

# Elisa Billard

Master Student in Life Science Engineering at EPFL - French and Swiss  
[Linkedin](#) - [Personal Website](#)



## PROFILE

I am a Computational Biologist from EPFL, specialised in Biological Data Science. I am actively seeking a PhD position for 2026 to develop scalable computational tools for complex omics and cancer diagnostics.

## CURRENT ACTIVITY

### Research Student in Pietro Liò's Computer Lab, Cambridge University

CAMBRIDGE, UK — October 2025 - March 2026

Master thesis in deep learning for cancer diagnosis using spectral pathology (Infra-Red & Raman). Developing CycleGAN-based and U-Net virtual staining models to generate reliable histopathological (H&E) images. Supervised by Prof. Pietro Liò (University of Cambridge) and Prof. Charlotte Bunne (EPFL). Honoured by the Karl Zeno Schindler Foundation Grant.

## EDUCATION

### Master (Grade: 5,5/6) in Life Science Engineering at EPFL — 2023 - 2026

Specialisation in Biological Data Science: Machine Learning (grade 5/6), Applied Data Analysis (grade 5.75/6), Digital Epidemiology, Genomics and bioinformatics, Bioimage informatics, Biostatistics

Biology courses: Stem cells, Infection biology, Neurodegenerative diseases, Endocrinology

### Bachelor (Grade: 5,1/6) in Life Science Engineering at EPFL — 2019 - 2022

Life sciences: biochemistry, organic chemistry, synthetic biology, immuno-engineering, neuroscience, oncology, physiology, genetics & genomics. Engineering and programming: oriented object programming, various languages, machine learning, physics, algebra, statistics & probability

### Lycée Français de Zürich (LFZ) — 2016 - 2019

French scientific baccalaureate, grade: 20/20

## PAPERS AND GRANTS

- **PhyClust: efficient and optimal node clustering in phylogenetic trees.** Ganesan, K., **Billard, E.**, Kaufmann, T. L., et al. (2025)., a threshold-free algorithm that partitions taxa in phylogenetic trees into monophyletic clusters (Preprint on BioRxiv).
- **Karl Zeno Schindler Foundation Research Grant** (2025): funded project (12 000 CHF) on deep learning approaches for spectroscopy image analysis under supervision of Prof. Pietro Liò - Cambridge University and Prof. Charlotte Bunne - EPFL.

## **PROFESSIONAL EXPERIENCES**

### **Computational Biology Intern, Orakl Oncology**

**PARIS, FR — February 2025 - July 2025**

Analyzed 150+ patient-derived organoids and improved biomarker identification pipeline (driver mutations, transcriptomic signatures) using WES and RNA-seq data.

### **Research Student in the Bitbol Lab, EPFL**

**LAUSANNE, CH — September 2024 - January 2025**

Fine tuning the protein language model ProtMamba to predict the functionality of a new protein.

### **Research Student in the Schwarz Lab, Institut for Computational Cancer Biology**

**COLOGNE, DE — March 2023 - July 2023**

Computational research in cancer evolution and tumor heterogeneity surrounding the automated detection of closely related clones in phylogenetic trees of cancer evolution. Work resulted in the PhyClust publication (Ganesan et al., 2025).

### **Intern at AstraZeneca Site Management and Monitoring Oncology**

**HAMBURG, DE — Sept 2022 - Jan 2023**

Clinical trial challenge identification in Oncology Site Management.

### **Intern in the van der Goot Lab of Cell and Membrane Biology at EPFL**

**LAUSANNE — Feb 2022**

Wet lab research on TMED2/TMED10 proteins in ER-Golgi communication.

**Student Assistant for the course Applied Data Analysis, EPFL — 2024 - 2025**

**English and Math teacher for students in apprentice at GPA — 2022 - 2023**

**Active Member of Polyquity promoting equality on campus — 2021 - 2022**

## **PROJECTS**

- Design of Binder Proteins Targeting PDGFR β With RFdiffusion, ProteinMPNN, and AlphaFold
- Image-based Cell Cycle Phase Classification using Deep Learning in Python (Convolutional Neural Network, Data augmentation, Transfert Learning)
- Digital Epidemiology Website for the surveillance of pollen allergies (Streamlit, Google API)
- Movie data analysis to unravel gender stereotypes in Python (Clustering, Natural Language Processing, Sentiment Analysis, Statistical Analysis) available online: <https://elisabillard.github.io/>
- Google Hackathon in Paris using Gemini for hospital patient record uniformization

## **PROGRAMMING TOOLS & SKILLS**

Python (PyTorch, Scikit-learn), C++, Julia, R, Java, Git, Google Colab, Docker

## **LANGUAGES**

French (native), German (C1), English (C1), Spanish (B1)

## **HOBBIES**

Listening to podcasts, traveling by train