

Théo Lemaire

Bioengineer & Versatile Programmer

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EXPERIENCE

Ph.D. in Neuroengineering | TNE Lab, EPFL

📅 Apr 2016 - Present 📍 Campus Biotech, Geneva, CH
Developing computational models to understand and optimize *Ultrasound Neuromodulation* at sub-cellular, cellular and anatomical scales. 🔗 [Web app](#)

Ski & Snowboard Instructor | Ecole du Ski Français

📅 Jan 2013 - Present 📍 Monts Jura, FR
Teaching private and collective lessons to skiers of all levels and ages. In charge of local competition group since 2016. State diploma training currently underway.

Mathematics Teacher | Institution Jeanne d'Arc

📅 Nov 2015 - Dec 2015 📍 Gex, FR
Managed 3 classes (ca. 75 students, ranging 10-15 years old).

Software Engineer Intern | Zenith Technologies

📅 Apr 2013 - Aug 2013 📍 Cork, IRL
Designed a C++ application to extract relevant data from a database and provide team leaders with a comprehensive overview of their project's evolution. Created VBA scripts used by collaborators to generate documentation.

Kinesiology Lab Intern | Geneva University Hospitals

📅 Aug 2012 - Jan 2013 📍 Geneva, CH
Developed a *MATLAB* framework (UI, processing & graphing tools, interaction with hospital database, automated reporting) to analyse biomechanical data from clinical exams. Used by lab members for daily reporting and scientific publications.

ACADEMIC PROJECTS

Master's thesis in Neuroprosthetics | TNE Lab, EPFL

Assessed the performances of different types of implantable electrodes within a peripheral nerve, using FEM models of electromagnetic propagation (*Sim4Life* platform) coupled to morphological neuron models (*NEURON* simulator).

Project in Biorobotics | BIOROB Lab, EPFL

Developed the image processing pipeline and navigation strategy for a differential wheeled robot to complete a slalom course through rectangular gates.

Project in Digital Humanities | DH Lab, EPFL

Developed an innovative spatio-temporal epidemics model to study the propagation of the Plague in the city of Venice during Middle-Age. 🔗 [Venice Atlas](#)

TECHNICAL SKILLS

Python

Computing & analysis stack (*numpy - scipy - pandas - matplotlib*)
• Machine learning (*scikit-learn*) • PDE systems & FEM models
• Multi-threading/processing • Neural simulations in *NEURON*
• *Jupyter notebooks* • Automation tasks • Interaction with APIs

C++

Object-oriented programming • IO streams • XML-querying •
GUIs • Multi-threading (*Boost*) • 3D graphics (*OpenGL*) •
mathematical libraries (*FFTW*, *Eigen*)

Matlab

Scientific computing • Machine learning • GUIs • SQL queries

Front-end web

Responsive web pages (*Javascript - HTML - CSS - Bootstrap*) •
Interactive visualizations (*D3JS - Plotly*) • Interactive UI
components (*React.js - Dash*)

MS Office

Word - Excel - Powerpoint • Automation with Python / VBA

📁 Git • 🎨 Illustrator • 📄 L^AT_EX • 🖱️ LabVIEW

EDUCATION

MSc in Bioengineering Minor in Neuroprosthetics EPF Lausanne

📅 Sept 2013 - Sept 2015 📍 Lausanne, CH
GPA: 5.34 / 6.0

BSc in Life Sciences & Technologies EPF Lausanne

📅 Sept 2009 - July 2012 📍 Lausanne, CH
GPA: 4.92 / 6.0

Scientific baccalaureate Lycée Int. Ferney Voltaire

📅 Sept 2006 - July 2009 📍 Ferney, FR
GPA: 18.71 / 20.0

COURSEWORK

Graduate

Sensorimotor neuroprosthetics
Flexible bioelectronics
Image processing • Machine learning
Dynamical systems • Biomechanics
Gait analysis & modeling
Computational motor control
Bioinformatics • Systems biology
Digital humanities

Undergraduate

Analysis • Algebra • Physics
Chemistry • Organic chemistry
Cellular biology • Molecular biology
Numerical analysis • Statistics
Electronics • Signal processing
Programming (C | C++ | Matlab)
Development biology • Microbiology
Physiology • Genetics • Genomics
Fluid dynamics • Transport phenomena
Biothermodynamics • Neuroscience

LANGUAGES

French ●●●●●
English ●●●●●
German ●●●○○
Russian ●○○○○

HOBBIES

🔬 Science 🥋 Taekwondo ⚽ Football 📺 TV Shows
🎿 Skiing 🏔️ Hiking 🚴 Cycling 🌍 Travels