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 Engineering 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 preformances 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-quering • GUIs • Multi-threading (*Boost*) • 3D graphics (*OpenGL*)

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** • **LaTeX** • **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