Abdallah El Chakik
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Director of Faculty of Science
Associate Professor of Computer Science

Professional Profile

Associate Professor of Computer Science and Director of the Faculty of Science at Beirut Arab University, with research expertise in Artificial Intelligence, Computer Vision, Image and Signal Processing. Experienced in academic leadership, scientific research, and fostering collaboration between academia, industry, and the public sector. Author of numerous peer-reviewed publications in international journals and conferences, and organizer of numerous conferences, professional workshops, training programs, and public engagement initiatives that promote innovation, digital transformation, STEM education, and community development.

Education

April 2011 – July 2014

PHD in Computer Science

Concentration: Image and signal processing

Thesis title: Acquisition, processing and analysis of three-dimensional data
GREYC laboratory and EURIDIS Ingénierie Company
Caen, France.

July 2009

Master of Research in Computer Science
Concentration: Algorithm and information modeling

Thesis title: Planning and Research Heuristics in a multi-agent context
University of Caen Basse-Normandie, France.

July 2007

Master 1 in computer science
Concentration: Data mining

University of Lyon 2, France.

July 2006

Bachelor in Computer Science

University of Saint Etienne, France.

July 2003

Lebanese Bachelors in Science

High School Al Manar, Tripoli Lebanon.

Academic experiences

September 2024-Present — **Beirut Arab University: Director of Faculty of Science**
Tripoli, Lebanon.

March 2020-Present — **Beirut Arab University: Associate professor**
Tripoli, Lebanon.

September 2014-March 2020 — **Beirut Arab University: Assistant professor**
Tripoli, Lebanon.

September 2012-July 2014 — **University of Caen & ENSICAEN: Lecturer**
Caen, France.

Professional experiences

July 2014 — **DATEXIM and GREYC laboratory: R&D engineer**
Image classification
Duration: 3 months
Caen, France.

April 2011 – July 2014 — **GREYC laboratory and EURIDIS Ingénierie Company: Research Engineer (PHD)**
Acquisition, processing and analysis of three-dimensional data
Caen, France.

September 2010 — **EURIDIS Ingénierie Company: Development engineer**
Processing and analysis of 3D surfaces
Duration: 7 months
Caen, France.

February 2009 — **GREYC laboratory – Caen University: Internship for Master program**
Planning and Research Heuristics in a multi-agent context:
Realization of a distributed algorithm A* version
Duration: 6 months
Caen, France.

September 2008 — **Creation of a company (auto-entreprise) for web hosting and servers' security**
Lyon, France.

March 2007 — **ERIC laboratory – University of Lyon 2: Internship for M1 program**
Development & Managing an Oracle database for Web content classification
Duration: 4 months
Lyon, France.

April 2006 **Rhonalphot company: Internship for Bachelor program**
Modeling and implementation of an e-Commerce website
Duration: 3 months
St Etienne, France.

Teaching

Beirut Arab University: Introduction to Programming, Object Oriented Programming, Digital Circuits, Web Programming, Discrete Structures I, Theory of Computation, Compiler Construction, Discrete Structures II, Computer Organization & Architecture, Data Structures, Fundamentals of Algorithms, Concepts of Programming Languages, Artificial Intelligence, Senior Project I, Senior Project II, Internet Programming, Logical Design of Digital System, Data Structures II.
University of Caen: Information system, python.
National School of Engineers of Caen (ENSICAEN): Java programming, introduction to programming, C++/C programming, databases (MySQL, postgresql).

Technical skills

- **Programming Languages:** Python, C, C++, C#, Java, JavaScript, PHP, VB.NET
- **JavaScript Frameworks:** React, Node.js, Express.js
- **Mobile Development:** Flutter
- **Operating Systems:** Linux, Unix, Windows, macOS
- **Databases:** Oracle, PostgreSQL, MySQL, MongoDB, Firebase (NoSQL)
- **Web Technologies:** HTML, CSS, XML, Semantic Web
- **Research & Scientific Computing:** MATLAB, LaTeX
- **AI & Data Science:** Machine Learning, Computer Vision, Image Processing

Professional Activities and Public Services

Actively contributes to the academic and professional community through the organization and of conferences, workshops, seminars, and outreach initiatives. Delivers invited lectures, technical workshops, and professional training programs in Artificial Intelligence, Computer Science, Digital Transformation, and Emerging Technologies for students, academics, professionals, and public institutions. Promotes collaboration between academia, industry, and government through university–industry partnerships, technology transfer initiatives, student mentoring, internship coordination, and community engagement activities that support innovation, STEM education, and digital transformation.

Research Experience

My research focuses on Artificial Intelligence, Computer Vision, Image and Signal Processing, and Graph-Based Optimization, with applications in healthcare, cybersecurity, and education. My work spans medical image analysis, disease detection and segmentation, 3D shape analysis, point cloud processing, and intelligent decision-support systems, with recent research extending to AI-enhanced learning technologies, Internet of Things (IoT) security, and digital health. I have developed novel graph-based and optimization-driven algorithms for image restoration, object recognition, medical image segmentation, and computer-aided diagnosis, resulting in publications in leading peer-reviewed journals, international conferences, and book chapters. My current research emphasizes trustworthy and explainable AI solutions that address real-world challenges through interdisciplinary collaboration and practical innovation.

Publications

International journals

1. R. K. Soloh, B. Nakhal, and **A. El Chakik**, "Optimization-Driven Multimodal Brain Tumor Segmentation Using α-Expansion Graph Cuts," *Computation*, vol. 14, no. 3, p. 70, 2026.
2. A. El Arid, O. Al-Khatib, R. Osman, et al., and **A. El Chakik**, "AI-Assisted Learning Systems for Enhancing English as a Foreign Language Outcomes in Lebanese High Schools," *Education Sciences*, vol. 16, no. 4, p. 517, 2026.
3. A. El Abed, G. Nassreddine, B. Nakhal, and **A. El Chakik**, "AI-powered strategies for early detection and prevention of severe diseases," in *Transformative Technologies: Revolutionizing Healthcare through Computing and Communication*, Book Chapter, 2026.
4. H. Yassine, M. El Saleh, B. Nakhal, and **A. El Chakik**, "Centralized Two-Tiered Tree-Based Intrusion-Detection System (C2T-IDS)," *Internet of Things*, vol. 6, no. 4, p. 67, 2025.
5. R. Soloh, **A. El Chakik**, H. ALABBOUD, A. Shahin, "Brain Tumor Segmentation Based on α-Expansion Graph Cut", International Journal of Imaging Systems and Technology, June 2024.
6. N. Zreika, A. El-Zaart, **A. El Chakik**, "Robust and parallel segmentation model (rpsm) for early detection of skin cancer disease using heterogeneous distributions", BAU Journal - Science and Technology, June 2023.
7. R. Soloh, **A. El Chakik**, H. ALABBOUD, A. Shahin, "New descriptors' combination for 3D mesh correspondence and retrieval", International Journal of Computational Vision and Robotics, January 2022.
8. N. Zreika, A. El-Zaart, **A. El Chakik**, A Hybrid Cross Entropy Thresholding for Early Alzheimer's Disease Detection, nternational Journal of Computing and Digital Systems, July 2021.
9. N. Zreika, A. El-Zaart, **A. El Chakik**, "An improvement of cross entropy thresholding for skin cancer", BAU Journal , June 2021.
10. R. Soloh, A. El Chakik, H. ALABBOUD, A. Shahin, "New descriptors combination for 3D mesh correspondence and retrieval", International Journal of Computational Vision and Robotics, January 2021.
11. A. El Chakik, A. El Sayed, H. ALABBOUD, "An Invariant Descriptor map for 3D objects matching", International Journal of Engineering & Technology, Volume 9, Issue 1, January,2020.
12. A. El Sayed, A. El Chakik,H. ALABBOUD, A.YASSINE,"An Efficient Simplification Method for Point Cloud Based on Salient Regions Detection", RAIRO, Volume 53, Number 2 , September 2019, p. 487 – 504.
13. A. El Sayed, A. El chakik,H. ALABBOUD,A.YASSINE, "Efficient 3D mesh salient region detection using local homogeneity measure", IET Image Processing, Volume 12, Issue 9, September 2018, p. 1663 – 1672.
14. M. Jneid, **A. El Chakik**, Analytical solution for some systems of nonlinear conformable fractional differential equations, Far East Journal of Mathematical Sciences (FJMS),109 (2), 2018, pp243-259.
15. A. El Sayed, **A. El Chakik**,H. ALABBOUD,A.YASSINE, "Efficient 3D point clouds classification for face detection using linear programming and data mining", Imaging Science Journal, Volume 66, Issue, October 2017, p. 23 – 37.
16. A. El Sayed, **A. El Chakik** H. ALABBOUD,A.YASSINE, "3D face detection based on salient features extraction and skin colour detection using data mining", Imaging Science Journal, Volume 65, Issue 7, August 2017, p. 393-408.
17. **A. El Chakik**, A. Elmoataz, DESQUESNES Xavier, "Mean Curvature Flow on Graphs for Image and Manifold Restoration and Enhancement", Journal of signal processing**,** Volume 105, December 2014, p.449-463.

International Conferences

1. N. Bakir, A. Gawish, K. Al Hassan, V. Pak, M. Merhy, **A. El Chakik**, "Distributed Power Analytics: Leveraging Federated Harris Hawks Optimization for Confidential Energy Prediction", 2026 International Conference on Artificial Intelligence, Systems, and Emerging Technologies (ICAISET**)**, April 2026.
2. R. Soloh, H. ALABBOUD, A. Shahin, A. Yassaine, **A. El Chakik**, "3D mesh matching using surface descriptor and integer linear programming", 12th international conference on mathematics, engineering, natural and medical sciences", September 2021.
3. **A. El Chakik**, A. El Sayed , Amer Bakkach, "3D Point Cloud Compression using Invariant Featured Map", International Conference on Applied Mathematics and Science, February 2020
4. **A. El Chakik**, A. El Sayed, S. Nohra,"An Invariant Multi-Scale Saliency Detection for 3D Mesh", IEEE International Conference on Applied and Theoretical Computing and Communication Technology, September 2019.
5. N. Zraika, A. El-Zaart, **A. El Chakik**, T.El Arwadi, "Skin Cancer Segmentation with Entropy PAL MCET using Gaussian Distribution", IEEE International Conference on Applied and Theoretical Computing and Communication Technology, September 2019.
6. **A. El Chakik**, A. Elmoataz, A. Sadi : On the Mean Curvature Flow on Graphs with Applications in Image and Manifold Processing. IEEE International Conference on Computer Vision (**ICCV**), 2013 , pp 697-704.
7. **A. El Chakik**, A. Elmoataz, X. DESQUESNES, "Fast 3D surface reconstruction from point clouds using graph-based fronts propagation, Asian Conference on Computer Vision" (ACCV) 2012. Lecture Notes in Computer Science , volume 7727, 2013, pp 309-320.
8. Sadi Ahcene, **A. El Chakik**, A. Elmoataz, "Nonlocal PDEs Morphology on Graph: A Generalized Shock Operators on Graph", International Conference on Image and Signal Processing, ICISP, 2014, pp 409- 416.
9. **A. El Chakik**, X. DESQUESNES, A. Elmoataz: Reconstruction de surfaces à partir de nuages de points : Une approche rapide par propagation de fronts sur graphes. Colloque du Groupe de Recherche et d'Étude du Traitement du Signal et des Images, Gretsi, 2013.
10. **A A. El Chakik**, X. DESQUESNES, A. Elmoataz: PDES Level Set on Weighted Graphs and Applications for Images, Manifold and Point Clouds Processing, In Adaptation and Learning in Control and Signal Processing (Alcosp) 2013, vol. 11, no. 1, pp. 635-640. 2013.

Awards

2006 Merit scholarship awarded by the Agency Merit of the Francophonie (AUF), being the first of the promotion