DR. MAXIME M. ALI-DIB

Data Scientist & Astrophysicist

PERSONAL INFO

- ❄ Age: 31
- ❄ Nationality: French
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MEDIA APPEARANCES

- NVIDIA
- Digital Journal
- Astronomy.com
- France 3
- Daily Mail
- CNN

SELECT TALKS

- European Space Agency (2020)
- University of Zurich (2018)
- University of Cambridge (2016)
- Cornell University (2014)
- University of Paris (2014)

SKILLS

- Complex and Non-linear systems modeling
- Statistical learning
- Numerical analysis
- Scientific technical writing
- Large teams management

LANGUAGES

English, French, Arabic

PEER-REVIEWED PUBLICATIONS

29 papers in total with 15 as first-author. List: Google scholar or NASA/ADS database.

ABOUT ME

Theoretical astrophysicist by training. I pioneered the use of machine learning and computer vision to study the surfaces of the solar system's objects, developing techniques that became widely used. I am moreover involved with the private sector, and an alumni of Canada's NEXT AI startup incubator.

WORK HISTORY & EDUCATION

Senior research scientist	**| New York University Abu Dhabi**
📅 2021 – now	📍 Abu Dhabi, UAE
Trottier research fellow	**| University of Montreal**
📅 2018 – 2020	📍 Montreal, Canada
Head of data science	**| Senso.ai**
📅 2017	📍 Toronto, Canada
CPS research fellow	**| University of Toronto**
📅 2015 – 2018	📍 Toronto, Canada
Visiting scholar	**| Cornell University**
📅 Oct – Nov 2014	📍 Ithaca, NY, USA
PhD in Astrophysics *with honors*	**| Universite de Franche-Comte**
📅 2012 – 2015	📍 France
MScs in Theoretical Physics	**| Université de Bordeaux**
📅 2010 – 2012	📍 Bordeaux, France

RELEVANT PROJECTS

Lunar craters identification with Deep Learning | 🔗 | 🌐

Between 2018 and 2020 I put together then led a broad team of scientists at the University of Toronto to create the first neural network capable of identifying craters on the surface of the Moon, using data from NASA's *Lunar Reconnaisance Orbiter*. Our model recovered 92% of the craters present in the test set and doubled the total number of known craters. The techniques we developed have became widely used in astronomy, archaeology, and Earth sciences.

Automating mortgages underwriting with Machine Learning | 🌐 | 🌐

In 2017, as the Head of Data Science for fintech startup Senso.ai, I modeled mortgages industry data spanning 25 years with Machine Learning. The model I built is still used to predict loans approval and customer early discharge probabilities. As part of this venture, I participated in Canada's NextAI, the country's largest incubator program.

Predicting planetary systems stability with Boosted Trees | 🔗 | 🌐

In 2016, I was part of a team that trained a machine learning model to classify the stability of planetary systems, using simulations-generated dataset. Our model has an accuracy higher than 87%, and is a 1000 times faster than centuries old techniques based on celestial mechanics. It is now used to analyze data from NASA's probe *TESS*.