Joelle NADER

Assistant Professor, Industrial Consultant

Expert in Operations and Production Management, Industrial Process Engineering & Innovation and Entrepreneurship

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1. Areas of expertise

- Entrepreneurship and Innovation
- Operations and Production Management (Lean, Six Sigma, 5S, TPM, Agility, Flexibility, Sustainability, Industry 4.0, Supply Chain, Forecasting, Capacity, Decision Analysis, Inventory Management, Linear Programming, Quality Control, …)
- Quality, Health, Safety, and Environmental Management Systems
- Project Management / Product and Process Development
- Advanced Statistical Analysis / Design of Experiments / Process Modeling and Optimization
- Chemical Engineering & Industrial Process Engineering
- Waste Valorization and Waste Management
- Formulation, Prototyping, MVP production
- Emerging Technologies and Thermo-mechanical Processes
- Green, Sustainable, Profitable, and Healthy Extraction Techniques
- Innovative Manufacturing Technologies (Chemical / Food / Pharmaceutical / Cosmetics)

2. *Education and Certificates*

2025-2026	**Certificate of Specialization in Entrepreneurship and Innovation** Harvard Business School-Harvard University
2024-2025	**Certificates in Board Diversity and Corporate Directors Programs** Ecole Supérieure des Affaires (ESA)
2018-2020	**ME in Industrial Engineering and Management** (partial) American University of Beirut
2011-2017	**PhD in Chemistry – Specialty: Industrial Process Engineering** Saint Joseph University of Beirut
2008-2009	**Masters of Science in Industrial Technology** Saint Joseph University of Beirut
2004-2008	**Bachelor of Science (BS) and Masters of Science (MS) in Biochemistry** Lebanese University

3. *Work Experience*

3.1. *Academic Professional Experience*

2021-Present	**Assistant Professor** Adnan Kassar School of Business, Lebanese American University **Duties:** Teaching undergraduate/graduate/eMBA (Quantitative Business Analytics, Project Management, Operations and Production Management, Vertically Integrated Projects, Advance Operations and Production Management, …), Research and Services (Advising, projects supervision, member of different academic committees, Vice Chair of the faculty senate (2022), Chair of the Faculty Senate (2023), LAU industrial hub advisory board member (to date), …)
2019-2021	**Post-doctoral Research Fellow / Lecturer / Member of the GSR office** Office of the Dean of Graduate Studies and Research (GSR), Lebanese American University **Duties:** PI and/or coPI of different multidisciplinary projects with few administrative duties at the GSR Office including grants, contracts, statistics, and strategic planning.
2018-2019	**Co-instructor (Engineering Statistics)** Faculty of Engineering, American University of Beirut
2018-2019	**Lecturer (Process Engineering)** Cnam, ISSAE, Lebanon **Duties:** teaching and advising chemical engineering students in Automation and Optimization of chemical and pharmaceutical processes, Optimization Methods)
2014-2018	**Lecturer, Research Fellow** Faculty of Sciences, Saint Joseph University of Beirut **Duties:** teaching, research and advising MS Students in "Industrial Technology" and "Food Chemistry" (courses including Industrial visits, Experimental Modeling and Optimization)

Higher Education courses: *Operations and Production Management (Executive MBA and undergraduate levels), Project Management for Executives (eMBA), Engineering Management Statistics, Managerial Statistics, Vertically Integrated Projects, Automation and Optimization of chemical and pharmaceutical processes, Optimization Methods, Industrial visits, Experimental Modeling and Optimization*

Primary and Secondary school courses: *Chemistry, Biology, Physics, Mathematics*

3.2. *Professional Experience in Research*

Supervision and Management of research projects	→ Supervision of several MS theses in “Food Chemistry” and "Industrial Technology" at Saint Joseph University of Beirut in collaboration with local industries. **Projects examples:** - Pressing process of oleaginous seeds, optimization of the reconstitution method - Optimization of the reconstitution method of pressed peanut seeds. - Beer recovery from yeast and an increase in brewing efficiency. - Implementation of ISO 9001, HACCP, and GMP+ systems in a local animal feed importer and distributor. - Effect of IVDV (Intensification of Vaporization by Decompression to the Vacuum) treatment on anthocyanin and polyphenol content of different varieties of chickpeas and corns. - Optimization of dairy product filling and packaging to reduce waste and energy consumption - New process for preparing low-fat roasted almonds - Conception, initiation, and implementation of a process for preparing high-fat and low-fat, regular, and premium roasted nuts. → Supervision of several interdisciplinary Vertically Integrated Projects (VIP) at LAU in collaboration with industry partners by managing personnel from the industry and students at different schools (engineering, business, pharmacy, arts and sciences) and different levels (sophomore, junior, senior, executive). **Projects examples:** - Wineries’ waste valorization and production of pomace powder loaded with polyphenols and antioxidants. - A Lean Approach to Designing Sustainable Value Chains in Food, Pharmaceutical, and Chemical Industries. - Brewery’s spent yeast valorization and conversion into pharmaceutical and cosmetic products. - Designing, modeling, and optimizing beer bottling and labeling processes to minimize waste, reduce energy consumption, while maintaining high beer quality. - Integrating Lean Manufacturing and Six Sigma to Improve Performance in a Brewery. -Emerging techniques for the extraction of castor oil and valorization for multiple ulterior uses.

Collaborations And Management of Research Projects

- Management of several multidisciplinary research projects at the GSR office in collaboration with several schools, while providing support to different research clusters and faculty members to pursue advanced applied and empirical research projects, from initiation to publication. These projects mainly covered but are not limited to:

« Textural, nutritional, oxidative, colorimetric and organoleptic properties of snack products as affected by processing conditions »

« Valorization of Breweries Waste and Energy Saving Project »

« Correlation between Manufacturing planning, supply chain performance, flexibility, lean manufacturing and sustainability. Study of their effects (mediator, moderator) on operations metrics »

« Conversion of fruits and vegetable wastes into valuable, crunchy, texturized and dried snack products »

« Towards Understanding the Impact of Industry 4.0 Technologies on Operational Performance: An Empirical Investigation in Global Manufacturing Companies ».

« Organizational Performance as affected by mental health and spirituality at work »

« Experimental design and process modeling to optimize and enhance the performance of wind turbines»

« Organizational Culture in Higher Education Institutions amidst Period of Turbulence »

« Online Student Engagement and Emotion-related Variables During COVID

« Optimization of dairy products filling and packaging to reduce waste and energy consumption »

« Novel process for preparing ready-to-eat chickpeas products »

« Conception of a new process for preparing innovative flavored grape spirits

« Optimization of dairy products filling and packaging to reduce waste and energy consumption » « Development of an optimized extraction process of bioactive compounds from grape peels generated from wineries, spirit and vinegar industries »

3.3. *Non-Academic Professional Experience*

2014-present

Industrial Consultant

Goods and Services companies, hospitals, food and beverage industries (snack products, meat and poultry, dairy products, alcoholic and non-alcoholic beverages …), chemical and pharmaceutical industries (Direct collaboration with industries or indirect collaborations through NGOs)

→ **Industrial, institutional, or academic training** (public or in-house) aiming to: conceive, initiate, and implement new projects and processes, enhance quality, efficiency, and cost-effectiveness, manage projects to increase profitability, reduce risk factors, improve productivity, and induce a permanent growth of the targeted companies.

- Training programs that fall within my MS curriculum in "Industrial Engineering and Management" and "Industrial Technology" and within my Ph.D. experience in "Industrial Process Engineering"

→ **Consulting Expertise:** cross-sector consultancy services focused on industrial processes, including disruption, separation, extraction, drying, thermomechanical, and chemical operations.
Specialized in waste valorization, innovation, and process re-engineering with emphasis on energy efficiency and sustainable practices. Expertise spans:

- **Process and Product Development:** Process design and modeling, formulation, waste management, and emerging eco-friendly processes.
- **Operational Excellence:** Operations and production management, quality control and assurance, project management
- **Advanced Analysis:** Statistical modeling, data analytics, and process optimization, empirical/deterministic optimization, design of experiments (DOE)
- **Sector Applications:** Green, efficient, and emerging food, chemical, cosmetics, and pharmaceutical manufacturing technologies.

Jul 2010- Feb 2011	**QHSE Officer (Quality Management System, Health & Safety Management System and Environment Management System)** "Maintenance Management Group" (MMG), Dora, Lebanon **Duties:** implementation and control of the integrated management system including quality, health & safety, and environmental management systems.
Jan 2010- Jun 2010	**Quality Coordinator** "Hôpital Haddad Des Sœurs Du Rosaire", Gemayzeh, Lebanon **Duties:** working on accreditation policies and procedures, patient complaints, risk analysis, and committees.
Mar 2009- Jun 2009	**Internship program:** Energy saving: Master's degree project "Almaza Brewery", Dora, Lebanon (within the Brewery Department)
Sep 2007- Oct 2007	**Internship program:** Laboratory, Brewing cellars, Bottling and Packaging "Almaza Brewery", Dora, Lebanon (within the Production Department)

3.4. *Summary of Previous achievements in my field of research*

As a process engineering expert, I have conceived new processes and optimized food sector processes, notably in studies on healthy and low-fat snacks, yielding multiple publications and registered patents. Currently, I am extending my research to address waste byproducts, specifically focusing on innovative technologies to valorize wineries' and breweries' waste.

3.5. Activities having an impact on the development of scientific research in my country

As a national leader in industrial process engineering, I have advanced scientific research by leading a multidisciplinary team spanning engineering, business, chemistry, pharmacy, and biology. I integrated Lean Six Sigma methodologies and advanced data analytics to optimize production systems and validate innovative technologies. Bridging academia and industry, I translated research into functional prototypes, launched viable startups, and developed sustainable, industry-driven solutions. My work emphasizes waste valorization, green technologies, process re-engineering, and targeted delivery systems, aligning with Industry 4.0 and global sustainability goals. These efforts have resulted in eight forthcoming research publications and impactful innovations, significantly strengthening my country's international scientific and industrial standing.

4. *Publications*

List of patents and publications in refereed journals

RP: Registered Patents; PA: Published Articles; SA: Submitted Articles; CP: Conference Proceedings; PP: Poster Presentation in international refereed conferences

4.1. ***Registered Patents***

RP1: Louka, N., Nader, J. (2014). Treatment process of biological products "mechanical pressing extraction preserving product integrity (MPEPPI)" aiming at modifying their lipid content and their texture. Settings and Methods for the Implementation of Such Product. *LB Pat.*, LB-10492.

RP2: Louka, N., Nader, J., Roufayel, M., Kazzi, M., El-Kazzi, E. (2014). Seeds and nuts defatted by pressing and reconstituted by methods preserving their appearance and organoleptic properties. *LB Pat.*, LB-10493.

4.2. Published Articles in refereed journals

PA1: Nader, J., Fawaz, N., Afif, C., Louka, N. (2016[a]). A novel process for preparing low-fat peanuts: Optimization of the oil extraction yield with limited structural and organoleptic damage. *Food Chemistry, 197(B),* 1215-1225.

PA2: Nader, J., Afif, C., Louka, N. (2016[b]). Study of physiological and textural properties of roasted peanuts defatted by an innovative oil extraction process. Correlation with consumer evaluation. *Innovative Food Science & Emerging Technologies, 33,* 450-461.

PA3: Nader, J., Afif, C., Louka, N. (2016[c]). Color and texture of low-calorie peanuts as affected by a new oil extraction process named "Mechanical Expression Preserving Shape Integrity" (MEPSI). *Journal of Food Science and Technology, 53(3),* 1649-1662.

PA4: Nader, J., Afif, C., Louka, N. (2017). Expansion of partially defatted peanuts by a new texturizing process called "Intensification of Vaporization by Decompression to the Vacuum" (IVDV). *Innovative Food Science & Emerging Technologies, 41,* 179-187.

PA5: Nader, J., Louka, N. (2018). Development of a novel technology entitled "Intensification of Vaporization by Decompression to the Vacuum" (IVDV) for reconstitution and texturing of partially defatted peanuts. *Innovative Food Science & Emerging Technologies, 45,* 455-466.

PA6: Nader, J., Afif, C., Louka, N. (2021). Impact of a novel partial defatting technology on oxidative stability and sensory properties of peanut kernels. *Food Chemistry*, 334, 127581.

PA7: Nauffal, D., Nader, J. (2022). Organizational cultures of higher education institutions operating amid turbulence and an unstable environment: the Lebanese case. *Higher Education*, 84(2), 343-371.

PA8: Nader, J., El-Khalil, R., Nassar, E., Hong, P. (2022). Pandemic planning, sustainability practices, and organizational performance: An empirical investigation of global manufacturing firms. *International Journal of Production Economics,* 246, 108419.

PA9: Nader J., Allaf T., Allaf K. (2022). Instant Controlled Pressure Drop (DIC) as an Emerging Food Processing Technology. *In: Gavahian M. (eds) Emerging Food Processing Technologies. Methods and Protocols in Food Science.* Humana, New York, NY. https://doi.org/10.1007/978-1-0716-2136-3_16

PA10: Attie, C., ElCheikh, A., Nader, J., Elkhoury, M. (2022). Performance enhancement of a vertical axis wind turbine using a slotted deflective flap at the trailing edge, *Energy Conversion and Management,* 273, 116388.

PA11: Nader, J.; Assaf, J.C.; Debs, E.; Louka, N. (2023). Innovative Method for Determining Young's Modulus of Elasticity in Products with Irregular Shapes: Application on Peanuts, *Processes*, 11(9), 2532.

PA12: Sanchez-Ruiz M.-J., Khalaf T., Tadros N., Nauffal D., Nader J., Diab R., Akle B., Nassar E. (2024). Positive affect and self-care mediate the relationship between trait emotional intelligence and academic engagement in Lebanese undergraduates: Lessons learned from an online setting, *International Journal of Psychology,* 59 (6), 932 – 941.

***4.3. Articles In Pipeline** (Accepted, Submitted, Under Review or Write-up of final draft)*

AIP1: Nader, J., Harajli, D., Malhame, M., El-Khalil, R. (2025). The Upgraded Recipe for Optimized Organizational Performance in Turbulent Times.

AIP2: Nader, J., Saliba, C, El-Khalil, R. (2025). Navigating Change: A Holistic Exploration of Organizational Performance Metrics through Agility and Sustainability Dynamics.

AIP3: Nader, J., Saliba, C, El-Khalil, R. (2025). Spearheading Fluctuating Markets: The Interplay of Agility, Technology, and Performance.

AIP4: Nader, J., Yunis, M., Saliba, C, El-Khalil, R. (2025). Industry 4.0 and its concurrent impact with Agility on Operations Performance of EU and US based industries.

AIP5: Nader, J., Saliba, C., El-Khalil, R. (2025). Today's Organizational Sustainability and Continuous Performance Improvement as affected by the 4th Industrial Revolution: a Case Study in the Appliances Industry.

AIP6: Nader, J., El-Khalil, R., Hong, P. (2025). Empirical Investigation of Sustainability Practices and their mediating role on Lean, Flexibility and Operational Performance relationships.

AIP7: Nader, J., El-Khalil, R., Hong, P. (2025). Industrial operations performance enhanced by Supply Chain Practices and Lean tools through Sustainability good practices.

AIP8: Nader, J. et al. (2025). Waste Valorization in Wineries: A Multiple Optimization Approach for Pomace Recovery from Wine Production while Achieving Highest Yields and Preserving Quality Attributes (4 papers)

AIP9: Nader, J. et al. (2025). Waste Valorization in Breweries: A Multiple Optimization Approach for Beer Recovery from Spent Yeast while Achieving Highest Yields and Preserving Quality Attributes (4 papers)

AIP10: Nader, J. (2025). Enhancement of Olive Oil Quality and Extraction Yields by Means of Emerging Green Technologies: A Critical Review.

AIP11: Nader, J. et al. (2025). Optimization of Energy Drinks Filling and Packaging to Reduce Waste and Energy Consumption.

4.4. Conference Proceedings

CP1: Nader, J., Afif, C., Louka, N. (2014). A new eco-friendly defatting process of peanuts by Mechanical Expression Preserving Structure Integrity (MEPSI). Second International Conference on Renewable Energies for Developing Countries (REDEC 2014), DOI: 10.1109/REDEC.2014.7038531, 54-59

CP2: El-Khalil, R., Nader, J. (2020). Impact of Flexibility on Operational Performance: A Case from US Automotive Manufacturing Facilities. *Proceedings of the 5th NA International Conference on Industrial Engineering and Operations Management Detroit, Michigan, USA, August 10 - 14, 2020*

CP3: Nader, J., El-Khalil, R. (2021). Flexibility and Operational Performance: Examining the Mediating Role of Lean and Sustainability Practices. *Proceedings of the 2nd South American International Conference on Industrial Engineering and Operations Management, Sao Paulo, Brazil, April 5-8, 2021*

CP4: Nader, J., Mezher, M.A., El-Khalil, R. (2021). Towards Understanding the Impact of Industry 4.0 Technologies on Operational Performance: An Empirical Investigation in the US Automotive Industry. *Proceedings of the 2nd South American International Conference on Industrial Engineering and Operations Management, Sao Paulo, Brazil, April 5-8, 2021*

CP5: Nader, J., El-Khalil, R. (2021). Strategic Manufacturing Planning Performance in the Food Industry: The Mediating Influence of Sustainability. *Proceedings of the 2nd South American International Conference on Industrial Engineering and Operations Management, Sao Paulo, Brazil, April 5-8, 2021*

CP6: El-Khalil, R., Nader, J. (2021). The Role of Lean in Enhancing Operational Performance Through Sustainability and Supply Chain Practices: A Case Study on the Textile Industry. *Proceedings of the 2nd South American International Conference on Industrial Engineering and Operations Management, Sao Paulo, Brazil, April 5-8, 2021*

CP7: Nader, J. (2022). Advanced Analytics Tools for Process Improvement: A Case Study in a Brewery. *International Conference on Interdisciplinary Research in Technology & Management (IRTM 24-26 Feb 2022)*

CP8: Nader, J. (2022). Lean Six Sigma and Design of Experiments: An Empirical Case Study From the Dairy Industry. *International Conference on Interdisciplinary Research in Technology & Management (IRTM 24-26 Feb 2022)*

4.5. Poster Presentation

PP1: **Nader, J., Afif, C., Louka, N. (2015).** Procédé de traitement de produits biologiques « Extraction par Pressage Préservant l'Intégrité du Produit (EPPIP) » en vue de la modification de leur contenu lipidique et de leur texture; mise en œuvre d'un tel procédé et reconstitution par des méthodes préservant l'apparence des graines et leurs qualités organoleptiques. 21st LAAS International Science Conference *« Horizon 2020: Advances in Sciences and technology »*.

6. *Honors and Awards*

- Had the honor to serve as the MC of a Town Hall about Reinventing Government 2030, initiated by the Dean's Office, in a successful discussion with H.E. Dr. Fadi Makki (2025).
- AUF (Agence Universitaire de la Francophonie) – Dolla Karam Sarkis Prize Project Leader: Nanoencapsulation of Spent Yeast Extracts for Nutraceutical and Pharmaceutical Applications (application submitted by a postdoctoral researcher under my supervision) (2025)
- The sustainable valorization of industrial waste project was selected among top innovations worldwide to be presented at Prototypes for Humanity in Dubai (2025).
- Had the honor to present the LAU Business School during the LAU Open Day (2025) in Beirut and Byblos Campuses.
- Honor to attend the conference "The Status of Women on Boards in Lebanon," organized in the framework of International Women's Day, which highlighted the success of an eight-month project that LLWB led in partnership with the UK Embassy to Lebanon, aimed at facilitating and increasing female representation on the boards of organizations, syndicates, and universities. The conference highlighted the successful engagement of two universities, the Lebanese American University (LAU) and the Arab Open University (AOU), and allowed LLWB to disseminate the findings and recommendations of two research studies on the status of Women on Boards in Listed Companies and on the status of Women on Boards in Public Institutions in Lebanon.
- Shortlisted among 33 candidates to pursue two enriching courses at ESA Business School IFC Certification Program: "Board Diversity Program" and "Corporate Directors Program" and got certified (2025). Funds were provided by the UK Embassy's Foreign, Commonwealth and Development Office-FCDO in collaboration with the Lebanese League for Women in Business (LLWB).
- Nominated by the Dean to take part in the Women on Boards Scale-up Program initiated by the Arab Institute for Women (AiW) at the Lebanese American University in collaboration with the Lebanese League for Women in Business (LLWB) in partnership with the UK Embassy's Foreign, Commonwealth and Development Office-FCDO (2025).
- Mentorship Program on Corporate Governance, Leadership and Corporate Strategies with Dr. Dima Issa under the LLWB Scale-up Program (2025).
- Selected as one of the top 100 projects among 3,000 applicants worldwide across 800 universities by "Prototypes for Humanity", Dubai Future Foundation (2024).
- President intramural research fund of $ 50,000 for the Brewer's Spent Yeast valorization project (2024-2025)
- Executive committee member of the LAU Industrial Hub Advisory Council to bridge the gap between academia and industry (2023-2024)
- Executive committee member of the Faculty Senate (2023-2024), Senate Chair
- President intramural research fund of $ 50,000 for the industrial waste valorization project (2022-2023)
- First Place Winner of the International 2022 VIP Consortium Innovation Competition for my VIP team's submission "VIP: A Lean Approach to Designing Sustainable Value Chains in Food, Pharmaceutical, and Chemical Industries" (May 27, 2022). My project was selected among 44 institutions worldwide, 25 of which are based in the US.
- Award from Inas Foundation for the VIP presentation at the local Innovation competition, VIP team: A Lean Approach to Designing Sustainable Value Chains in Food, Pharmaceutical, and Chemical Industries (April 1st, 2022)
- First Place Winner at the local LAU 2022 VIP Innovation Competition, VIP team: A Lean Approach to Designing Sustainable Value Chains in Food, Pharmaceutical, and Chemical

Industries (April, 2022)

- VIP consortium award for innovation as a VIP project leader and for contributions to Program Enhancement (2022)
- Best Paper-Reviewer's Choice Award for the paper titled "Advanced Analytics Tools for Process Improvement: A Case Study in a Brewery" that was presented at the *International Conference on Interdisciplinary Research in Technology & Management (IRTM 24-26 Feb 2022)*
- Best Presenter Award for the paper titled "Lean Six Sigma and Design of Experiments: An

- Empirical Case Study From the Dairy Industry" that was presented at the *International Conference on Interdisciplinary Research in Technology & Management (IRTM 24-26 Feb 2022)*
- Winner of several grants to solve complex industrial projects with industry giants and startup companies (peanuts, essential oil, wine, beer, coffee, vegetable chips, oregano, and other types of food products) (2018-2024)
- MEPI VIP Grant for the VIP Program led by myself and titled "A Lean Approach to Designing Sustainable Value Chains in Food, Pharmaceutical, and Chemical Industries" (January 2022)
- Qualified as a lecturer by the French Ministry of Higher Education, Research and Innovation under the 62nd section - "Energy and Process Engineering", qualification number: 19262333449 (2019).
- Full Graduate Assistantship for the Masters in Industrial Engineering Management at the American University of Beirut (2018).
- PhD degree in Process Engineering with Highest Honors (2017).
- Awarded the implementation of the defatting process on an industrial scale in a specialized industry (2017).
- Best Poster Award for the "Engineering Sciences and Architecture" thematic among all participants at 21st LAAS International Science Conference *« Horizon 2020: Advances in Sciences and technology »* (2015).
- Team member in Patient Safety, Infection Control, and Quality at "Hopital Haddad Des Soeurs Du Rosaire", Gemayzeh, Lebanon (2010)
- Team leader of the Occupational Health and Safety committee at "Hopital Haddad Des Soeurs Du Rosaire", Gemayzeh, Lebanon (2010).
- MS degree in Industrial Technology with distinction (2009).
- Best final year project award among MS students in Industrial Technology (2009).

6. References

Available upon request.