

François Amat

✉ contact@famat.me | 🌐 <http://famat.me/> | 📄 fran-cois.github.io

Education

IPP Paris - Télécom Paris

PhD in Explainable AI

Palaiseau, France.

2021 - 2024

Mining Patterns on Tabular Data, thesis supported by the Hi! Paris grant. Research projects:

- As the creator of RuleDump, I designed a framework that utilizes a "step" design pattern to seamlessly integrate all types of rule mining frameworks. RuleDump transforms databases into rule-based insights with a single command line, compatible with all SQL databases and knowledge bases. Leveraging Tuple-generating dependencies (TGDs), it uncovers complex data relationships. It's user-friendly, requiring just one pip installation and a single command line with a configuration file to mine rules. This framework is still work in progress because we shifted our focus on finishing Amie4. GitHub Repository: <https://github.com/famat-thesis/ruledump>
- I am presently leading the development of AMIE4, the next evolution in the AMIE rule mining system. Built on a "State" design pattern, AMIE4 leverages recursive functions to

efficiently mine and output Tuple-generating dependencies (TGDs) from any tabular SQL databases.

Despite having 10 times less code than Ruledump, AMIE4 offers enhanced functionality and performance. This streamlined design makes the system easier to maintain and update, without sacrificing its capabilities.

AMIE4 is a testament to the power of efficient code and design patterns, providing users with reliable, quick, and comprehensive rule mining from their databases. These advancements are set to bring new depth and versatility to the field of rule mining.

This endeavor, along with my ongoing work on RuleDump showcases my commitment to pushing the boundaries of what is possible in rule mining technology.

Participated in the following Summer Schools:

- Completed a one-week intensive program at The Algorithm Responsibility School organized by GDR RO (CNRS). Explored the ethical dimensions of algorithms and decision-making processes, focusing on healthcare, privacy, data protection, and security. Gained an understanding of defining fairness in algorithmic decision-making, environmental impacts of ICTs, and challenges in auditing personalized algorithms. Developed skills in model-aware data cleaning methods for ML pipelines and protecting user privacy in data-intensive applications using the ARX software suite. Explored the value alignment problem in autonomous agents and the importance of explainability in AI systems.
- Participated in a two weeks long Summer School program on the intersection of logic and law. Explored foundational concepts and methodologies, such as the Logocratic Method and propositional logic, for legal arguments. Gained a solid understanding of propositional logic's significance in constructing sound legal reasoning. Introduced to predicate logic, defeasibility, abduction, argumentation techniques, burdens of proof, presumptions, and analogical reasoning in legal contexts. Examined Deontic logic and its interaction with Hohfeldian concepts. Enhanced analytical and reasoning skills within the legal domain, with a foundation in logical thinking applied to legal practice.

Télécom Paris and Paris-Sud University

MS in CS

Paris, France.

2018 - 2019

Master degree Data and Knowledge: Web data management, knowledge, semantics, big data, data analytic from a semantic point of view.

Télécom Paris

Engineer degree in Data Science and Economics

Paris, France

2016 - 2019

Télécom Paris is one of the most prestigious and selective engineering schools in France.

Université Aix-Marseille (AMU)

BS in CS, Math, Physics and Chemistry

Marseille, France

2013 - 2016

Degree from Aix-Marseille University and from Centrale school of Marseille. With Honours.

Teaching

IPP Paris - Télécom Paris

Palaiseau, France.

Teaching Assistant

2021 - 2024

Instructor for INF731 Course (2022/2023): Practical Applications of Web Data

- Taught comprehensive modules on BERT and Information Extraction, enhancing students' abilities in natural language processing and data extraction.
- Developed coursework focusing on Web Development and Web Scraping, imparting skills in website design and programmatic data extraction.
- Integrated elements of Cybersecurity and the Semantic Web into the curriculum, offering students a practical understanding of network/data protection practices and data-sharing standards across applications.

Work experience

Dassault Systems: Netvibes/Exalead

Paris, France

Data scientist and Software engineer

2019 – 2021

In the product team I worked on Channels, a news-feed reader adapted to the user preferences, similar to Feedly.

- Implement and deploy tools using machine learning to extract and curate taxonomies from open resources.
- Design architecture between services, back, front and index.
- Backend in Java, JAX-RS, using proprietary continuous delivery plugged to AWS instances. Handled multi-tenant configuration

In the data science experience team, built software using semantics and Natural language processing.

- Prototyping and putting into production data science software
- Helped to create a data science framework shared with 10 engineers
- Word embedding, Topic modelling to detect industrial risk from news.

Pawee (Startup)

Paris, France

Co-founder and CTO

2016 – 2017

Three words pitch : Vet Online appointment.

Awards

- Start-up incubated at ESSEC Ventures (2017)
- 1st prize *start-up Week-end École Centrale de Paris*
- laureate of the *Prix Pépète 2017*

Skills

- Web development – laravel (PHP)
- Managing three interns.
- Devops on AWS Beanstalk

Deloitte Foundation

Paris, France

Internship Software engineer

2017 (One month)

Developed and adapted the website of the foundation's annual prize.

- Communicate and raise awareness in a large company.
- Web development – Framework Django (Python)
- Devops: Apache and wsgi

University College London

Tower, Minnesota, USA

Research internship

2015 (Two and a half months)

Involved in the Cherenkov Detectors In mine PitS (CHIPS) project about neutrino detection. In charge of the electronics and process automation of an experiment.

- Planned, convince and communicate efficiently in English.
- Prepared quotes, purchased components, automated the project.
- Published paper (arXiv:1610.06957)

Technical Skills

Programming Python, Bash, C, C++, HTML, CSS, SQL, PHP, LaTeX, Java. Systems : Linux, Windows, MacOS

Technologies: Created Iot (Internet of Things) objects on Arduino and Raspberry pi boards.

Languages French, Mother tongue. English C1. Effective operational proficiency (910/990 Toeic 2016) Spanish B1. Elementary