CURRICULUM VITAE

ANTONIO JAVIER NAKHAL AKEL

WORK EXPERIENCE

10/2014 - 05/2018   **Teaching assistant of Mechanical Design in Engineering at "Central University of Venezuela"**
This position is earned by an annual public competition. This competition consists of a written exam that must be passed with a score of 15/20 or more and a 90-minute master class in which a random subject must be presented. The average of my competition in the three years was 18/20. I was the second better grade out of 5 people applying for this job. In charge of: (i) Laboratory practice (4 hours of dedication per week). With groups of 15 students for each practice. (ii) Solution of practical and theoretical doubts (2 hours of dedication per week). Throughout the semester once a week.

12/2016 – 03/2018   **Teaching assistant of Mechanical Vibrations at " Central University of Venezuela"**
This is an annual public competition consisting of a written exam that must be passed with a score of 15/20 or more and a 90-minute master class in which a random subject from the course had to be presented. The average of my competition was 17/20. I was the second better grade out of 4 people applying for this job. In charge of: (i) Organization and creation of laboratory practices (2 hours of dedication per week). About 6 laboratory practices per semester. (ii) Laboratory practice (2 hours of dedication per week). With groups of 6 students for each practice. (iii) Solution of practical and theoretical doubts (2 hours of dedication per week). Throughout the semester once a week.

01/2022 – 04/2022   **Business Intelligence analyst at aiComply s.r.l.**
Design and implementation of Business Intelligence report to create an interactive platform to support strategic decision making for a pharma enterprise.

11/2020 – Ongoing   **Tutor and Assistant Lecturer at "Sapienza University of Rome"**
For the MSc and BSc in Mechanical Engineering, and for the BSc and MSc in Management Engineering of:
- Operations Management
- Quality Management
Smart Factory

EDUCATION AND TRAINING

11/2020 – Ongoing   **Ph.D. Student in "Industrial and Management Engineering,** *Sapienza University of Rome, Rome, Italy - three-years full-time fellowship*
Ph.D. research focuses on resilience analysis for the evolution of industrial sociotechnical systems in critical or highly complex contexts in the issues related to safety management and risk analysis. The research aims to individuate a methodology to model and measure resilience metrics in sociotechnical systems.

Rome 7th July 2022

Antonio Javier Nakhal Akel

Per la destinazione "ai fini della pubblicazione" in ottemperanza al D. Lgs. 33/2013

10/2018 – 10/2020	**MSc in Management Engineering,** focus on **Management of Industrial and Production Systems,** *Sapienza University of Rome, Rome, Italy*

MSc in Management Engineering, focus on **Management of Industrial and Production Systems,** *Sapienza University of Rome, Rome, Italy*
Final grade: 106/110
Final Work: "A Business Intelligence approach to support the analysis of industrial accident reporting systems". Besides data analysis, the thesis developed a data model able to identify and describe the information in a safety database.

05/2018 – 05/2018   **BSc in Management Engineering,** *Sapienza University of Rome, Rome, Italy*
Final Grade: 98/110
Obtained in accordance with the double Degree Program between Central University of Venezuela and Sapienza University of Rome

03/2013 – 11/2021   **BSc in Management Engineering,** *Central University of Venezuela, Caracas, Venezuela*
Final Grade: 15.54/20
Obtained in accordance with the double Degree Program between Central University of Venezuela and Sapienza University of Rome

PERSONAL SKILLS

Languages   **Spanish** (Mother's tongue)
                English (Intermediate, Basic Professional Competence)
                Italian (Fluent, Basic Professional Competence)

Software's   **MS. Office Pack** (Advanced)
              Power BI (Intermediate)
              MATLAB (Intermediate)
              Simulink (Basic)
              AutoCAD (Advanced)
              Inventor (Intermediate)
              Solidworks (Intermediate)
              ANSYS (Basic)

ADDITIONAL INFORMATION

PROJECTS

11/2020 – 05/2021   **Industrial accident analysis reported in media supporting by Business Intelligence tools.**
Design and implementation of a Business Intelligence report to extract and display information on historical industrial accidents collected by the media. The report has been created on collaboration with JRC Major Accident Hazards Bureau.

01/2020 – 06/2021   **Historical industrial accident data analysis collected in MHIDAS database supporting by Business Intelligence tools and Machine Learning algorithm.**
Design and implementation of a Business Intelligence model for safety data management in an industrial context, and its integration with Machine Learning solutions (e.g., data completion and clustering) that may support an in-depth multi-variate investigation of reported data.

05/2021 – 11/2021   **Compulsory safety reporting analysis collected in eMARS database supporting by Business Intelligence and Analytics tools.**
Design and implementation of a Business Intelligence report to extract and display information on compulsory safety reporting collected by the European Commission. The report has been built to create a scalable and maintainable data model for obtaining useful information on safety reporting systems to manage data on industrial hazardous events.

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09/2021 – 10/2021	**Business Intelligence reporting and dashboards design for 15th Conference on Naturalistic Decision Making and 9th Symposium on Resilience Engineering in collaboration with Resilience Engineering Association**
	Design and development of Business Intelligence report to explore and disseminate data from the 15th Conference on Naturalistic Decision Making and 9th Symposium on Resilience Engineering organized by REA. The report is freely available at: https://www.resilience-engineering-association.org/symposium/
11/2021 – 03/2022	**Natural hazards accidents analysis reported in EM-DAT database using Machine Learning algorithm and Business Analytics tools**
	Perform and apply Machine Learning algorithm (e.g., feature selection and clustering) to investigate potential clusters that show commonalities and subsequently can drive to common natural risk management mitigations. Later , design a Business Intelligence model to ensure a wider perspective of the results on all societal impacts.
01/2022 – 03/2022	**Business Analytics on cyber attack data collected from an experimental tested in a water treatment plant**
	Application of Business Analytics tools to perform analysis and calculate critical performance indicators for a water treatment plant subjected to cyber attacks. The analyzed data were collected at Singapore University of Technology and Design from a physical experimental tested of a water treatment plant.
03/2022 – Ongoing	**Industrial accidents analysis reported in ARIA database supporting by Business Analytics and Machine Learning algorithm**
	Design and implementation of a Business Intelligence model to extract knowledge of circumstances, outcomes and accident causes of accidents occurred in France or abroad. Nevertheless, apply Machine Learning algorithm to data completion to predict response protocols and future measures to avoid repeat accidents and minimize them consequences.
05/2022 – Ongoing	**Hydrogen incidents and accidents analysis collected in HIAD 2.0 database supporting by Business Intelligence tools**
	Design and implementation of a Business Intelligence report to extract and display information on historical hydrogen accidents and incidents.

PUBLICATIONS

Journal paper

06/2021	Nakhal A., A.J., Patriarca, R., Di Gravio, G., Antonioni, G., Paltrinieri, N., (2021). *Business Intelligence for the Analysis of Industrial Accidents Based on MHIDAS Database.* Paper published at the Journal Chemical Engineering Transactions, June 2021 and presented in the 15th International Conference on Chemical and Process Engineering (ICheaP 15), May 2021; Naples; Italy.

Journal paper

07/2021	Nakhal A., A.J., Patriarca, R., Di Gravio, G., Antonioni, G., Paltrinieri, N., (2021). *Investigating occupational and operational industrial safety data through Business Intelligence and Machine Learning.* Paper published at the Journal Loss Prevention in Process Industries, July 2021.

Journal paper

06/2022	Nakhal A., A.J., Patriarca, R., Tronci, M., Agnello, P., Ansaldi, S. M., Ledda, A., (2022). *A STAMP model for safety analysis in industrial plants.* Paper published at the Journal Chemical Engineering Transactions, June 2022 and presented in the 10th International Conference on Safety & Environment in Process & Power Industry (CISAP 10), May 2022; Firenze; Italy.

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Journal paper

06/2022   Nakhal A., A. J., Hovstad, J. S., Ruth, M. S., Parmeggiani, S., Patriarca, R., Paltrinieri, N., (2022). *A Machine Learning approach to analyze natural hazards accident scenarios.* Paper published at the Journal Chemical Engineering Transactions, June 2022 and presented in the 10th International Conference on Safety & Environment in Process & Power Industry (CISAP 10), May 2022; Firenze; Italy.

Journal paper

06/2022   Nakhal A., A.J., Di Gravio, G., Fedele, L., Patriarca, R., (2022). *Learning from Incidents in Socio-Technical Systems: A Systems-Theoretic Analysis in the Railway Sector.* Paper published at the Journal Infrastructures, June 2022.

Book Chapter (prof-review)

05/2022   Nakhal A., A.J., Paltrinieri, N., Patriarca, R., (2022). *Business Analytics to advance industrial safety management.* Chapter 17 submitted at the book Engineering Reliability and Risk Assessment published by Elsevier, December 2021.

Journal paper (under review)

06/2022   Nakhal A., A.J., Patriarca, R., Tronci, M., (2022). *Socio-technical Systems-Theoretic analysis of industrial processes.* Paper submitted and will be presented in the 2022 Reliability & Quality Design Conference (ISSAT 2022), August 2022; Miami; United States of America.

Journal paper (under review)

06/2022   Simone F., Nakhal A., A. J., Di Gravio G., Patriarca R. (2022). *Thinking in systems, sifting through simulations: a way ahead for cyber resilience assessment.* Paper submitted at the Journal Process Safety and Environmental Protection, June 2022.

Journal paper (in press)

06/2022   Simone F., Nakhal A., A. J., Patriarca R. (2022). *Investigating inventory data to support warehouse management through Machine Learning.* Proceedings of XXVII Summer School "Francesco Turco": "Unconventional Plants: Technologies, tools and Methodologies for emerging domains", 7-9 September 2022; Riviera dei Fiori, Italy.

HONOURS AND AWARDS

08/2021   **IEOM Outstanding Student Leadership Award.** Awarded by the Industrial Engineering and Operations Management Society during the 4th IEOM European Conference, 2-5 August 2021; Rome; Italy.

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EXTRACURRICULAR ACTIVITIES

10/2015 – 07/2016 **Member of the SAE AreoDesingUCV team at the "Universidad Central de Venezuela"**
It is an annual Engineering competition event held in the United States, Brazil, Mexico, etc. The aim is a real-world design challenge designed to compress a typical aircraft development program into one calendar year, taking participants through the system engineering process of breaking down requirements. It exposes participants to the nuances of conceptual design, manufacturing, system integration/test, and sell-off through demonstration. My contribution to the team was around structure design and simulation analysis.

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