

Clémence Réda

PhD student in Genetics

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🌐 clreda

Education

- 2019 – present **Doctorat**, Université de Paris, Inserm UMR 1141 & CNRS UMR 9189
PhD in Genetics : **Combination of gene regulatory networks and sequential machine learning for drug repurposing**, supervised by [Pr. Andrée Delahaye-Duriez](#) & [Dr. Émilie Kaufmann](#).
- 2018 – 2019 **M2 Master Vision, Apprentissage (MVA)**, École Normale Supérieure* (ENS) Paris-Saclay, (ex-École Normale Supérieure de Cachan)
Master's degree in Machine Learning. (*summa cum laude*, equiv. GPA: 4.0, no ranking)
- 2017 – 2018 **Année de Recherche Prédoctorale à l'Étranger (ARPE)**, ENS Paris-Saclay
Ten-month long research internship at the Faculty of Mathematics, Informatics and Mechanics (MIM UW) of the University of Warsaw (Poland) included in the curriculum of ENS Paris-Saclay. Proof-of-concept on the explicit inclusion of biological interactions in gene regulatory networks and its impact on inference and simulation of transcriptomic regulation, in research team **Regulomics** supervised by [Dr. Bartek Wilczyński](#). (Final grade (equiv. GPA): 4.0, no ranking)
- 2016 – 2017 **M1 Master Parisien en Recherche en Informatique (MPRI)**, ENS Paris-Saclay
Master's degree in Computer Sciences. (*summa cum laude*, equiv. GPA: 4.0, rank: 3/25)
- 2015 – 2016 **L3 Licence informatique fondamentale ENS Cachan**, École Normale Supérieure de Cachan
Bachelor's degree in Computer Sciences. (*cum laude*, equiv. GPA: 4.0, rank: 10/26)

* École Normale Supérieures are selective French schools for research and teaching.

Previous Work Experiences

Research internships

- 2019
(4 months) **Teams Integrative Genomics (PROTECT UMR 1141) & SCOOL/CRISAL (UMR 9189)**, Supervision by [Pr. Andrée Delahaye-Duriez](#) and [Dr. Émilie Kaufmann](#), Paris & Villeneuve d'Ascq, France
Design of a drug repurposing method through a bandit algorithm combined with the prediction of transcriptomic states by a gene regulatory network. Application to the prediction of new anti-epileptics.
- 2017
(5 months) **Team Genomics and Regulatory Systems Unit, Okinawa Institute of Science and Technology (OIST)**, Supervision by [Dr. Nicholas Luscombe](#) and [Dr. Garth Ilesley](#), Onna-son, Japon
Design and implementation of a single-cell RNA sequencing clustering method taking into account intergene expression dependencies using a probabilistic model ; implementation in R Shiny of a web application for the visualisation and preliminary analysis of single-cell RNA sequencing data. Application to transcriptomic data analysis in *Ciona intestinalis*.
- 2016
(2 months) **Centre de Bioinformatique de Bordeaux (CBiB)**, Supervision by [Dr. Macha Nikolski](#) and [le Dr. Mathieu Raffinot](#), Bordeaux, France
Design and implementation of compared analyses of taxonomic trees built from metagenomic data. Application to the analysis of data from intestinal guts of children afflicted with cystic fibrosis at Hôpital Pellegrin in Bordeaux.

Teaching & Mentoring Experiences

- 2020 – 2021
(64 hours a year) **Doctorant Contractuel avec Mission d'Enseignement (DCME) (Teaching Assistant)**, Biostatistics, programming and bioinformatics, Université de Paris, UFR Sciences de la Vie
- 2020
(6 months) **Supervision of a Masters's degree internship**, Joint supervision of a Masters intern on the analysis of targeted single-cell RNA sequencing data of inflammatory microglia in development, Inserm
- 2019 – 2020
(2 months) **Supervision of a Masters's degree project**, Proposal of a project on drug repurposing based on collaborative filtering, and joint supervision of a Masters student in the course **Graphs in Machine Learning** in masters **MVA** (2020), ENS Paris-Saclay

Grants

- 2019 **Research program for project REPOS**, Inserm-CNRS "[Digital health challenge](#)" AAP 2019 (1 year)
2019 – 2022 **PhD scholarship**, *Contrat Doctoral Spécifique aux Normaliens (CDSN) 2019*, ENS.X19RDTME-SACLAY19-22 (3 years)

Research

Papers

- 2021 **Dealing With Misspecification In Fixed-Confidence Linear Top-m Identification**, [C. Réda](#), [A. Tirinzoni](#) & [R. Degenne](#), [research, [accepted](#)], Proceedings of the 35th Conference on Neural Information Processing Systems (NeurIPS 2021), HAL: [03409205](#). Impact factor : 33.5
Top-m identification for linear bandits, [C. Réda](#), [É. Kaufmann](#) & [A. Delahaye-Duriez](#), [research], Proceedings of the 24th International Conference on Artificial Intelligence and Statistics 2021 (AISTATS 2021), 130, HAL: [03172145](#). Impact factor : 9.9
- 2020 **Machine learning applications in drug development**, [C. Réda](#), [É. Kaufmann](#) & [A. Delahaye-Duriez](#), [review], Computational and Structural Biotechnology Journal, 18, 241-252, DOI : [10.1016/j.csbj.2019.12.006](#). Impact factor : 6.0
Automated inference of gene regulatory networks using explicit regulatory modules, [C. Réda](#) & [B. Wilczyński](#), [research], Journal of Theoretical Biology, 486, DOI : [10.1016/j.jtbi.2019.110091](#). Impact factor : 2.3
- 2019 **Identification de cibles thérapeutiques et repositionnement de médicaments par analyses de réseaux géniques**, [A. Delahaye-Duriez](#), [C. Réda](#) & [P. Gressens](#), [review], Médecine/Sciences, 35(6-7), 515-518, DOI : [10.1051/medsci/2019108](#). Impact factor : 0.7

Talks

- February 2022 **DSABNS 2022**, [C. Réda](#). Gene network oriented drug discovery: automated inference of Boolean networks for drug target prediction (talk)
- December 2021 **NeurIPS 2021**, [C. Réda](#). Dealing With Misspecification In Fixed-Confidence Linear Top-m Identification (poster)
- April 2021 **AISTATS 2021**, [C. Réda](#). Top-m identification for linear bandits (poster)
- October 2020 **Journées de recherche respiratoire (J2R) 2020**, [C. Réda](#). Transcriptome of neurons in a model of Congenital Central Hypoventilation Syndrome (poster). *Conference has been cancelled due to the pandemic*
- July 2020 **Journées Ouvertes de Biologie, Informatique et Mathématique (JOBIM) 2020**, [C. Réda](#). Automated inference of gene regulatory networks using explicit regulatory modules (oral)
- Sept. 2018 **Workshop 6, European Conference on Computational Biology (ECCB) 2018**, [C. Réda](#). Automated inference of gene regulatory networks using explicit regulatory modules (oral)
- June 2018 **Bioinformatics in Toruń (BIT) 2018**, [C. Réda](#). Automated inference of gene regulatory networks using explicit regulatory modules (oral)

Commitment to popularization of sciences and law making

Popularization of sciences

- December 2016 – Sept. 2018 **Published on Tryalgo** [in French] : series of blog posts on known algorithms with concrete applications, aimed at high school and college students (approx. 2,400 unique monthly users ; two of these posts constitute the Top-2 most visited pages).
- October 2016 **Published on Binaire** (blog on Computer Science affiliated with the newspaper Le Monde) **and The Conversation** [in French] : "A.P.B. : La vie après le bac" (jointly written with [Serge Abiteboul](#)). Explanation of the algorithm of Gale-Shapley which has been in use in a previous version of the French national web application for high school students' applications to college

Popularization of law-making

- December 2016 – Sept. 2018 **Published on Réfléchir.fr** [in French] : series of blog posts on laws passed since 2017 in France: explanation of their content and their consequences (534 followers on February, 24 2021).

Language proficiency

French	C2	Native speaker.
English	C1	TOEFL score (in 2016): 643/677.
Spanish	B1	Intermediate level, studied at school for seven years.