

SONIA TABTI, PHD



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Location: Bordeaux, France

HIGHLIGHTS

- . I successfully supervised the data science aspects of several proof of concepts and products' development. In this context, I tackled complex industrial artificial intelligence use cases (water management, manufacturing, nuclear energy, ...), especially in Computer Vision
- . My contributions to the design of technical proposals for sales activities always allow to be shortlisted to gain prospect clients' contracts
- . I have supervised, published and presented many research projects at national and international conferences
- . I was preselected among seven other women in France for the "woman engineer in artificial intelligence award" organized by Challenges magazine on March 2023
- . 2020, 2021, 2023: I co-authored and presented the work done on various projects at Fieldbox at the DATAQUITAINE regional conference
- . I have been invited by the IEEE signal processing students' association of Bordeaux to present the work done in my research team to tackle industrial AI challenges and take part to a round table dealing with women in tech in May 2022
- . At the NAIA.R conference, I have been invited by Suez to take part to a round table dealing with the impact of AI in water management in a climate change context in December 2021

SKILLS

- . Computer Vision, Machine Learning, Artificial Intelligence (AI), LLMs, Applied Mathematics
- . Complex problems understanding and solving skills
- . Great communication skills to any profile (from technical to non-technical)
- . Application of a rigorous scientific methodology while ensuring project delivery on time
- . Strength of proposition, leadership and mentoring
- . Data: images, videos, tabular data, time series, text, point clouds
- . Programming languages: Matlab, Python, notions in C/C++
- . Code versioning: subversion, Gitlab, Github, Azure repos
- . Tools: LateX, Libre/Microsoft Office
- . OS: Linux (Ubuntu), Windows
- . Languages: french (mother tongue), english, arabic

EXPERIENCE

Cali Intelligences

June 2024 – Present

- Punctual expertise for new models' development or new products' launches
- Developed a workflow to semi-automate image labeling for a motorcycle helmet detection use case

ACC

Oct 2024 – March 2025

- Supervision of an AI team composed of 3 data scientists and 1 ML engineer
- Contributed to 3 use cases (2 predictive models on tabular data, 1 defect detection on images)
- Did the technical framing of two critical projects (one dealing with an advanced RAG system and one dealing with defect detection on 3D scans)
- I improved the agile methodology of the team

AI Forensics

Jan 2024 – Sep 2024

- Supervision of the NGI Search project on Large Language Models-based search engines adversarial-audit
- Supervision of the development of the data labeling infrastructure for the European elections' integrity project run by AI Forensics (Algorithms don't vote campaign)

Fieldbox : AI for industry, Bordeaux, France

2019 – 2023

- In 2023, I became **Head of the industrial AI Research (AI-R) team**
- From 2021 to 2022, I officially became the leader of the AI R&D team
- From 2019 to 2021, I was a lead data scientist, co-founder of an AI R&D team
- Among my missions:
 - Definition of the AI-R roadmap
 - Work on various research topics applied to industrial use cases (eg: imbalanced machine learning, predictive maintenance using sensor data, drift detection on sensor data with variational autoencoders, object detection, image classification, segmentation, interpretability, OCR, natural language processing...)
 - Technical and scientific watch
 - Supervision and management of team members
 - Write research papers and participate to conferences
 - Definition of internships topics and supervision of interns
 - Leading clients projects, especially in Computer Vision, from use case formulation, data collection, and modeling to deployment
 - Support presales and recruitment teams
 - Creation and edition of the internal tech newsletter in 2020

Post-doctorate fellow at the GREYC lab, Caen, France

2017 – 2018

- Collaborators: Julien Rabin and Abderrahim Elmoataz

- . Topic: Graph signal processing on images and 3D colored point clouds with variational approaches
- . Application: heritage preservation thanks to scanning art objects
- . Organization of a mini-symposium at the SIAM conference on Imaging Science

Post-doctorate fellow at University Federico II, Naples, Italy Sep 2016 – Dec 2016

- . Collaborators: Luisa Verdoliva, Giovanni Poggi (from the DIETI)
- . Topic: Dictionary learning with a sparse prior to remove speckle from synthetic aperture radar (SAR) satellite images

Teaching and research position at Université Paris Descartes 2015 – Sep 2016

- . While finishing writing my thesis manuscript, I was a teaching assistant for various courses of the Mathematics Bachelor
- . Courses: Mathematics and Calculus, Linear Algebra, Signal processing projects supervision

PhD candidate at the LTCI, Télécom Paris 2012 – 2016

- . Collaborators: Florence Tupin, Loïc Denis, Charles Deledalles
- . Topic: Build new sparse models and Gaussian-Mixture models with invariance properties dedicated to satellite SAR images
- . Application: SAR image restauration and classification

EDUCATION

- . **PhD at Télécom Paris** on applied Mathematics to SAR image restauration, 2016
- . **Master of Mathematics, Computer Vision and Machine Learning** (known as the MVA in France) at Ecole Normale Supérieure Paris-Saclay (ENS Cachan at the time), 2012
- . **Bachelor in Mathematics, Computer Science and Applications**, Université Paris Descartes, 2010

OTHER ACTIVITIES

- . 2023: I did an intervention at a french middle school to promote women working in tech thanks to the orientation day organized by the association Elles bougent
- . 2020: In the context of an event organized by the AMIES association (promoting Maths in industry) and the University of Bordeaux, I supervised a group of 3 PhD students and 1 young doctor to work intensively for a week on a scientific question I defined and worthy of interest for Fieldbox. We managed to publish a technical report on a new data augmentation technique dedicated to small multivariate time series

- . 2020: I was a member of a scientific committee to provide feedback on the Data science Master's program at the Bordeaux Ynov Campus
- . 2014: I was the representative of the PhD candidates in the department council of the LTCI lab at Télécom Paris
- . 2013, 2014: I participated to orientation events for Mathematics students at Université Paris Descartes