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BSc, MSc. Automation and Control Engineering

Ph.D. Computer Engineering

Assistant Professor of Industrial Engineering

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Personal statement

My Briggs Myers personality type is ENFJ (Extravert – Intuitive – Feeling – Judging). Famous ENFJs include Oprah Winfrey, Abraham Maslow and Martin Luther King Jr. I do recognize myself in ENFJ personality features. ENFJ people:

- are dynamic and imaginative and see many possibilities in the world
- love to think out loud and brainstorm new ideas
- enjoy being in charge and leading others with their vision
- are skilled communicators and have a talent for expressing complex ideas
- naturally see potential for improvement in organizations, systems, and people

My career objectives include, but are not limited to the following objectives:

- Develop an expertise (know and know how) in industrial and logistic systems management and control, systems engineering and integration, as well as in project management
- Put my expertise at the service of industrial projects and partners of both private and public economic sectors
- Take part in knowledge transfer projects between academy and public/private actors of the economic sector based on training sessions, consultancy services, partnerships, etc.
- Explore and develop new applied research topics and interests through active participation in leading research teams, units, laboratories, universities, and industries

Professional Experience

Present	Assistant Professor of Industrial Engineering
Oct. 2011	King Saud University, Riyadh, Saudi Arabia.
Aug. 2011	Research Associate
Sept. 2009 –	Institut Français de Mécanique Avancée – IFMA, Clermont – Ferrand, France.
Apr. 2010	Researcher
Sept. 2005 –	Université Blaise Pascal, Clermont – Ferrand, France.
Aug. 2005	Production Manager
Sept. 2002 –	Galion S.A., Tunis, Tunisia.

Teaching duties

Postgraduate courses

IE653	Advanced topics in manufacturing automation (PhD course) Centralized control, decentralized/distributed control, control architectures, multi agent systems, holonic systems, bionic systems, intelligent products, manufacturing execution systems, case studies
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Undergraduate courses

IE337	Industrial automation using PLCs Sensors and actuators, PLC architecture, Boolean logic, LADDER programming, SIEMENS TIA portal and STEP7 programming
IE461	Computer Integrated Manufacturing – Factory automation technologies Robotics, Automated Storage and Retrieval Systems, Automated Handling and Transport Systems, Data identification, acquisition and processing, Communication and Networks, Industrial Information Systems, Flexible and Cellular Manufacturing
IE460	Computer Integrated Manufacturing – Modelling tools IDEF modelling, Petri Nets, Expert Systems

Administrative duties

- Coordinator of the committee of graduate studies (registration and follow up of students, organization of comprehensive exam, proposal and final defence for PhD students)
- Member of the committee of IE department strategic plan monitoring
- Member of statistics and IT committee (Key Performance Indicators for Industrial Engineering Department)
- Member of graduation projects committee

Education background

- 2010** **Ph.D. in Computer Engineering (with honours)**
Université Blaise Pascal, Clermont – Ferrand, France.
- 2004** **M.Sc. in Automation and Control Engineering (with distinction, 1st degree honours)**
Institut National des Sciences Appliquées et de Technologie, INSAT, Tunis, Tunisia.
- 2003** **BSc. in Automation and Control Engineering (with distinction, 1st degree honours)**
Institut National des Sciences Appliquées et de Technologie, INSAT, Tunis, Tunisia.

Awards/Grants

- 2005** Recipient of a 3-year **Doctoral Scholarship** from Agence Universitaire de la Francophonie, AUF.
- 2003** Recipient of the **Award of Excellence** in Engineering from the President of the Republic of Tunisia.

Referees

Prof. Henri PIERREVAL

Simulation, Systems Engineering and Computer Integrated Manufacturing
LIMOS, UMR-CNRS 6158, IFMA, Campus des Cézeaux, B.P. 265, F-63175, Aubière, France
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Prof. Sonia HAJRI – GABOUJ

Computer Engineering, System optimization
National Institute of Applied Science and Technology, INSAT, Tunisia
LISI, INSAT, B.P. 676, Centre Urbain Nord, 1080, Tunis, Tunisia
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Prof. Lamjed BEN SAID

Simulation, Artificial Intelligence, Optimization
Dean of the High Institute of Management of Tunis (Institut Supérieur de Gestion, ISG Tunis)
SOIE, ISG de Tunis, 41 Avenue de la liberté, cité Bouchoucha
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Prof. Anis GHARBI

Operations research
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Expertise (teaching/training/practice)

Performance analysis and improvement

- Operations management and optimization
- Decision support systems, Business Intelligence
- Business process management
- Forecasting, planning, scheduling
- Supply chain management
- Risk management
- Project management
- Quality management (ISO standards, 6 sigma, lean management)
- Performance management (balanced scorecards, etc.)

Flexible and reconfigurable manufacturing

- Robotics
- Automated handling systems (Automated storage and retrieval systems, Automated Transport Systems)
- Supervisory control and data acquisition (SCADA)
- Enterprise and industrial information systems (ERP, MES)
- Industrial networks and communication systems
- Computer integrated manufacturing
- Systems engineering and integration
- Artificial intelligence and distributed control

Automation and control

- Industrial processes automation
- Motorization of automated systems
- Programmable logic controllers (PLCs)
- Control theory and practice (PID, etc.)

Logistics and transport systems

- Intelligent transport systems (ITS)
- Traffic control systems
- Vehicle routing problems
- Public transport systems

Computer skills

- Programming languages: JAVA, C/C++
- Modelling: UML/SysML, IDEF, Petri Nets, FMEA, FTA/ETA, PRA
- Tools: Rational Rose, Eclipse, JADE, PROTÉGÉ, MATLAB/SIMULINK
- Industrial information system: ERP QAD MFG/PRO
- Operating systems: Windows 98/2000/NT/XP, Linux
- Artificial intelligence: multi agent systems, ontologies, meta heuristics, soft computing tools

Communication skills

- Arabic: mother tongue
- French: fluent (read, written and spoken)
- English: fluent (read, written and spoken)
- German and Italian: fair (basic skills)

Research

I am actively involved in several ongoing research projects, and in the co supervision of Ph.D. and M.Sc. theses, with partners from Tunisia, Saudi Arabia, United Arab Emirates, France, and USA.

Supervision of theses

Mohamed Mabkhot, (MSc. in preparation). A Knowledge-based Decision Support Approach to Reconfigure Manufacturing Assembly Systems. King Saud University, Riyadh, Saudi Arabia.

Funded projects (05)

- Sept. 2015** **AAMEN: Towards a new AdvAnced systeM for drivEr assistaNce.** Role: Co-Investigator, National Plan for Science and Technology (NPST ref. 15-INF4119-02), estimated budget: 2,000,000 SAR (approx. EUR 470,000), preliminary acceptance (highly recommended status), not yet started.
- Feb. 2013** **e-Call: Developing an Innovative Emergency Call System for the KSA to Reduce Response Time by Safety Units and Minimize Fatalities in Case of Traffic Collisions.** Role: Principal Investigator, National Plan for Science and Technology (NPST ref. 13-INF869-02), estimated budget: 1,856,000 SAR (approx. EUR 436,000), preliminary acceptance (highly recommended status), not yet started.

- Sept. 2012** **SAFE-TRACS: Developing an artificial immune system to control roadway traffic signals and regulate traffic flow in case of emergencies.** Role: Principal Investigator, National Plan for Science and Technology (NPST ref. 12-INF2820-02). Approved budget: 1,470,000 SAR (approx. EUR 346,000). Started December 01st, 2014. Expected end date December 01st, 2016.
- Feb. 2012** **CAN-MAP: Comprehensive Analysis Network for Multi-tasking Assessment of Performance.** Role: Principal Investigator, National Plan for Science and Technology (NPST ref. 12-INF2574-02, <http://rp.ksu.edu.sa/can-map>). Approved budget: 1,285,000 SAR (approx. EUR 302,000). Started March 01st, 2014. Expected end date March 01st, 2016.
- Feb. 2012** **VMAS: Development and Evaluation of a Virtual Manufacturing Assembly Simulation System.** Role: Co-Investigator, National Plan for Science and Technology (NPST ref. 12-INF2573-02). Approved budget: 1,614,000 SAR (approx. EUR 380,000). Started March 01st, 2014. Expected end date March 01st, 2016.

International Journals (07)

- Al-Ahmari, A., Abidi, M.-H., Ahmad, A., Darmoul, S., (2016). Development of a Virtual Manufacturing Assembly Simulation System. *Advances in Mechanical Engineering*, Vol. 8, N. 3, March 2016. DOI: [10.1177/1687814016639824](https://doi.org/10.1177/1687814016639824) (ISI, 2014 5-year Impact Factor: 0.787). (Output of the VMAS project)
- Bayar, N., Darmoul, S., Gabouj, S.-H., Pierreval, H., (2015). Using Immune Designed Ontologies to Monitor Disruptions in Manufacturing Systems. Accepted in *Computers in Industry*. DOI: [10.1016/j.compind.2015.09.004](https://doi.org/10.1016/j.compind.2015.09.004) (ISI, 2014 5-year Impact Factor: 1.950).
- Bayar, N., Darmoul, S., Gabouj, S.-H., Pierreval, H., (2015). Fault Detection, Diagnosis and Recovery Using Artificial Immune Systems: A Review. *Engineering Applications of Artificial Intelligence*, Volume 46, Part A, November 2015, Pages 43–57, DOI: [10.1016/j.engappai.2015.08.006](https://doi.org/10.1016/j.engappai.2015.08.006) (ISI, 2014 5-year Impact Factor: 2.503).
- Gheriani, N., Elkosantini, S., Darmoul, S., Ben Said, L., (2015). Assessment of public transport control systems: A comparative analysis of platforms and a new platform architecture. Accepted in the *International Journal of Shipping and Transport Logistics* (ISI, 2014 5-year Impact Factor: 1.84).
- Darmoul, S., Elkosantini, S. (2014). Artificial Immunity to Control Disturbances in Public Transportation Systems: Concepts, Mechanisms and a Prototype Implementation of a Knowledge-Based Decision Support System. *Knowledge-Based Systems*, vol. 68, pp. 58–76, [http://dx.doi.org/10.1016/j.knosys.2014.02.022](https://doi.org/10.1016/j.knosys.2014.02.022). (ISI, 2014 5-year Impact Factor: 3.011).
- Darmoul, S., Pierreval, H., Gabouj, S.-H. (2013). Handling Disruptions in Manufacturing Systems: an Immune Perspective. *Engineering Applications of Artificial Intelligence*, vol. 26, issue 1, pp. 110–121, [http://dx.doi.org/10.1016/j.engappai.2012.09.021](https://doi.org/10.1016/j.engappai.2012.09.021). (ISI, 2013 5-year Impact Factor: 2.176).
- Gabouj, S.-H., Darmoul, S. (2003). A Hybrid Evolutionary Approach for a Vehicle Routing Problem with Double Time Windows for the Depot and Multiple Use of Vehicles. *Studies in Informatics and Control*, 12 (4), pp. 253-267. (SCImago, SJR, 2-year impact actor: 0.747).

Refereed Conferences (28)

- Mabkhot, M. M., Al-Samhan, A. M., Darmoul, S., (2016). An information model to support reconfiguration of manufacturing systems. Accepted in the fourth IFAC International Conference on Intelligent Control and Automation Sciences, ICONS2016, June 01-03, 2016, Reims, France.
- Louati, A., Elkosantini, S., Darmoul, S., Ben Said, L., (2016). A Case-Based Reasoning System to Control Traffic at Signalized Intersections. Accepted in the fourth IFAC International Conference on Intelligent Control and Automation Sciences, ICONS2016, June 01-03, 2016, Reims, France.
- Mnif, S., Elkosantini, S., Darmoul, S., Ben Said, L., (2016). An Immune Memory and Negative Selection based Decision Support System for the Monitoring and Control of Public Transportation Systems. Accepted in the fourth IFAC International Conference on Intelligent Control and Automation Sciences, ICONS2016, June 01-03, 2016, Reims, France.

- Mnif, S., Elkosantini, S., Darmoul, S., Ben Said, L., (2016). An Immune Multi-Agent Based Decision Support System for the Control of Public Transportation Systems. Accepted in the PAAMS 2016 Workshop on Decision Making in Dynamic Information Environments (DeMaDIE), 14th International Conference on Practical Applications of Agents and Multi-Agent Systems, PAAMS'2016, June 01-03, 2016, Seville, Spain.
- Kouki Amri, S., Darmoul, S., Gabouj, S.-H., Pierreval, H., (2016). Risk issues in facility layout design. Accepted in the Sixth International Conference on Industrial Engineering and Operations Management, IEOM'2016, Kuala Lumpur, Malaysia, March 08 – 10, 2016.
- Ben Cheikh, S., Gabouj, S.-H., Darmoul, S., (2016). Manufacturing configuration selection under arduous working conditions: A multi-criteria decision approach. Accepted in the Sixth International Conference on Industrial Engineering and Operations Management, IEOM'2016, Kuala Lumpur, Malaysia, March 08 – 10, 2016.
- Ahmad, A., Darmoul, S., Dabwan, A., Alkahtani, M., Samman, S., (2016). Human Error in Multitasking Environments. Accepted in the Sixth International Conference on Industrial Engineering and Operations Management, IEOM'2016, Kuala Lumpur, Malaysia, March 08 – 10, 2016. (Output of the CAN-MAP project).
- Mnif, S., Galoui, S., Elkosantini, S., Darmoul, S., Ben Said, L., (2015). Ontology-based performance evaluation of public transport systems. In Proceedings of the Fourth IEEE International Conference on Advanced Logistics and Transport, ICALT'2015, Valenciennes, France, May 20 – 22, 2015. (Output of the SAFE-TRACS project). <http://dx.doi.org/10.1109/ICAdLT.2015.7136622>
- Ghariani, N., Elkosantini, S., Darmoul, S., Ben Said L., (2015). An Ontology Based Benchmarking Platform for Public Transportation Control Systems. In Proceedings of the 2015 IFAC Symposium on Information Control in Manufacturing, INCOM'2015, Ottawa, Canada, May 11 – 13, 2015. IFAC-PapersOnLine, Volume 48, Issue 3, 2015, Pages 161–167 (Output of the SAFE-TRACS project). <http://dx.doi.org/10.1016/j.ifacol.2015.06.075>
- Ahmad, A., Darmoul, S., Ameen, W., Abidi, M. H., Al-Ahmari, A. M., (2015). Rapid Prototyping for Assembly Training and Validation. In Proceedings of the 2015 IFAC Symposium on Information Control in Manufacturing, INCOM'2015, Ottawa, Canada, May 11 – 13, 2015. IFAC-PapersOnLine, Volume 48, Issue 3, 2015, Pages 412–417. (Output of the VMAS project). <http://dx.doi.org/10.1016/j.ifacol.2015.06.116>
- Abidi, M. H., Ahmad, A., Darmoul, S., Al-Ahmari, A. M., (2015). Haptics Assisted Virtual Assembly. In Proceedings of the 2015 IFAC Symposium on Information Control in Manufacturing, INCOM'2015, Ottawa, Canada, May 11 – 13, 2015. IFAC-PapersOnLine, Volume 48, Issue 3, 2015, Pages 100–105 (Output of the VMAS project). <http://dx.doi.org/10.1016/j.ifacol.2015.06.065>
- Ahmad, A., Al-Ahmari, A. M., Aslam, M. U., Abidi, M. H., Darmoul, S., (2015). Virtual Assembly of an Airplane Turbine Engine. In Proceedings of the 2015 IFAC Symposium on Information Control in Manufacturing, INCOM'2015, Ottawa, Canada, May 11 – 13, 2015. IFAC-PapersOnLine, Volume 48, Issue 3, 2015, Pages 1726–1731 (Output of the VMAS project). <http://dx.doi.org/10.1016/j.ifacol.2015.06.335>
- Darmoul, S., Abidi, M. H., Ahmad, A., Al-Ahmari, A. M., (2015). Virtual reality for manufacturing: A robotic cell case study. In Proceedings of the Fifth International Conference on Industrial Engineering and Operations Management, IEOM'2015, Dubai, United Arab Emirates, March 03 – 05, 2015. Print ISBN: 978-1-4799-6064-4. (Output of the VMAS project). <http://dx.doi.org/10.1109/IEOM.2015.7093880>
- Darmoul, S., Ahmad, A., Ghaleb, M., Alkahtani, M., (2015). Interruption Management in Human Multitasking Environments. In Proceedings of the 2015 IFAC Symposium on Information Control in Manufacturing, INCOM'2015, Ottawa, Canada, May 11 – 13, 2015. IFAC-PapersOnLine, Volume 48, Issue 3, 2015, Pages 1179–1185 (Output of the CAN-MAP project). <http://dx.doi.org/10.1016/j.ifacol.2015.06.244>
- Ben Cheikh, S., Gabouj, S.-H., Darmoul, S., (2015). Reconfiguring manufacturing systems using an analytic hierarchy process with strategic and operational indicators. In Proceedings of the Fifth International Conference on Industrial Engineering and Operations Management, IEOM'2015, Dubai, United Arab Emirates, March 03 – 05, 2015. Print ISBN: 978-1-4799-6064-4. <http://dx.doi.org/10.1109/IEOM.2015.7093890>
- Alkahtani, M., Aziz, T., Ahmad, A., Darmoul, S., (2015). Multitasking in Healthcare Systems. In Proceedings of the 2015 Industrial and Systems Engineering Research Conference, ISERC'2015, S. Cetinkaya and J. K. Ryan, eds., May 30 – June 02, 2015, Tennessee, USA. (Output of the CAN-MAP project).

- Ghariani, N., Elkosantini, S., Darmoul, S., Ben Said, L., (2014). A survey of simulation platforms for the assessment of public transport control systems. In Proceedings of the Third IEEE International Conference on Advanced Logistics and Transport, ICAIT 2014, Hammamet, Tunisia, May 01 – 03, 2014.
- Bayar, N., Darmoul, S., Gabouj, S.-H., Pierreval, H., (2014). An immune based ontology implementation of hazard and operability analysis in manufacturing systems. In Proceedings of the Fifth International Conference on Mechanical, Industrial and Manufacturing Technologies, MIMT 2014, Penang, Malaysia, March 10 – 11, 2014. Published in Applied Mechanics and Materials, Vol. 575, (2014), pp 884-894.
- Moalla, D., Elkosantini, S., Darmoul S., (2013). An artificial immune network to control road traffic at a single intersection. In Proceedings of the Fifth International Conference on Industrial Engineering and Systems Management, IESM 2013, Rabat, Morocco, October 28-30, 2013.
- Elkosantini, S., Darmoul, S., (2013). Intelligent Public Transportation Systems: A Review of Architectures and Enabling Technologies. In Proceedings of the Second IEEE International Conference on Advanced Logistics and Transport, ICAIT 2013, Sousse, Tunisia, May 29th – 31st, 2013.
- Masmoudi, A., Elkosantini, S., Darmoul, S., Chabchoub, H., (2012). An artificial immune system for public transport regulation. In Proceedings of MOSIM'12 – 9th International Conference on Modeling, Optimization & SIMulation (MOSIM), Bordeaux, France, June 6th – 8th, 2012 (available online at <http://hal.archives-ouvertes.fr/hal-00728663>).
- Trabelsi, B., Elkosantini, S., Darmoul, S., (2012). Traffic control at intersections using artificial immune system approach. In Proceedings of MOSIM'12 – 9th International Conference on Modeling, Optimization & SIMulation (MOSIM), Bordeaux, France, June 6th – 8th, 2012 (available online at <http://hal.archives-ouvertes.fr/hal-00728662>).
- Darmoul, S., Pierreval, H., Gabouj, S.-H., (2011). Using ontologies to capture and structure knowledge about disruptions in manufacturing systems: An immune driven approach. In Proceedings of the 16th IEEE International Conference on Emerging Technologies and Factory Automation, ETFA 2011, Toulouse, France, September 5th – 9th, 2011.
- Darmoul, S., Pierreval, H., Gabouj, S.-H., (2011). An Immune Inspired Multi Agent System to Handle Disruptions in Manufacturing Production Systems. In Proceedings of the International Conference on Industrial Engineering and Systems Management, IESM 2011, Metz, France, May 25th – 27th, 2011.
- Darmoul, S., Gabouj, S.-H., Pierreval, H., (2008). Integrating immunity features in a multi agent model. Industrial Simulation Conference, ISC 2008, June 9 – 11, 2008, p. 31 – 34, Edited by Joel Colloc, Claude Petit and Claude Dussart, ISBN 978-90-77381-40-3, CESH, Université de Lyon, Lyon, France.
- Darmoul, S., Pierreval, H., Gabouj, S.-H., (2007). Quel potentiel des systèmes immunitaires artificiels pour le pilotage réactif et adaptatif de systèmes de production ? (In French) Conférence Internationale Conception et Production Intégrées, CPI 2007, 22 – 24 octobre 2007, Rabat, Maroc.
- Darmoul, S., Pierreval, H., Gabouj, S.-H., (2006). Scheduling Using Artificial Immune System Metaphors: A Review. IEEE International Conference on Service Systems and Service Management, IEEE SSSM'06, Vol. 2, p. 1150-1155, ISBN: 1-4244-0450-9, October 25 – 27, 2006, Troyes, France.
- Gabouj, S.-H., Drira, A., Darmoul, S., Benrejeb, M., (2004). A Pareto Evolutionary Approach for a Printing Single Machine with Sequence Dependent Maintenance Setups. International Conference on Intelligent Maintenance Systems, IMS' 2004, July 15 – 17, 2004, Arles, France.

Book

- Darmoul, S., Pierreval, H., Gabouj, S.H. (2010). Pilotage de systèmes de production par des principes immunitaires: étude de la contribution des systèmes immunitaires artificiels au pilotage de systèmes de production en environnement perturbé. (In French) Editions Universitaires Européennes, ISBN 978-613-1-52436-3, 2010.

Reviewing activities and Program committee memberships

- Reviewer for Knowledge-Based Systems (ISI), International Journal of Production Research (ISI), Expert Systems with Applications (ISI)

- Reviewer and member of the organizing and program committee of the IEEE International Conference on Advanced Logistics and Transports, ICALT
- Reviewer for the International Conference on Industrial Engineering and Operations Management, IEOM
- Reviewer and member of the organizing and program committee of the International Conference on Applied Automation and Industrial Diagnostic, ICAAID'2015, Djelfa, Algeria
- Reviewer for the International Conference on Control, Decision, and Information Technologies, CoDIT'2014, Metz, France
- Reviewer and member of the program committee of the International Conference on Advances in System Simulation, SIMUL
- Reviewer and member of the program committee of the International Conference on Simulation and Modelling Methodologies, Technologies and Applications, SIMULTECH