

Emmanuel Rachelson, PhD

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Research Engineer

Curious, enthusiastic, creative



+ SKILLS

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| <ul style="list-style-type: none">• Generalist engineer• Mathematical Decision Sciences<ul style="list-style-type: none">◦ Combinatorial Optimization◦ Supervised Learning algorithms◦ Reinforcement Learning• Development in C/C++• Environments Matlab, R, OPL• Windows, Unix, GNU/Linux environments | <ul style="list-style-type: none">• Project team management• Scientific leadership• Scientific and technical communication• Aeronautics and Electricity industries• Teaching / Higher education environment• Fluent French and English – Basic Spanish• International experience (France, USA, Canada, South Africa, Greece, Belgium) |
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+ EXPERIENCE

- 2011 – 2016 **Associate Professor, head of the Decision Sciences program**, ISAE-SUPAERO, Toulouse, FRANCE
Current research and engineering :
Learning4Opt, coupling supervised learning and combinatorial optimization search for recurrent planning problems (electricity production among others).
Learning2Fly, Automated learning of (powered and unpowered) guidance and control for autonomous flight.
PhD thesis supervised: Variational inference in Related Multi-Output Gaussian Process Regression.
Past projects :
Attentional state inference via Sup. Learning – *Statistical elimination* for semiconductor manufacturing tests
– *Heuristic Search* for nuclear maintenance operations planning.
Project management: Redesign of the “*Intelligent Decision Systems*” MSc major, creation and animation of the “*Decision Sciences*” MSc program (three tracks: Data Science, Industrial Engineering, Financial Eng.).
Teaching: Combinatorial Optimization, Supervised Learning, Reinforcement Learning.
- 2011 **Research engineer**, EDF R&D, Paris, FRANCE
Optimization of nuclear plant maintenance operations / Daily electrical production Optimization methods.
- 2010 Post-doctoral **Researcher**, University of Liège, BELGIUM
Algorithmic contributions. Offline Reinforcement Learning, EDA optimization.
- 2009 **Invited researcher**, EDF R&D, Paris, FRANCE
Supervised Learning and Optimization for the daily electrical production management.
- 2009 Post-doctoral **Researcher**, Technical University of Crète, Chania, GREECE
Reinforcement Learning algorithms for non-linear control of noisy mechanical systems.
- 2005 – 2008 **PhD candidate**, ONERA Toulouse, FRANCE
Temporal Markov Decision Problems, formalization and resolution.
Planning under uncertainty for UAV routing and industrial operations management.

+ TRAINING

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| 2008 | PhD in Artificial Intelligence – University of Toulouse |
| 2005 | Master of Science in Control Theory – University of Toulouse |
| 2005 | Generalist and aeronautics Engineer – SUPAERO (leading French “Grande Ecole” for aeronautics and space) |

+ OTHER ACTIVITIES

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| Hobbies | Paragliding (competitor, volunteer, qualified instructor), mountain sports, swing guitar, meteorology. |
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