

Senior Researcher in Artificial Intelligence Algorithmics

Main expertise: raise up the level of abstraction of the tools used to design artificial intelligence algorithms.
 Randomized search, heuristics, numerical optimization, automated planning, motion planning. C++, Python, Linux.

Prominent Achievements { Science: **seminal papers & breakthrough in algorithm engineering.**
 Innovation: **award-winning open-source stochastic optimization solvers.**
 Transfer: **new planning algorithms used in market products.** }

Notable skills {Empirical sciences, Software development, Communication.}

Science Background & Education

Senior Researcher

Algorithm engineering, landscape-aware heuristics, motion planning, machine learning.

Aerial & underwater drones, sensor networks

International projects proposals & management

R&D project manager, integration consulting

Thales R&T research center

Decision and Optimization Laboratory

Researcher

Automated planning, stochastic optimization, Evolutionary algorithms framework dev.

Defence, crisis management, ballistics, radars, Command & Control systems optimization

International projects proposals

R&D project manager, open source maintainer

Thales R&T research center

Mathematics and Decision Technology laboratory

Post-doc researcher

Operations Research, swarm robotics

École Nationale Supérieure des Mines de Saint-Étienne

Engineering & Health Laboratory

Teaching assistant

Stochastic algorithms engineering

Experimental validation, design of experiments

Paris 12 university

Image, Signal and Intelligent Systems Laboratory

Ph.D. in Computer Science

Paris 12, *summa cum laude*

Ant Colony Optimization, metaheuristics

Bio-medical engineering, imaging

Paris 12 university

Study & Research in Instrumentation,

Signals & Systems Laboratory

Postgraduate biomathematics

Paris 6 & Paris 7
magna cum laude

Master's degree evolution & ecology

Rennes 1

2000 **Modeling of a behavior in ants colony**
 Univ. Libre de Bruxelles
 Non-linear Phenomenon and Complex Systems laboratory

Knowledge transfer & Innovation

Per Instance Algorithm Configuration

Machine Learning & Optimization
 Open sourced & 4 publications

Won Black Box Optimization Competition 2017

Divide-and-Evolve for AI planning

Efficient implementation
 Open sourced & published

Won International Planning Competition 2011

Training courses on Wikipedia for researchers

French Computer Science Society & Wikimedia

<http://inria-alumni.fr/3-questions-a-johann-dreo-chercheur-en-algorithmique-et-wikipedi/>

Complexity-based planning decomposition

Multi-drones/missions for surveillance
 2 patents

Used in 4 Thales product/demonstrators
 Seen in Eurosatoy and Thales InnovDays trade show

Path planning w/ waysets constraints seq.

Aircraft taxi-routing ("GPS" for planes)
 Publication pending & 2 patents

Used in an avionics Thales product
https://youtu.be/ateRShJKU_8?t=1m29s

Constraints Management for Parallel EDAs

Defence system configuration
 1 patent & Thales award

Used in a Thales product demonstrator

Drone formation using swarm intelligence

Underwater mine sweeping
 Patented & published

Used in a Thales demonstrator

ParadisEO: C++ framework for Evol. Algo.

Maintener since 2008
 Open sourced

Used across several companies

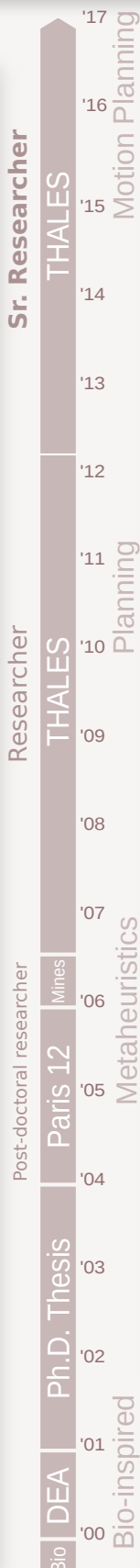
Elected board member of Wikimedia France

Popular science Wikipedia & co.

1725 citations, h-index = 13, i10-index = 16
 30+ publications, a translated book.

4500+ stars on github

Open source code: github.com/nojhan



2012
2012
2007-2012
2012
2006
2006
04-05
04
01-03
2001
2000