

# Abdelhak Imoussaten

PhD in Computer Science

Associate professor at IMT Mines Ales

Laboratory of Computer and  
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Team KID

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## Career

### IMT Mines Ales

May. 2014 **Associate Professor**, Alès, France.  
Now

Research Preferences Learning, Assessment of Performance under Uncertainty, Data merging

Teaching Multiple Criteria Decision Analysis (MCDA), Operational Research, Belief Functions, Possibility Theory, Fuzzy Logic, Programming (JAVA, c++).

Projects **ADEME** (2017-2018): Comparing low carbon technologies using MCDA, **ScoreLCA** (2015-2016): using MCDA for decision in Life Cycle Assessment

### ARMINES

Jan. 2012 **Postdoc - Assistant Professor at IMT**, Nîmes, France.

April 2014

Postdoc Implementation of industrial and territorial ecology through multiple criteria support for group decision making. In **DEPART** project context.

Research Industrial ecology, Waste management, Group-decision support under uncertainty, Data merging

### IMT Mines Ales & Mines ParisTech

Oct. 2008 **PhD student**, Nîmes, France.

Nov. 2011

Title Modeling and control of the deliberation phase in a collective decision - towards the management of risk activities -

Interests Group-decision support under uncertainty, Assessment of complex system performance, Debate modelling, Argumentation theory, Resilience

### ARMINES

Sep. 2007 **Engineer**, Nîmes, France.

Sep. 2008

Interests Implementation of a software for the merging of expert opinions and the control of deliberation in a collective decision - towards the management of risk activities -. In **ISyCri** project context.

research Group-decision support under uncertainty, Experts' opinion merging, MCDA, Choquet Integral, Possibility theory

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## Education

- Oct. 2008 **Ph.D. in Computer Science**, *MINES ParisTech*.  
Nov. 2011
- 2006 - 2007 **Master 2 Complementary Skills in Computer Science**, *ISTV - Université de Valenciennes et du Hainaut Cambrésis*, Valenciennes.
- 2003 - 2004 **Master 2 Statistical Engineering**, *IMAG - Université Joseph Fourier*, Grenoble.
- 2002 - 2003 **DEA Applied Mathematics**, *IMAG - Université Joseph Fourier*, Grenoble.

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## Supervision

### PhD students

- 2017-2020 L. Jacquin, "Treatment of uncertain data : application for separation of plastic materials"
- 2016-2019 C. L'héritier, "Mixing knowledge representation techniques and multiple criteria decision analysis for crisis management."
- 2014-2017 D. Sow, "Contribution to Multiple criteria Assessment and improvement in uncertain Context: Application to Preliminary Design"
- [Participation in PhD student supervision](#)
- 2010-2013 M. Lo (LGI2P), "Contribution to the evaluation of architectures in Engineering System: application to Mechatronic systems design"
- 2010-2013 J. Cerceau, "Metabolism of water in industrial and port areas"
- 2010-2012 B. Duthil, "From Knowledge Extraction to Recommendation"

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## Reviewing

- journals European Journal of Operational Research (EJOR): 1 to 2 papers per year  
conferences Fuzz IEEE: 4 papers per year, LFA: 3 papers per year, IFAC 2017 (1)

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## Publications

### Journal papers

- [1] J., Montmain, Ch., Labreuche, **A.**, **Imoussaten**, and F., Trouset. Multi-criteria improvement of complex systems. *Information Science*, 291 (2015) 61–84.
- [2] P., Couturier, M., Lô, **A.**, **Imoussaten**, V., Chapurlat, and J., Montmain. Tracking the consequences of design decisions in mechatronic systems engineering. *Mechatronics*, 24(7) (2014) 763–774.
- [3] **A.**, **Imoussaten**, J., Montmain, and G., Mauris. A multicriteria decision support system using a possibility representation for managing inconsistent assessments of experts involved in emergency situations. *International Journal of Intelligent Systems*, 29(1) (2014) 50–83.

### Books and book chapters

- [4] **A., Imoussaten**, J., Montmain, A., Rico, and F., Rico. A time-varying model to simulate a collective decisional problem. In Joaquim Filipe and Ana Fred, editors, *Agents and Artificial Intelligence*, volume 271 of *Communications in Computer and Information Science*, pages 56–71. Springer Berlin Heidelberg, 2013.

### Thesis

- [5] **A., Imoussaten**. Modeling and control of the deliberation phase in a collective decision - towards the management of risk activities -. *PhD thesis*. Mines ParisTech, 2011.

### International conferences with peer reviewing

- [6] **A., Imoussaten**. An Approach Based on MCDA and Fuzzy Logic to Select Joint Actions. In SUM 2018, Milan, 2018.
- [7] N., Sutton-Charani, **A., Imoussaten**, S., Harispe, J., Montmain. Evidential Bagging: Combining Heterogeneous Classifiers in the Belief Functions Framework. In IPMU 2018, Cadix, 2018.
- [8] C., L'héritier, **A., Imoussaten**, S., Harispe, G., Dussere, B. Roig. Identifying Criteria Most Influencing Strategy Performance: Application to Humanitarian Logistical Strategy Planning. In IPMU 2018, Cadix, 2018.
- [9] D., Sow, **A., Imoussaten**, P., Couturier, J., Montmain. A Possibilistic Framework for Identifying the Performance to be Improved in the Imprecise Context of Preliminary Design Stage. In CIVEMSA 2017, Annecy, 2017.
- [10] B., Duthil, **A., Imoussaten**, J., Montmain. A Text-mining and possibility theory based model using public reports to highlight the sustainable development strategy of a city. In CIVEMSA 2017, Annecy, 2017.
- [11] D., Sow, **A., Imoussaten**, P., Couturier, J., Montmain. A Possibilistic Approach to Set Achievable and Feasible Goals while Designing Complex Systems. In IFAC 2017, Toulouse, 2017.
- [12] D., Sow, P., Couturier, **A., Imoussaten**, J., Montmain. A qualitative evaluation of mechatronic concepts. In Mecatronics REM 2016, Compiègne, 2016.
- [13] D., Sow, **A., Imoussaten**, P., Couturier, J., Montmain. A Qualitative Approach to Set Achievable Goals During the Design Phase of Complex Systems. In *Information Processing and Management of Uncertainty in Knowledge-Based* (pp. 423-434). Springer International Publishing, 2016.
- [14] S., Harispe, **A., Imoussaten**, F., Trouset, J., Montmain. On the consideration of a Bring-to-mind Model for Computing the Information Content of Concepts defined into Ontologies. In IEEE International Conference on Fuzzy Systems FUZZ-IEEE 2015, Istanbul, Turkia, 2015.

- [15] P., Couturier, **A., Imoussaten**. A qualitative method for evaluation in conceptual design. In INCOM 2015, Ottawa, Canada, 2015.
- [16] **A., Imoussaten**, B., Duthil, F., Trouset, J., Montmain. A highly automated recommender system based on a possibilistic interpretation of a sentiment analysis. In Information Processing and Management of Uncertainty in Knowledge-Based IPMU 2014, Montpellier, France, 2014.
- [17] **A., Imoussaten**, J., Montmain, A., Rico, and F., Rico. A dynamical model for simulating a debate outcome. In *ICAART 2011 - Proceedings of the 3rd International Conference on Agents and Artificial Intelligence*, volume 1, pages 31–40, Rome, Italy, 2011. SciTePress.
- [18] **A., Imoussaten**, J., Montmain, F., Trouset, and Ch., Labreuche. Multi-criteria improvement of options. In *Proceedings of the 7th conference of the European Society for Fuzzy Logic and Technology (EUSFLAT-2011) and LFA-2011, Advances in Intelligent Systems Research*, pages 1030 – 1037, Aix-les-Bains, France, 2011. Atlantis Press.
- [19] **A., Imoussaten**, F., Trouset, and J., Montmain. Improving performances in a company when collective strategy comes up against individual interests. In *Proceedings of the 7th conference of the European Society for Fuzzy Logic and Technology (EUSFLAT-2011) and LFA-2011, Advances in Intelligent Systems Research*, pages 904 – 911, Aix-les-Bains, France, 2011. Atlantis Press.
- [20] **A., Imoussaten**, J., Montmain, and E., Rigaud. Interactions in a collaborative decision making process: Disturbances or control variables? In *COGNITIVE systems with Interactive Sensors (COGIS2009)*, Paris, France, 2009.

#### National conferences with peer reviewing

- [21] C., L'héritier, **A., Imoussaten**, S., Harispe, G., Dussere, B. Roig. Identifying Relevant Information for Decision Making : Application to Humanitarian Logistics. In LFA 2018, Arras, 2018.
- [22] C., L'héritier, S., Harispe, **A., Imoussaten**, G., Dussere, B. Roig. Etude d'une approche de Retour d'Expérience pour la découverte d'enseignements génériques dans le domaine humanitaire. In IC 2018, Nancy, 2018.
- [23] D., Sow, **A., Imoussaten**, P., Couturier, J., Montmain. A Possibilistic Framework for Identifying the Performance to be Improved in the Imprecise Context of Preliminary Design Stage. In *Rencontres Francophones sur la Logique Floue et ses Applications (LFA'2017)*, Amiens, France, 2017.
- [24] **A., Imoussaten**, B., Duthil, F., Trouset, J., Montmain. Automated extraction of multicriteria assessments for allocating realistic and prioritized targets in tourism applications. In *Rencontres Francophones sur la Logique Floue et ses Applications (LFA'2016)*, La Rochelle, France, 2016.
- [25] S., Harispe, **A., Imoussaten**, F., Trouset, J., Montmain. On the consideration of a bring-to-mind model for computing the Information Content of concepts defined into

ontologies. In *Rencontres Francophones sur la Logique Floue et ses Applications (LFA'2015)*, Poitiers, France, 2015.

- [26] D., Sow, **A., Imoussaten**, P., Couturier, J., Montmain. Between policy aspirations and capacity to act: how designing achievable goals. In *Rencontres Francophones sur la Logique Floue et ses Applications (LFA'2015)*, Poitiers, France, 2015.
- [27] **A., Imoussaten**, B., Duthil, F., Troussel, J., Montmain. Possibilistic interpretation of a sentiment analysis for a web recommender system. In *Rencontres Francophones sur la Logique Floue et ses Applications (LFA'2013)*, Reims, France, 2013.
- [28] J., Cerceau, **A., Imoussaten**, G., Junqua, N., Mat, J., Montmain, and G., Catherine. Mise en œuvre de l'écologie industrielle et territoriale par une aide multicritère à la décision de groupe. In *Colloque interdisciplinaire sur l'écologie industrielle et territoriale (CoIEIT'2012)*, Troyes, France, 2012.
- [29] **A., Imoussaten**, F., Troussel, and J., Montmain. Amélioration de la performance : entre stratégie collective et intérêts individuels. In *ROADEF 2011*, Saint-Étienne, France, 2011.
- [30] **A., Imoussaten**, J., Montmain, A., Rico, and F., Rico. Un modèle dynamique pour la simulation de l'issue d'un débat. In *Rencontres Francophones sur la Logique Floue et ses Applications (LFA'2010)*, Lannion, France, 2010.
- [31] **A., Imoussaten**, J., Montmain, and E., Rigaud. Modèle d'influence pour le pilotage d'une décision de groupe. In *Rencontres Francophones sur la Logique Floue et ses Applications (LFA'09)*, Annecy, France, 2009.