2023-2024 **Coordinator of the Faculty of Engineering Research Committee, composed of 5 members**, *Faculty of Engineering*, Beirut Arab University.
- 2022-2023 **Member of the Faculty of Engineering Research Committee**, *Faculty of Engineering*, Beirut Arab University.
- 2021-2023 **Member of the Library Committee**, *Faculty of Engineering*, Beirut Arab University.
- 2021-2022 **Member of the Faculty of Engineering Council**, *Faculty of Engineering*, Beirut Arab University.
- 2016-2019 **Member of the Graduate Research Committee**, *Biomedical Engineering Department, Faculty of Engineering*, Lebanese International University.
- 2016-2019 **Member of the Neuroimaging Graduate Research Program**, *Neuroscience Research Center, Faculty of Medical Sciences*, Lebanese University.

Professional Activities

Conference Organizing Committees

- **Technical Program Committee**, The International Conference on Microelectronics-IEEE ICM 2023, Khalifa University, Abu Dhabi, UAE, December 17-20, 2023.
- **Technical Program Committee**, Publicity chair and Session chairs, International Multidisciplinary Conference on Engineering Technology (IMCET 23), December 12-13, 2023.
- **Technical Program Committee**, Publication chair and Session chair, The Seventh International Conference on Advances in Biomedical Engineering (ICABME 23), October 12-13, 2023.
- **Technical Program Committee**, Publication chair and Session chair, IEEE-IC2SPM 2022 (The International Conference on Smart Systems and Power Management (IC2SPM 2022)", Lebanese International University, November 9-11, 2022.
- **Technical Program Committee**, The Sixth International Conference on Advances in Biomedical Engineering (ICABME 21), Islamic University of Lebanon (IUL), 7-8 October 2021.
- **Technical Program Committee**, 2020 PMU International Conference on Industrial Revolution 4.0 in Computing, Mobility, and Manufacturing (CMM 2020), Center For Futuristic Studies, Prince Mohammad Bin Fahd University. Khobar, Saudi Arabia, 08-10 December 2020.
- **Reviewer** in the 5th IEEE Middle East and Africa Conference on Biomedical Engineering (MECBME 2020). Amman-Jordan October, 26th-28th, 2020.
- **Technical Program Committee** of the 5th International Conference on Advances in Biomedical Engineering (ICABME 2019), IEEE-EMB, Doctoral School of Sciences and Technology (EDST) and the Faculty of Engineering Lebanese University (LU), Tripoli Campus-Lebanon, October 17-19, 2019.
- **Reviewer** in the Third International Conference on Electrical and Biomedical Engineering, Clean Energy and Green Computing (EBECEGC 2018), IEEE-SDIWC, Beirut, April 25-27, 2018.

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- **Scientific and Technical Committee** of the 5th International Conference on Advances in Biomedical Engineering (ICABME 2017), IEEE-EMB, Beirut, 2017.
- **Reviewer** in the Third International Conference on Electrical and Electronic Engineering, Telecommunication Engineering, and Mechatronics (EEETEM 2017), IEEE-SDIWC, Beirut, 2017.
- **Chair of Bioinformatics and System Biology Session** in MECBME 2016, Third Middle East Conference on Biomedical Engineering, IEEE-EMB, 6-7 October, Beirut 2016.
- **Technical Program Committee** of the 3rd International Conference on Advances in Biomedical Engineering (ICABME 2015), IEEE-EMB, Doctoral School of Sciences and Technology (EDST) and the Faculty of Engineering Lebanese University (LU), Hadat-Beirut, Lebanon, September 16-18, 2015.

External Committee Assignments

- Governmental Representative of the IEEE Lebanon Section, 2022–present.
- Member of IEEE, IEEE Sensors Council, IEEE women in engineering and in IEEE Engineering in Medicine and Biology Society, 2019–present.
- Reviewer in Frontiers Journals, Seattle, WA 98101-United States, 2017–present.
- Judge Volunteer in the Science Fair-2019, Lebanese International University, Bekaa, Lebanon.
- Organizational Member of The Beryl Institute, USA, 2016–2019.
- Member of the French Society of Acoustics, Société Française d'Acoustique, SfA, 2011–2015.
- Member of The Society of Digital Information and Wireless Communications, New Castle, USA, 2014–2015.
- Member of Société Française de Génie Biologique et Médical, SFGBM, France, 2014–2015.
- Member of the Lebanese Biomedical Engineering Society, Lebanon, 2011–2014.

Continuing Education Workshops and Seminars

- **Certificate of Appreciation.** LabView Workshop SAAB Company and Beirut Arab University, Lebanon, 2023.
- **Certificate of Attendance.** Integration Overview of Life Support Equipment-Ventilator, Saudi Biomed Group, March 3, 2021.
- **Certificate of Attendance.** Integration Overview of Patient Monitoring Devices, Saudi Biomed Group, February 24, 2021.
- **Certificate of Attendance.** Beirut Breast Cancer Conference 9, American University of Beirut and Medical Center, February 11-13, 2021, Virtual Format, Beirut, Lebanon.
- **Certificate of Attendance.** In the 18th International Operations and Maintenance Conference in the Arab Countries Under the theme of The Integration of Maintenance and Asset Management. Virtual Conference, 15-16 December, 2020.
- **Certificate of Participation.** In the scientific committee and in a paper published in the 5th IEEE Middle East and Africa Conference on Biomedical Engineering (MECBME 2020). Amman-Jordan October, 26th-28th, 2020.
- **Certificate of Attendance.** Online Seminar on Unlocking the Potential of Effective Online Learning in August 2020. Beirut, Lebanon.
- **Certificate of Attendance.** Online Webinar on Approach to Pediatric Neuromuscular Diseases: From Early Diagnosis to Patient Referral, 1st Neuromuscular Disorders Awareness Series Meeting in the Kingdom of Saudia Arabia (KSA) on July 24th, 2020. KSA.
- **Certificate of Attendance.** South Asia Centre for Medical Physics and Cancer Research (SCMPCR) E-Learning Program, 27, June, 15 and 25 July, 2020, Bangladesh.
- **Attended Online Webinar on What's Your Impact-The Final.** Provided by Centre MINE-Lebanese University, 30, June, 2020, Beirut, Lebanon.
- **Certificates of Training on I-Building a Successful Personality and II-Understanding One's Self.** Provided by the American University of Professional Studies-Delaware, USA and Wasm Center-Kuwait, 24, June, 2020, Saudi Arabia.

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- **Certificate of Completion.** CABI webinar Journey to Publish Session 3 Successful submission, Navigating peer-review & Publication communication Provided by CABI on 23, June, 2020, Beirut, Lebanon.
- **Certificate of Participation.** The Virtual Conference NeuroArab2020, 16, June, 2020, France.
- **Certificate of Attendance.** Online Webinar on Design Thinking Provided by Florida State University, 4, June, 2020, USA.
- **Attended Online Webinar on Mental Health & Managing Your Stress During Confinement and After Lockdown.** Provided by Nasco-insurance-group through Beirut Arab University, 3, June, 2020, Beirut, Lebanon.
- **Attended Online Webinar Be Your Own Boss (BYOB).** Provided by the Centre de Metiers d'Innovation et d'Entrepreneuriat (CMINE) at the Lebanese University. May, 2020, Beirut, Lebanon.
- **Attended Online Webinar Proquest e-Resources Training.** Provided by Proquest for the Lebanese University, May 12 & 13, 2020, Dubai.
- **Attended Online Webinar on Data Science.** Provided by the WiDS, CME office of the American University of Beirut, April 24th, 2020, Beirut, Lebanon.
- **Certificate of Attendance.** The 8th AUBMC Breast Cancer Conference, American University of Beirut and Medical Center, February 13-15, 2020, Gefinor Rotana Hotel, Beirut, Lebanon.
- **Certificate of Participation.** The 5th International Conference on Advances in Biomedical Engineering, IEEE, October 17-19, Tripoli, Lebanon.
- **Certificate of Attendance.** The Second AUBMC Theranostics Conference, Halim and Aida Daniel ACC building, Multipurpose room AUBMC, September 6-7, 2019, Beirut, Lebanon.
- **Certificate of Participation.** The Fourth Engineering Exhibition, School of Engineering, Lebanese International University, Bekaa, Lebanon, 2019.
- **Certificate of Attendance.** The 1st International Medical Physics Workshop in Lebanon on Diagnostic Imaging and Radiotherapy, 1-4 December 2018, Habtour Hotel, Sin EL Fil, Lebanon.
- **Certificate of Attendance.** First AUBMC Theranostics Conference: See What You Treat American University of Beirut, Issam Fares Auditorium November 10-11, 2017, Beirut, Lebanon.
- **Workshop Certificate.** Workshop Entitled: Project Management in Health care Information Technology and Clinical Engineering, Dr. Ahmed Al Barrak, King Saud University, KSA. The 3rd International Conference on Biomedical and Clinical Engineering in the Arab Countries, October 25-26, Beirut, Lebanon, 2017.
- **Workshop Certificate.** Workshop Entitled: Competency Development of Biomedical Engineers for Innovative Technology Lifecycle Management Towards High Quality of Patients, Dr. Iyad Mobarek, General Electric Healthcare Education Solutions, Jordan. The 3rd International Conference on Biomedical and Clinical Engineering in the Arab Countries, October 25-26, Beirut, Lebanon, 2017.
- **Certificate of Participation.** The 3rd International Conference on Biomedical and Clinical Engineering in the Arab Countries, October 25-26, Beirut, Lebanon, 2017.
- **Certificate of Participation.** Partial Differential Equations and Applied Mathematics Meeting. Lebanese University, Faculty of Sciences, March 29-30, Beirut, Lebanon, 2016.
- **Certificate of Participation.** Gave a seminar on "*Breakthroughs in Diagnostic and Therapeutic Biomedical Signal Processing*" in the Electrical and Computer Engineering (ECE) Department at the Faculty of Engineering and Architecture at the **American University of Beirut**, on February 23rd 2016. Audience: undergraduate and graduate ECE students and Faculty members.
- **Certificate of Attendance.** Les Lasers dans le Demain Médical: Gestion des Risques et Bonnes Pratiques. Lebanese University, Beirut, Lebanon, 2015.
- **Certificate of Attendance.** International Conference on Discrete Mathematics and Computer Science 2012. Lebanese University, Beirut, Lebanon, 2012.
- **Certificate of Attendance.** Workshop Mécanique de fluids et Dynamique de Populations. Doctoral School of Sciences and Technology, Lebanese University, September 10-14, 2012. Hadath, Lebanon.

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- **Certificate of Participation.** Science Days Organized By Lebanese and Switzerland Governments, Magic Of Physics Tent, Beirut, Lebanon, 2010
- **Certificate of Attendance.** 4th Arab Radiology Congress, Lebanese Society of Radiology, Beirut, Lebanon, 2010.
- **Certificate of Attendance.** 11th Annual Science, Mathematics and Technology, American University of Beirut, Beirut, Lebanon, 2003.

Computer skills

Basic and Intermediate Macintosh Os x: Microsoft Mac, iWork, NeoOffice, Osirix, PSpice, LabVIEW, JabRef, Dia, EndNote, MATLAB, C, L^AT_EX, MAC_TE_X, C++, SPSS, Microsoft Mac, iWork, Moodle, Google Classroom & Google Meet, Microsoft-Teams. Windows: Microsoft office and Circuit Maker.

Languages

Arabic	Mother tongue	<i>Spoken and written</i>
English	Advanced	<i>American spoken and written</i>
French	Good	<i>Spoken and written</i>

Lecturing Skills

Department of Neurology/ Faculty of Medicine. Department of Biomedical Engineering/ Faculty of Engineering. Department of Physical Therapy, Department of Nursing and Department of Radiology/ Faculty of Public Health. Department of Physics and Electronics/ Faculty of Sciences. Department of Science Education/ Faculty of Literature and Humanities.

1) Graduate Courses

- Neuro-AI Imaging (BIME 622)
- Analysis and Processing Techniques in Neuroimaging (M2R 3110)
- Advanced Signal Processing in Medicine (EENG 584)
- Signal Processing in Medicine Laboratory (EENG 534L)
- Research Methodology in Healthcare and Quality Management (IMED 510)
- Robotics and Telemedicine (EENG 564)
- Signal Processing in Medicine (EENG 534)
- Medical Imaging II (EENG 524)
- Project Management and Professional Communication in Biomedical Engineering (PMED 517)

2) Undergraduate Senior Courses

- Telemedicine (BIME 541)
- Biomedical Photonics and Optical Imaging (BIME 524)
- Biomedical Imaging II (BIME422)
- Biomedical Sensors (BIME 441)
- Biomedical Imaging I (BIME 421)
- Senior Project (EENG 494)
- Biophysics and Bioelectricity (EENG 404)
- Health Research Methods (H-RM 302)
- Imagerie Medicale Avancée (SCRAL 6200)
- Dosimetrie des Rayonnements et Instrumentation (PHYSL 5202)
- Biomedical Imaging II Laboratory (BIME422L)
- Biomedical Image Processing (BIME 413)
- Biological Materials (BIME 432)
- Medical Imaging I (EENG 474)
- Biomedical Ethics and Human Safety (BIME320)
- Ordinary Differential Equations (MTH 335)

3) Undergraduate Courses

- Machine Learning for Medical Applications (BIME336)
- Physique d'imagerie Medicale (PHYSL 3203)
- Biophysique TH
- Physique d'imagerie Medicale (PHYSL 3203)
- General Physics II (PHY 202)
- TP Biophysique

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- Physics for Physical Therapy (PHS 203)
- Optique TH
- General Physics I (PHY 201)
- Physique TH

Research Skills

- Neuroengineering
- Artificial Intelligence
- Biosignals and classification
- Robotics and Telemedicine
- Computational Complexity Analysis
- Healthcare & Quality Control
- Biomedical Imaging
- e-Health
- Chirp Medical Imaging
- Applied Physics
- Smart Biomedical Systems
- Rehabilitation

Research Collaborations

- 2022–present **International Collaboration with Canada**, Dr. Silva Kourtian, Research Center of the Governmental Hospital, l'Université de Montréal, Quebec, Canada, on Cancer Imaging, Biomedical Sciences and diagnosis of diseases.
- 2019–present **BAU Internal Collaboration**, Prof. Ali Haidar, Dr. Rola Kassem, Dr. Ziad Doughan and Dr. Imane Haidar, Computer Engineering Program, Faculty of Engineering, on Telemedicine, e-Health and Robotics.
- 2019–present **BAU Internal Collaboration**, Eng. Yousef Ajra, Power and Machine Engineering Program, Faculty of Engineering, on Air pumps, Incubators, Defibrillators, and Diagnosis of diseases.

Students Supervision

Graduate Research Fellows

2019–2020 **Faculty of Medical Sciences, Lebanese University-Bahman Hospital.**

1. *Rana Kamaleddine*. Research title: The difference between unenhanced and Gadolinium-Enhanced Imaging in Multiple sclerosis: Is Contrast Needed for Routine Follow-Up MRI in Lebanon.
2. *Mostafa Raad*. Research title: Weight bearing MRI in detecting degenerative diseases and missing pathology compared to traditional MRI for lumbar spine among Lebanese patients.

2019–2020 **Faculty of Medical Sciences, Lebanese University-AL Zahraa Medical Center.**

1. *Hawraa Daher*. Project title: Selection And Importance Of Cerebrovascular Imaging: CT Angiography And MRI Diffusion For Ischemic Stroke And What Is The Factors Of Ischemic Stroke.

2016–2020 **Lebanese University-American University of Beirut Medical Center.**

1. *Nataly El Arab, MD*. A weekly multimodal high-resolution magnetic resonance imaging study: Follow-up of multiple sclerosis brain lesions in relapsing remitting patients.
2. *Mostafa Hotait, MD*. Project title: Subtle MRI Abnormalities and Atrophy in Patients with Idiopathic Generalized Epilepsy.
3. *Charbel Moussalem, MD*. Project title: Radio-Pathologic Correlation in Brain Tumors: Retrospective Study.
4. *Mohamad Nouredine, MD*. Project title: Fractional Anisotropy Quantification Using Diffusion Tensor Imaging: A Potential Diagnostic Tool in Amyotrophic Lateral Sclerosis.
5. *Ali Amine, MD*. Project title: Voxel-Based Morphometric Magnetic Resonance Image Post-processing in MRI-Negative Epilepsies: Is MRI Really Negative?

2018–2019 **School of Engineering, Beirut International University.**

1. *Rayan Hamdan, Eng. and Omar Hajjar, Eng.*. Project title: Medical Staff Physical Health In Workplace: Early Diagnosis, Control and Risk Management.

2017–2019 **Faculty of Medical Sciences, Lebanese University-AI Rasoul AI Aatham Hospital.**

1. *Aya Harb, MD*. Project title: White Matter Changes in Multiple Sclerosis Through Diffusion Tensor Imaging.

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2017-2018 **Faculty of Medical Sciences, Lebanese University-University of Tours, France.**

1. *Sahera Saleh, Eng.* Project title: Complexity Analysis Techniques: Application to Epileptic Seizure Detection.

2016-2018 **School of Engineering, Lebanese International University.**

- 1 *Rayan Chaaban and Walaa Issa.* Project title: The Study of Hypertensive Disease of Pregnancy Using Doppler Ultrasound Fetal Information.
- 2 *Nancy Kozah, Abbas Sayed Kassem and George Hajj-Moussa.* Project title: Advanced Prototype for an Automated Biomedical Robotic IV Pole.
- 3 *Mounir Shaib and Mohammad Rachid.* Project title: A Novel Portable Baby Incubator Based on Wi-Fi and Infrared Technology.

Undergraduate Senior Fellows

2019–present **Beirut Arab University.**

1. *Supervisor for: Omar yehya, Maria el Ghoush, Ali Jaafar.* Project title: ElderGuard: Optimizing Nanotechnology-Based Sensors for Fall Detection and e-Health Monitoring.
2. *Supervisor for: Nour El Khatib, Jihad Katirji, Jenine Mohammad and Sarah Ibrahim.* Project title: Integrating Brain-Computer Interface and Eye Tracking System for Innovative IOT Smart Home.
3. *Supervisor for: Manar Dafer, Onjel EL Hajj Mohammad, Adham Daou and Karen Soboh.* Project title: Electroencephalography Controlled Wheelchair Using Brain Computer Interface.
4. *Supervisor for: Nour Al Bulbul and Ahmad Abdul Kareem.* Project title: A Smart Bionic Arm with Augmented Gestures.
5. *Supervisor for: Jamal Jalloul, Hazar Temsah, Abbas Mostapha, Ali Alaweih, Hafez Al-Khatib, Salim Sinno.* Project title: A Smart System for Firefighters for Monitoring Using Artificial Intelligence.
6. *Supervisor for: Razane Mahmoud, Bader Abu Hawili and Niveen Oumairat.* Project title: An Artificial Intelligence Based Smart Biosensor for Improving Healthcare Services.
7. *Supervisor for: Mohammad Moumneh.* Project title: Development of a Hardware-Software System for a Bionic Prosthesis of a Human Hand.
8. *Supervisor for: Mohammad Makki.* Project title: A New AI-Based Framework for Thalassemia Diagnosis.
9. *Supervisor for: Firas Mazloun and Lara Abdulsalam.* Project title: A New prototype for a device that non-invasively stimulates the visual cortex of the visually impaired.
10. *Lama Yassine.* Project title: Supervised Machine Learning Techniques Applied to Fetal Heart Rate Signals.
11. *Sandy Abed El WaHed.* Project title: Advances in Chirp Ultrasound Medical Imaging.
12. *Adnan Alaywan.* Project title: Nonlinear Symmetry Analysis Techniques for Medical Signals.

2019–2020 **Faculty of Public Health, Lebanese University.**

1. *Ahlam Chafi, Zahra Damaj, Sylva Abou Chakra.* Project title: Prise en Charge de l'Anévrisme Artériel Intracranien: Modalités d'Imagerie Diagnostiques, Intérêts et Préférence.
2. *Fatima Hammadi, Youmna Sabbah, Zahraa Adibie.* Project title: Tomographie par Cohérence Optique et Rétinopathie Diabétique.
3. *Batoul Moukbel, Nehmat Hanna.* Project title: Advances in Brest Cancer Management.

2015-2019 **School of Engineering, Lebanese International University.**

1. *Abbas Sayed Kassem and Ali Ghandour.* Project title: Cutting Edge Wireless-Based Intravenous Stand Robot.
2. *Nada Ayoub, Sarah Soboh and Hussein Salah Eldeen.* Project title: A Smart Hip Abduction Splint For Developmental Dysplasia.
3. *Nadine Ghannam and Hanin ElSayed.* Project title: A Smart Orthopedic Bed for General Purpose Rehabilitation.
4. *Mohammad Kobar and Thaer Madi.* Project title: Smart Teeth Imaging Device.
5. *Marcello Saadeh and Jinan Taha.* Project title: An Automated Portable Baby Incubator.
6. *Baseem Abouzour and Rawad Mhanna.* Project title: Automatic Gauze Machine.
7. *Rania Ghotmi and Samara Baraket.* Project title: Innovative Automatic Urine Analysis Device.

Refereed Journal Articles

- 1) **A.J. Zaylaa*** and S. Kourtian. From Pixels to Diagnosis: Early Detection of Diabetic Retinopathy Using Optical Images and Deep Neural Networks. *Applied Sciences*. 2025; 15(5):2684. doi: <https://doi.org/10.3390/app15052684> (***Main and Corresponding Author**).

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- 2) **A.J. Zaylaa*** I. Haidar, Z. Doughan, M. Mournieh, H. Mrad, and A. Haidar. Limb Loss: ARTIFICIAL INTELLIGENCE-Based Bionic Prosthetic Arm From Simulation to Reality. *BAU Journal Science and Technology*, pp. 1-17, December 2024. (***Main and Corresponding Author**).
- 3) **A.J. Zaylaa*** and S. Kourtain. Advancing Breast Cancer Diagnosis through Breast Mass Images, Machine Learning and Regression Models. *Sensors*. 2024; 24(7):2312, doi: 10.3390/s24072312. (***Main and Corresponding Author**).
- 4) **A.J. Zaylaa*** and A. El-Hajj. Neurocomputing and Interfacing Digital Tasting System: Research, Design and Evaluation. *BAU Journal Science and Technology*, pp. 1-24, (2023), doi: 10.54729/2959-331X.1100. (***Main and Corresponding Author**).
- 5) A. El Dirani, Z. Hachem, A. Mohanna and **A.J. Zaylaa***. Traditional and Advanced Neuroimaging Contributions to the Diagnosis and Differential Diagnosis of Central Nervous System Lymphoma Patients Visiting a Comprehensive Medical Center. *Open Neuroimaging Journal*, vol. 13, issue 1, pp. 6-15, (2020), doi: 10.2174/1874440002013010006. (***Corresponding Author**).
- 6) A. Sayed-Kassem, N. Kozah, G. Hajj-Moussa, R. Harb and **A.J. Zaylaa***. BMIVPOT, a Fully Automated Version of the IntraVenous Pole: Simulation, Design and Evaluation. *Journal of Healthcare Engineering*, (2020), vol. 2020, Article ID 7963497, 18 pages. doi: 10.1155/2020/7963497. (***Corresponding Author**).
- 7) N. Jomaa, M. Haddad, G Adwane, **A.J. Zaylaa** and A. Rahbani. Dedicated Magnetic Resonance Imaging Sequences: Contribution in the Diagnosis of Focal Epilepsy in the Lebanese Population. *Journal of Health Science*, (2018), vol. 6, pp. 439-445, doi: 10.17265/2328-7136/2018.06.007.
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- 2) A. Mostapha, A. Alawieh, H. Al Khatib, H. Temsah, J. Jalloul, S. Sinno Supervisors: **A.J. Zaylaa**, Z. Doughan and A. Haidar. A Smart System for Firefighter Safety and Monitoring. *First Scientific and Engineering Day, 2023, Lebanon.*

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