

# Jérémie Dentan

*PhD candidate in Machine Learning  
Security and Privacy*

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## About me

I am currently pursuing a PhD in [machine learning security and privacy](#) at École Polytechnique, Paris. My research focuses on emerging challenges in large language models, including data memorization, uncertainty quantification and adversarial robustness. I am seeking a [PhD internship](#) in machine learning.

## Selected Publications

- AAAI-26 *Guess or Recall? Training CNNs to Classify and Localize Memorization in LLMs.*  
(oral) **Jérémie Dentan**, Davide Buscaldi, Sonia Vanier.  
<https://arxiv.org/abs/2508.02573>
- Preprint *MUCH: A Multilingual Claim Hallucination Benchmark.*  
(2025/11) **Jérémie Dentan**, Alexi Canesse, Davide Buscaldi, Aymen Shabou, Sonia Vanier.  
<https://arxiv.org/abs/2511.17081>
- ECAI 2025 *Predicting memorization within Large Language Models fine-tuned for classification.*  
(spotlight) **Jérémie Dentan**, Davide Buscaldi, Aymen Shabou Sonia Vanier.  
<https://ebooks.iospress.nl/volumearticle/76259>
- Usenix Security 24 *Reconstructing Training Data From Document Understanding Models.*  
**Jérémie Dentan**, Arnaud Paran, Aymen Shabou.  
<https://www.usenix.org/conference/usenixsecurity24/presentation/dentan>

## Education

- Nov 2023– **PhD Candidate, École Polytechnique , Palaiseau, France .**  
Nov 2026 Measuring and Improving the Trustworthiness of Language Models.  
○ What amount of training data can we extract from language model?  
○ How to audit models during training and protect samples from memorization?  
○ Why does memorization happens and where is it encoded in the LLM?
- Sep 2022– **Master MVA: "Mathematics, Vision, Learning", ENS Paris-Saclay , France .**  
Aug 2023 A one year graduating program to specialize in machine learning and applied mathematics.  
○ ML courses: Convex Optimization, Deep Learning, Kernel Methods.  
○ Theoretical courses: Model & Information Theory, Geometric Data Analysis.  
○ Applications courses: ML for time series, ML for text and graph data, Detection theory.  
○ Seminars: Reproducible research and free software, Responsible ML.  
Final grade: 17.86/20 (highest honours).  
Master thesis: *Reconstructing Training Data from Document Understanding Models.*
- Sep 2019– **Master of Engineering, École Polytechnique Paris , France .**  
Aug 2022 "Cycle ingénieur polytechnicien, promotion X2019"  
○ [Computer Science and Machine Learning](#): Algorithmics, Deep Learning, Reinforcement Learning, Systems for Big Data, NLP, Database Management, Data Visualization, Federated Learning, Web Development, Object-oriented programming, Theoretical Computer Science.  
○ [Applied Mathematics](#): Statistics, Optimization and Control, Statistics.  
○ [Business](#): Microeconomics, Macroeconomics, Corporate Governance and CSR.  
Cumulative GPA: 3.89 (top 20%).

- Sep 2017– **"Classe Préparatoire MPSI/MP\*", Sainte Geneviève High School , France .**  
 Aug 2019 Similar to the beginning of a BSc in Mathematics and Physics, it is a 2-year intensive program preparing for the national competitive exam for entry to engineering schools.  
`Cumulative GPA:` 3.99 (ranked 5 out of 150).  
 Jun 2017 **French Baccalaureate, Military High School of Aix-en-Provence , France .**  
 Mathematics: 18th at "Concours Général" (most selective A-level competition in France).  
`Ranking:` 1st of Aix-Marseille Academy (>25k students). Grade: 20.68/20.

## Work experience

- Apr 2023– **Research Assistant, Crédit Agricole DataLab Group , Paris, France .**  
 Sept 2023 Worked on the first `model inversion attacks` that target document processing models.  
  - Adapted existing methods coming from computer vision and NLP to develop the `first existing attack` against document AI.
  - Designed an evaluation protocol and conducted extensive empirical evaluation of this attack.
  - `Paper under review` for Usenix Security Symposium 2024.
 Apr 2022– **Research Assistant, Oracle Labs , Zürich, Switzerland .**  
 Aug 2022 Worked on an internal tool for risk prediction, with a focus on its `entity resolution` pipeline.  
  - Used entity resolution techniques and applied them to real-world data pertaining to companies, including deduplication, record linkage and canonicalization.
  - Initiated and implemented a cross-project general-purpose entity resolution `API to centralize work` on that field.
 Jun 2021– **Business Analyst, Public Sector team, BearingPoint , Paris, France .**  
 Aug 2021 Various missions for the `digital transformation of French administrations`, including: diagnostic phase; project scope; funding plan; optimization of a financial audit software; software validation phase; project owner support.  
 Jan 2021– **Project Manager and Quality Manager, XProjets , Palaiseau, France .**  
 Dec 2021 A small consulting firm (100–150k€ turnover) run by a dozen students of Polytechnique.  
  - As quality manager, `optimized the internal processes` for our missions.
  - As project manager, ran several missions in technology for firms, startups and public administration, mainly in web development.

`Main accomplishment in 2021:` XProjets ranked in L30 (top 30 junior companies in France).

 Nov 2019– **Deputy Project Manager, French Embassy , Antananarivo, Madagascar .**  
 Mar 2020 Internship as a French armed-forces officer. Placement in the `diplomatic community`, and especially in the team of French-Malagasy cooperation for civil protection. Led Malagasy firemen in a fire station, and organized formations for Malagasy firemen and policemen.

## Languages and IT

- Languages French (native), English (fluent, TOEFL 100/120), German (elementary level, B1 certified), Spanish (beginner).  
 IT Languages `Prefered language: Python.` Good knowledges in JS, HTML. Knowledges in Java, C++, D3, VBA.

## Interests and activities

- Passions Very strong interest for classical and romantic music, played the piano for 12 years.  
 Sports Running, climbing, and mountaineering. I have also practiced tennis, judo, and badminton.  
 Army Merit Medal of the Malagasy Army, 2020, in recognition of my work for the military cooperation.