# Guillaume **Fradet**

AI SCIENTIST

☐ (+33) 7 70 79 30 97 | ✉ guillaume-fradet@hotmail.fr | 🏠 guillaume-fradet.com | 🔲 fradetguillaume

*Visit my website for more information (portfolio, interests, ...)*

## **Sum**mary

Hello! I'm Guillaume, a french AI research engineer.

In 2019, I graduated from ESILV Engineering School and obtained a Master 2 degree in Data Science from École Polytechnique. Sensitive to the #AIforGood movement, I sought to apply my skills in the medical field. I then embarked on a research internship where I compared various approaches to classify tumors using MRI images and radiomic data. It was a good experience, but that remained too academic. I wanted to join a project with the ambition to use these technologies to revolutionize current practices. This is how I began my adventure at the young Parisian startup AZmed. Our goal was to assist doctors (radiologists and emergency physicians) in analyzing their ever-increasing volume of medical imaging while staffing levels remained stagnant. I joined a team of 6 people in a global context where no AI had ever been deployed in a medical center. We were the first to do so in France, with the software Rayvolve, which enables fracture detection on radiographs. For 4 years, I contributed to developing, improving, and expanding the scope of analysis of the algorithms. Clinical studies showed a real gain in time and precision when comparing a doctor alone to a doctor assisted by Rayvolve.

By the end of 2023, Rayvolve had grown to be used in routine clinical practice across over 500 medical centers in 50 countries - a significant achievement for our small team. After this rewarding journey, I felt it was the right time to pursue a long-held dream of mine: taking several months to travel and gain new perspectives.

Now back, I am ready for a new challenge that pushes the boundaries of what's possible with AI!

## **Edu**cation

### **École Polytechnique**
MASTER 2 IN DATA SCIENCE

*Palaiseau, France*

*2018 - 2019*

- Advanced topics in Machine Learning
- Advanced Learning for Text and Graph Data
- Deep Learning
- Reinforcement learning
- Optimization for Data science
- Introduction to Graphical Models
- Big Data Framework (Hadoop, Spark, ES)

- Systems for Big Data Analytics
- Visualization and Visual Analytics for Data Science
- Data Stream Processing
- Machine Learning, Business case
- Big data & insurance
- Data infrastructure (NoSQL)
- Mixed Effects Models for the Population Approach

### **ESILV**
MASTER OF ENGINEERING

*Paris - La Défense, France*

*2014 - 2019*

- Major: Computer Science, Big Data and connected objects
- Activities and associations: Member and Communication Manager of the robotics association DaVinciBot (participated in the French Robotics Cup 2016 and 2017).
- Example of the classes followed:
  - Machine Learning and clustering
  - Mobile application development
  - Web Application Architectures
  - Adv topics in NoSql databases
  - Embedded Systems: architecture & programming
  - MVC: interfaces and data
  - Inferential statistics
  - Numerical analysis
  - SQL Database
  - Signal processing

### **Louisiana Tech University**
EXCHANGE PROGRAM

*Ruston, LA, USA*

*Fall 2017*

- Major: Computer Science
- Courses: Adv data structures & algorithms, Software design & engineering, Computer Networks
- GPA: 4.0 (A)

# Experience

### AZmed
#### Deep Learning Researcher

- Development and continuous improvement of 2 certified algorithms to detect abnormalities on X-rays:
    - Trauma algorithm (CE & FDA): detecting fracture, dislocation, and effusion on any body part
    - Chest algorithm (CE & FDA): detecting consolidation, pleural effusion, cardiomegaly, pneumothorax, and pulmonary nodules
- Research focus: Object Detection, Domain Adaptation/Generalization, Semi-supervised learning, Continual Learning
- Company growth: One of the first employees. From 0 to 500+ healthcare centers in production. From 3 to 30+ employees.
- MLOps responsibilities: Integration of the models into Rayvolve software (i.e. code of the inference), defining and developing the deployment process, AWS cost optimization.
- Code owner, responsible for PR reviews in the AI team.
- Cross-department collaboration: Served as the point of contact in the AI team for the Dev and Ops. Involved in product choices, HR processes (recruitment, onboarding, culture), and AI training for Business and CS teams.
- Technologies used: Python, PyTorch, AWS, Docker.
- *Article (Medium):* Domain Adaptation: the key to deploy algorithms on a large scale

### Capgemini Engineering
#### Data Scientist (intern)
*Vélizy-Villacoublay, France*

*April - September 2019*

- Project Focus: Applied machine learning methods on radiomic data and deep learning techniques on MRI images to classify, detect, and segment benign and malignant tumors (lipomas and liposarcomas).
- Clinical Impact: Aimed to reduce unnecessary biopsies by enabling direct diagnosis from MRI images, benefiting patients by avoiding invasive examinations and saving medical structures time and resources.
- Research Collaboration: Worked in collaboration with the biomedical imaging research laboratory CREATIS.
- Contributed to a publication in European Radiology Experimental following the internship.
- *Publication:* Prediction of lipomatous soft tissue malignancy on MRI: comparison between ML applied to radiomics and DL
- *Internship report:* Radiomics vs. Deep Learning to predict lipomatous soft tissue tumors malignancy on Magnetic Resonance Imaging

### SoftBank Robotics Europe
#### Full Stack Developer (intern)
*Paris, France*

*April - August 2018*

- Developed a web-app archiving system for NAO and Pepper robot test data.
- Application: "A.S.T.R.", a RESTful API-based web application, deployed across SoftBank Robotics.
- Open Source: Application and Python library available on the company's GitHub.
- Key Responsibilities:
    - Elaboration of specifications.
    - Technology choices.
    - Development of the web application (API and website).
    - Development of a Python library.
    - Managing the sending of large files to the server.
    - User management.
    - Advanced archive search.
    - Deployment management.
- Technologies used: Node.js, MongoDB, Express, Python, Git, Docker, Ansible
- *Source code:* the web application and the Python library

### Fishfriender
#### Developer (intern)
*Paris, France*

*June - July 2017*

- Automated the data retrieval and processing from partners.
- Inserted the adapted data into the application's database.
- Handled data from Excel spreadsheets and web pages using web scraping.
- Technologies used: Node.js, JavaScript, SQL, JSON

# Interests

- Traveling (dedicated 2024 to do that)
- Outdoor sports (climbing, hiking, running, mountaineering, scuba diving)