

# Loïs Bilat

05.09.1997  
Swiss

@ lois@bilat.xyz    +41 78 652 29 56    1807 Blonay – Switzerland    bilat.xyz    in lois-bilat    billotais

## EDUCATION

### Master of Science in Computer Science

EPFL

2018 – 2020    Lausanne, Switzerland

- Specialization : Data Analytics
- Semester project : Audio Denoising with Generative Models - 6.0 / 6.0
- Master Thesis : Cross-lingual Toxicity Detection - 6.0 / 6.0
- Final GPA : 5.83 / 6.0

### Bachelor of Science in Computer Science

EPFL

2015 – 2018    Lausanne, Switzerland

- Optional Track : Visual Computing
- GPA : 5.47 / 6.0
- Study exchange at Linköping Universitet, Sweden. 2017 – 2018, GPA : 5.97 / 6.0

### Maturité Gymnasiale

Gymnase de Burier

2012 – 2015    La Tour-de-Peilz, Switzerland

- Specific Option : Physics and application of Mathematics
- Complementary Option : Computer Science
- Excellence award in Physics
- GPA : 5.32 / 6.0

## EXPERIENCE

### Junior Data Scientist

ELCA Informatique SA

2020 - ongoing    Lausanne, Switzerland

### Master Thesis / Internship

EPFL / ELCA Informatique SA

2020    Lausanne

- Master Thesis on Cross-lingual Toxicity Detection
- Developped a cross-lingual toxicity detection system with API access and a web interface
- Used advanced Transformer-based models and implemented various improvements to existing models

### Student Assistant

EPFL

2019 - 2020    Lausanne, Switzerland

- Student assistant for a computer science course given to mathematics and physics bachelor students (ICC - Information, Calcul et Communication)
- Helping them with C++ assignment and various theoretical exercises

### Summer Job in an Architectural Firm

ABA Partenaires SA

2018    Lausanne, Switzerland

- Modification and correction of blueprints
- Processing replies to requests for tender

### Web development

yvesbilat.ch

2016

- Creation of a website for an entrepreneur using WordPress

## LANGUAGES

French - Mother Tongue    ●●●●●

English - B2    ●●●●●

German - B2    ●●●●●

## PROGRAMMING LANGUAGES

Python    ●●●●●  
Java    ●●●●●  
Scala    ●●●●●  
C/C++    ●●●●●  
SQL    ●●●●●  
PHP    ●●●●●  
HTML    ●●●●●  
CSS    ●●●●●  
LaTeX    ●●●●●  
OpenGL    ●●●●●  
Assembly    ●●●●●  
VHDL    ●●●●●  
JavaScript    ●●●●●

## SKILLS

### Topics

Machine Learning    Deep Learning  
Data Analysis    Artificial Intelligence  
Reinforcement Learning  
Natural Language Processing    Computer Vision

### Libraries

Pytorch    Scikit-learn    Transformers    Numpy  
Pandas    Flask    Keras    Spark    OpenCV  
nltk    Matplotlib

### Applications and Tools

VS Code    Git    Docker    Jupyter Notebooks  
Anaconda    IntelliJ IDEA    Android Studio  
Wordpress

### Operating Systems

Linux (Archlinux, Ubuntu)    Windows 10

## PROGRAMMING PROJECTS

---

### Cross-lingual Toxicity Detection

 [Master Thesis](#)

 2020

 EPFL - ELCA Informatique SA

With the increasing use of social media, there is a critical need for performant automatic moderation tools. In this thesis, we present advanced classifiers that can detect hateful and offensive content in short texts. We study various architectures based on transformer models such as BERT and evaluate multiple changes to those models that improve their performance. We then tackle cross-lingual classification and introduce new architectures that use joint-learning and data translation. Our models are able to outperform existing multilingual models on zero-shot and multilingual classification. [PyTorch](#)

[Transformers](#) [Docker](#)

---

### Denoising with Generative Models

 [Semester Project](#)

 2019 - 2020

 EPFL - VITA Lab

Generative adversarial networks have often been used for image processing (for instance denoising and super-resolution). However, those techniques are less common in audio applications. The goal of this project is to first evaluate state-of-the-art techniques for audio denoising and audio super-resolution, and then to try to apply some of the Generative methods used in image processing to audio processing. [Python](#) [PyTorch](#)

---

### Detecting Bias in Amazon reviews

 [Course Project](#)

 2018

 EPFL

A Data Story about the potential bias that can be found in Amazon user reviews, and how to correct it. We worked on 20GB of comments extracted from various Amazon articles, and used multiple tools including Pandas, pyspark, and matplotlib. [Python](#) [Pandas](#) [Matplotlib](#) [Jupyter notebook](#)

---

### The Quest for The Holy Grail

 [Course Project](#)

 2018

 LiU

Creation of a 3D maze game with different objectives, world physics, lightning effects, drawing optimisation. user interface and sound effects. [C](#) [OpenGL](#)

---

### Tankode

[Junction Hackathon](#)

 2017

 Helsinki, Finland

Creation of an educative video game where the behavior of a Tank had to be programmed by the user. This game was programmed in less than 48 hours using Android Studio, in a team of 4 people. I had the opportunity to learn how to work efficiently in a team by splitting the work in an optimal way. [Java](#)

[Android Studio](#)

---

### 3D game - Tangible user interaction

[Course Project](#)

 2017

 EPFL

Creation of a dexterity 3D game where the environnement had to be controled by moving a LEGO board in front of a camera. It implemented some image processing and recognition and was done using *Processing*. [Java](#)

---

### XBlast

[Course Project](#)

 2016

 EPFL

Creation of a multiplayer video game based on the game *Bomberman*. It could be played by up to 4 player on different computers. [Java](#)

---

### Calcul Mental

 [Android Application](#)

 2015

Creation of an Android app that people can use to do some small calculations (additions, subtractions, multiplications and divisions). Different modes, such as a test mode, a timed mode and a rush mode are available. [Java](#) [Android Studio](#)

---

### La Pipopipette

 [Travail de Maturité](#)

 2014

 Gymnase de Burier

Creation of a multiplayer video game for iOS based on the game *Dots and Boxes*. An artificial Intelligence was implemented. [Objective-C](#) [Xcode](#)