

# Zaccarie Kanit

☎ (+33) 6 51 47 93 04  
@ zaccarie.kanit@imt-atlantique.net  
in zaccarie-kanit  
n2oblife

## Languages

French - Native speaker  
English - Fluent - C1  
German - Professional - B2  
Arabic - Professional - B1

## Skills

### Programming

- Python, SQL, R, Matlab
- Java, C/C++, Rust, CMake
- Linux, bash, PowerShell
- VHDL RTL, TCL, FPGA, SystemC, RaspberryPi, ZedBoard
- PyTorch, LibTorch, AdapterHub
- sklearn
- Trankit, OpenNMT, SpaCy, CTranslate2, Stanza
- OpenMP, SIMD, Cuda
- OpenCV (C++)
- Unity, C#, Hololens
- Network, Sysadmin, SNMP, Cisco
- HTML, CSS, Javascript, Bootstrap, Wordpress
- gitlab, CI/CD, Docker
- JetBrains Rider / Pycharm
- Graphic and CLI debugging
- Azure

### Office skills

- Office Pack, Google Tools and AppScript
- LaTeX, Doxygen
- Zapier, AirTable

### Audiovisual editing

- Adobe Premier / Photoshop / Audition, Gimp
- FLStudio
- OBS

## Interests

### Sports

- karate black belt (8y), basket-ball in club (6y), biking (8y), thai boxe (2y)

### Leisures

- videogames' design (12y), bassist in a groupe (5y), theater at the Paris' Conservatory (4y), cinema talkshows (8y)

# Complete curriculum vitae

## Experience

**FPGA Engineer Intern**      **Bertin Technologies**      **March 2024 - August 2024**

- Bertin Technologies is a French compnay which pursues technological advances in the fields of Nuclear, Defence, Space, Big Science, Life Sciences and Health.
- Video enhancement algorithms R&D : Reading research papers, testing (matlab and python) and then **implementing in VHDL non uniformity correction** for the next generation of IR-camera, **defective pixels detection algorithm with low ressources** in pre existing projects, **writing a driver and interruption process in C with a RISC-V**.
- Shadowing of the product owner during meetings and project plannings.

**Software Engineer Intern**      **SIMULANDS**      **October 2023 - December 2023**

- A Swiss medtech startup that develops Human Grade simulators that replicate real procedural experiences with accurate device performance insights.
- Mixed Reality Software R&D and development : SotA benchmark, implementing a **Classical computer vision algorithm in C++ to segment and track surgical tools** with denoising and developpement of a position estimation algorithms / **algorithm optimization and parallelization** to ensure **real time computation** / **designing software architecture accordingly to hardware** to improve computation / integration of the computer vision application in the previous pipeline between the video stream and Unity / building AR Unity scenes / gamifying procedures to ease the learning curve / cybersecurity consulting to enhance safety of the project
- Database administration : migrating our subcontractor's database on Azure / creating a pipeline to perform redundant statistic analysis instead of the marketing team / data analysis of the trainings to give insights

**Research Assistant Intern**      **CEA List**      **April 2023 - August 2023**

- A research institute that focuses on digital systems to drive business competitiveness. Its Text and Image Analysis Laboratory studies Deep Learning models, their improvement and their use.
- Project : Researching a **state-of-the-art Transformer based NLP model** from Stanford studies / developing its training pipeline in Python using Adapter technology and implementating its conversion in C++ / training the model with CEA's cluster / developing the **inference using an optimized C++ engine** to achieve a high frequency of tokens computed / integrating my work into their multilingual NLP model / focusing on the **documentation and sustainability of the work**

**Network Administrator, Secretary, Training Manager**      **ResEI**      **2021 - 2023**

- A technical association providing a network of +3K machines across two campuses on different cities, and enabling members to acquire essential technological skills.
- Learning the ins and outs of project management in the field of network engineering as a **manager of a team of student administrators**. I also **ensured the legal framework of the association** and its events especially when planned with professional partners as board member.
- Organizing events such as the Google Hash code and the FedeRez Days and seting training programs for students to learn from the basis of IT to advanced network skills.
- Project : **Development of an inverter monitoring tool**

**Right hand of the CEO**      **PostExo**      **February 2022**

- Automation of the registering process using the website and Zapier to schedule meetings
- Process automation and website redesign
- Establishment of communication strategies using social media / website redesign with more flexible architecture thought to be adaptable

**Research Assistant Intern**      **Institut Curie**      **January 2015 - June 2015**

- Shadowing researchers once a week, performing basic manipulations to maintain growth of cultures and electrophorese to split the groups according to genes presence, and delivering presentations on the results and on the work performed

## Education

**MSc. - Electronics and IT**      **Technical University of Munich**      **2024-2026**

- 1st-ranked university in Germany
- **Courses** : embedded system for security, HW/SW codesign, machine learning. **Labs** : image and video Compression and high frequency system design. **Elective modules** : IoT security, ML and IT security, advanced cryptographic implementation, convex optimization, security in communication and storage

**MicroMaster - Statistics and Data Science**      **MITx**      **February 2023 - May 2023**

- Machine Learning in Python : From Linear Models to Deep Learning - 230h
- Slides and lab sessions teaching from **Linear Classifier and recommender systems to Unsupervised and Reinforcement Learning** with projects every week to apply the notions

- 4th-ranked engineering school in France
- Mathematics (measure theory, signal processing, Fourier analysis, stats and probabilities), Physics (wave theory and noise handling, telecommunication physics and RF, thermodynamic, fluidic mechanic, nuclear physics applied to decision making in central), **Computer Vision and denoising, Data management**, Sc Computing, **graph theory**, logistic optimization.
- Embedded Systems: **Algorithm-to-Chip Design & Processors Architecture Design** with theory and a practical project on image processing in real time using vhdL, Low-Level Software-Hardware Interactions with driver implementation in C++, High Level Synthesis Lab sessions using SystemC **Parallel Computing** theory and bottlenecks studies, Stochastic Dynamic Modeling and Bayesian inference, **Deep Learning Optimization** through the teaching methods and inference computation time and power
- School Projects: **DevOps of a Deep Learning based audio measurement service in Docker** and .deb with Orange (telecom company) / preliminary study of an electronic waste recycling startup
- Research Projects: Implementation of a **Fast resolution algorithm in C++ to compute eeg signals in real time / state-of-the-art in ML comparing CNN and Vision Transformer in term of inference time and resources consumption** / course given by myself on Inversible CMOS Logic to introduce this field of research to students in order to follow a Naoya Onizawa conference

**BSc. - Mathematics and Physics, preparatory classes**

**Lycée Fénélon**

**2018 - 2021**

- Preparatory classes, are intensive programs designed to prepare students for admission to prestigious engineering schools in France
- Advanced theoretical studies in **Mathematics** (algebra, analysis, geometry, and calculus), **Physics** (classical and fluidic mechanics, classical optics and wave propagation optic, electromagnetism, thermodynamics and quantum mechanics), Chemistry, IT and **algorithmy**
- Days of practical lab sessions to apply chapters from physics and chemistry

**High School Diploma, Baccalaureat of Science**

**Lycée Henri IV**

**2015 - 2018**

- A beacon of academic excellence in France, 2nd best French high school
- With Honors, studying Sciences and specializing in **Mathematics and Computer Science**

## Volunteering

**President**

**Kebab Club**

**2021 - 2022**

- Weekly sale of a hundred of homemade kebabs on campus with a team of 8 other students.
- **Organizing the logistics and communication** of each event with a focus on hygiene and security.
- Creating new partners relationship with local actors to have fresh products.

**Vice-President**

**Arts Committee**

**2021 - 2022**

- The Art Committee is the organization which manages events and clubs on the campus. The Bureau is elected by students according to the capacity of a team to conduct art oriented events.
- **I managed a team of 18 students** with respective broad roles. I managed this team through my term and filled paper to ensure the legal framework and security of all the events.
- The events : concerts by students and local musicians, western France cultural events, a week of artistic events with local performers, a cultural trip in Amsterdam for 90 students.

**Sound & Light Manager**

**S&L Club**

**2021 - 2022**

- **Technical installation of electrical equipment** providing sound and lighting for events, including acoustic preparation of amplifiers based on the venue and configuration of ambient lighting
- Drafting **security files** for all events to prevent risks caused by the gathering of large crowds during events

**Project Manager**

**Sustainable Development Bureau**

**2021 - 2022**

- Bike-sharing projet : managing the renting system, maintaining the parc et do paperwork
- Orchard Project: Maintenance and planting of apple tree samplings on campus / teaching to students how to take care of an orchard

**Mathematics and Physics Teacher**

**Renovo**

**2016 - 2022**

- Teaching to classes of students from disadvantaged neighborhoods during the holidays
- Cultural and inspiring outings in museum and local startups and companies with the students

**Food Assistance**

**Ensemble pour l'Avenir**

**2012 - 2016**

- Preparation and meal services of 150 covers per evening to homeless people during summer holidays