

PERSONAL INFORMATION

Family name, First name: **Laine, Elodie**

ORCID unique identifier: 0000-0003-4870-6304

Date of birth: 1983-07-28

Nationality: French

URL for web site: <http://www.lcqb.upmc.fr/laine>

• EDUCATION

- 2020** **Habilitation** (HDR, highest French degree for supervising research)
Life Sciences Department, Sorbonne Université (SU), France
This diploma acknowledged my ability to lead and supervise research. Demonstrated by supervising 2 Post-docs and 3 PhD students from 2013 to 2020, which resulted in 7 research articles where they are leading authors and I am co-last co-corresponding author.
- 2009** **PhD in Life Sciences** from the University of Pierre and Marie Curie, France
Host lab: Structural Bioinformatics Unit (Head: M. Nilges), Institut Pasteur, France
Advisors: T.E. Malliavin and A. Blondel
The Institut Pasteur is an internationally renowned centre for biomedical research. In my work here I contributed a novel drug discovery strategy targeting protein motions and I published 7 articles.
- 2006** **Engineering Diploma (equivalent to Masters)**, Biosciences, Bioinformatics, and Modelling specialty, National Institute of Applied Sciences (INSA) of Lyon, France. At this "Grande Ecole" I was ranked 15th of 660 at the end of the preparatory cycle (first 2 years). I went abroad to conduct my first research project, which dealt with signaling pathways modelling at the Bioinformatics Research Centre, University of Glasgow, Scotland, with D. Gilbert.

• CURRENT POSITIONS

- 2023 – present** **Head of the PROMISE project team**, Laboratory of Computational and Quantitative Biology (LCQB), Institute of Biology Paris-Seine (IBPS), French National Centre for Scientific Research (CNRS) and SU, France. The project-team is supported by a **Consolidator Grant of ~2M euros from the European Research Council (ERC)**.
- 2023 – present** **Junior member of the Institut universitaire de France (IUF)**, France.
The IUF annually affiliates university researchers distinguished by the excellence of their research.
- 2023 – present** **Full Professor**
Life Sciences Department and LCQB, IBPS, CNRS and SU, France.
- 2018 – 2023** **Head of the MASSIV project team**, LCQB, IBPS, CNRS and SU, France. I have been leading a team comprised of 1 Associate Professor (H. Richard, SU and Robert Koch Institute), 1 Post-doc and 8 Masters and Bachelors students. I created the team upon receiving a **Young Researcher Grant (14% success rate) of 205,000 euros** from the French National Research Agency (ANR). The team has developed 2 novel and efficient computational methods, 1 web-server, 1 medium-size knowledge base, and has published 2 research articles and 1 application note.
- 2012 – 2023** **Associate Professor ("Maîtresse de Conférences")**
Life Sciences Department and LCQB, IBPS, CNRS and SU, France.

• PREVIOUS POSITION

- 2009 – 2012** **Post-doctoral fellow**
Laboratory of Biology and Applied Pharmacology, CNRS and Ecole Normale Supérieure (ENS) de Cachan, one of the most selective French "Grande Ecoles". I took the lead on a new research theme in the lab, on receptor tyrosine kinases. I developed an original approach for rationalising and controlling allostery in proteins and used it to counterbalance the effects of a cancer-related mutation. Beyond 7 direct publications, my work fostered new research directions, leading to the recruitment of 4 PhD students on the same theme and to key collaborations with mathematicians.

• FELLOWSHIPS AND AWARDS

- 2015 – 2025** **Holder of the SU awards** for excellence in research, 2015-2019 and 2021-2025, and for pedagogical innovation, 2017-2021, SU, France
- 2011** **PhD award** from the Group of Graphism and Molecular Modelling, France
- 2006 – 2009** **PhD grant** from the Mission for Scientific Research and Innovation of the French Ministry of Defence. This highly selective award is based on scientific excellence.
- 2001 – 2006** **Merit scholarship** (600E/month, 5 years) from the French Ministry of Higher Education, Research and Innovation. This highly selective award is based on A-level grades.

• TEACHING ACTIVITIES

- 2022** **Executive chair and teacher of the *i-Bio* summer school AI for Biologists**, SU, France.

- 2021** Teacher at the AlgoSB winter school **Machine learning methods to analyse and predict protein structures, dynamics and function**, CNRS, France.
- 2021** Teacher at the INDEPTH school on **Protein-Protein Interactions**, U. Warsaw, online.
- 2016 – present** Co-creator of the innovative cross-university collaborative course **Meet-U** immersing Masters students into the research ecosystem with project-based learning, flipped classrooms, and "coopetition". It ends with a symposium where the students become actors of a scientific community. We published an educational article (*PLOS CB*, 2019). I extended the initiative at the European level with colleagues from Heidelberg, Warsaw, and Prague.
- 2014 and 2017** Teacher and organiser for two editions of the summer school **Scientific Trends at the Interfaces**, Institute of Computing and Data Sciences of SU, France.
- 2012 – present** Designer and Supervisor of Masters 1 research projects (1-2 students/year).
- 2012 – present** Professor, SU, France. Programming, algorithmic, bioinformatics, and AI to students from all levels, with backgrounds in biology, computer science, physics, and medicine.

• SCIENTIFIC PRODUCTION

- 2008 – present** I have published **46 research articles** in international peer-review journals, 13 as first author, 15 as co-corresponding last or next-to-last author, 3 reviews, 1 education article, and 1 book chapter.
- 2012 – present** I have contributed to **11 computational tools, 3 web servers and 2 knowledge bases**. I systematically make my developments available and usable for the scientific community.

• SUPERVISION OF GRADUATE STUDENTS AND POSTDOCTORAL FELLOWS

- 2011 – present** I have supervised **2 Post-docs** (~2 years each), **8 PhD students**, and over **15 Master interns** at LCQB and SU. Two former Post-doc/PhD students are now Assistant Professor and Researcher (permanent positions) in France and one received a prestigious Marie Curie Fellowship in 2021.

• SCIENTIFIC ANIMATION AND DIFFUSION

- 2015 – present** Session Chairperson and Scientific Committee Member for 11 conferences, symposia and workshops, among which 5 at the international level (35-100 participants)
- 2011 – present** Invited seminars in 4 international conferences: EMBO Workshop on Computational Structural Biology, **2023**, Nobel Symposium NS184 "Towards characterizing the human 3D-proteome", **2022**, Sweden; PDCLifeS workshop of the 26th International European Conference on Parallel and Distributed Computing (EURO-PAR), **2020**, virtual; 16th International Symposium on Mathematical and Computational Biology, **2016**, China.
- Invited seminars in 3 French learned societies' meetings: Plenary Annual Meeting of the Molecular Bioinformatics Research Network, **2021**, France; Semestrial Meeting of Evolution in Paris, **2019**, France; Group of Graphism and Molecular Modelling Annual Meeting, **2011**, France.
- 2021 – present** Participation to 7 articles for the general public.

• INSTITUTIONAL RESPONSIBILITIES

- 2022 – present** Elected co-Head of the interdisciplinary division in Bioinformatics, Mathematics, and Statistics for Biology, Life Sciences Department, SU, France.
- 2021 – 2022** Nominated Member of the *i-Bio* work group for educational initiatives at the interface between Biology and other disciplines at SU.
- 2020 – present** Nominated Referent for open science at the LCQB, SU, France.
- 2019 – present** Elected Member of LCQB's committee, SU, France.
- 2014 – 2015** Scientific Council Member for calculation and simulation, SU, France.

• REVIEWING ACTIVITIES

- 2017 – present** Member of the hiring committees for 3 Associate Professor positions, France.
- 2019 – present** PhD jury member in 13 committees, 6 as reviewer and 7 as examiner, France.
- 2019 – present** Program Committee Member to 6 international conferences: Intelligent Systems for Molecular Biology ISMB (2019-2023), WABI (2021-2023), ACM-BCB (2019).
- 2018 – present** Reviewer for 6 grant applications to French and European agencies (Austrian Science Fund, the Medical Research Council, the Israel Science Foundation, PRACE).
- 2015 – present** Reviewer for top international journals in biochemistry and molecular biology: *Nucleic Acids Research*, *Genome Biology*, *Molecular Biology and Evolution*, and in bioinformatics and computational biology: *Bioinformatics* and *PLOS Computational Biology*, among others.

• MEMBERSHIPS OF SCIENTIFIC SOCIETIES

- 2022 – present** co-Founder of the working group on Machine Learning for Genomics LEGO, part of the scientific society for Molecular Bioinformatics GDR BIM, France.

- CAREER BREAK: Maternity leave (03/2018 - 07/2018, 4 months).