Elsa Guillot

Bioinformatics and modeling - PhD

Address
Vienne, France

Info
+33 7 82 85 79 32
French Citizen

Mail
elza.guillot@gmail.com

Competences

Management

- Team leadership
- Project planning and execution
- Cross-field communication

Computational tools

R, python, git, GitLab, docker, LaTeX, bash, unix

BioInformatics

- OMICS
- Single-cell transcriptomics

Data analysis

- Applied Statistics
- Multivariate Statistics
- Databases(SQL)
- Bayesian inference
- Machine learning

Modeling

- Mathematical methods
- Simulations
- Implementation
- Inference

With 8 years experience in academia and 4 years of experience in a biotech start-up, I have a wide range of skills in omics data analyses and modeling. Able to navigate between technological question, deep modeling paradigm and new biological questions, I thrive when orchestrating the complex ecosystem of modern biotech data science. I am currently looking for a leadership position in data analyses of biological systems.

Experience

2022–2024 **Chief of Operations and Technology** — Lyon, France
VIDIUM SOLUTIONS
Led Vidium's processes and development
- Led internal development of modeling, bioinformatics and programming teams
- Planned project workflows on short, mid and long terms
- Defended Vidium's technological capabilities in front of potential clients and investors
- Implemented working strategies to reach high quality standards in code and analysis

2020–2024 **System Biologist** — Lyon, France
VIDIUM SOLUTIONS
Analyzed omics data combining bioinformatics, statistics and in-silico models
- Programmed a bioinformatics pipeline for single cell and bulk transcriptomics
- Designed innovative statistical tools for trajectory inference based on transcriptomics
- Developed simulation based inference method for in silico modeling
- Applied system biology techniques to infer results from multiple client omics data
- Assisted in the design of omics experiments
- Planned and executed clients projects
- Mentored junior system biologists

2018-2020 **Lecturer in Statistics** — Bristol, UK
University of the West of England (UWE)
- Provided statistical expertise to a wide array of research projects from robotics to biomedical studies
- Taught mathematics and statistics in Bachelor and Master modules: statistical methods, multivariate data, big data, numerical methods
- Post Grad Cert in Learning and teaching Higher education
- Developed new modules: Foundation mathematics (transition year) and Machine learning for engineer (post-grad) in coordination with Airbus

Languages

French: mother tongue

English: bilingual
10y. work experience in an international context, spoken at home

Hobbies

Family time

Biking

Reading

2015-2018 **Post doctoral researcher** Lausanne, Switzerland
University of Lausanne
Research on statistical genetics (detecting signals of selection in Humans)
- Bridged the methodological gap between population genetics and omics evo-devo teams
- Developed new method with simulation in python and inference in R
- Assisted fellow post doc and students in statistics and bioinformatics
- Supervision of master students
- Head assistant of population genetics class
  - Lead 8 teaching assistants, scheduling, supervising, mentoring
  - Planned and assisted the practicals
  - Developed new teaching material

2011-2015 **PhD Candidate** Palmerston North, New Zealand
Massey University
Research on modeling complex social behavior in population genetics
- Developed new simulator in C++ for population genetics
- Analysed sequencing data from human populations
- Applied several Bayesian based inference tools
- Taught first year statistics
- Developed a training module in python for fellow researchers

Education

2011-2015 **PhD Statistical genetics** Massey University, Palmerston North, New Zealand
Population genetics/Simulations/Inference/Anthropology/Big data

2010–2011 **MSc, Complex system modeling** IXXI & ENS de Lyon, France
Statistics/Mathematics/Programming/Complexity/Big data

2006–2011 **MSc Bioinformatics and modeling** INSA de Lyon, France
Engineering/Statistics/Mathematics/Programming/Omics

Selected Publications

- Lansing, J.S., C. Abundo, G.S. Jacobs, E.G. Guillot, S. Thurner, S.S. Downey, L.Y. Chew, T. Bhattacharya, H. Sudoyo and M.P. Cox (2017) Kinship Structures Create Persistent Channels for Language Transmission. Proceedings of the National Academy of Sciences. doi:10.1073/pnas.1706416114
- Guillot, E.G., M.L. Hazelton, T.M. Karafet, J.S. Lansing, H. Sudoyo and M.P. Cox (2015) Relaxed Observance of Traditional Marriage Rules Allows Social Connectivity without Loss of Genetic Diversity. Molecular Biology and Evolution 32:2254-2262 doi: 10.1093/molbev/msv102
- Guillot, E.G. and M.P. Cox (2014) SMARTPOP: Inferring the Impact of Social Dynamics on Genetic Diversity through High Speed Simulations. BMC Bioinformatics 15:175 doi 10.1186/1471210515175