Déborah Boyenval

Postdoctoral Fellow

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Born 02/12/1994

Academic Background

Jan. 2024 - Jan. 2025 **Postdoctoral Fellow**, *Influence of aging on hematopoietic cell differentiation: from single-cell data to eXplicative formal models*, Laboratoire Bordelais de Recherche en Informatique (Bordeaux, France).
with Loïc Paulevé

Oct. 2018 - Dec. 2022 **PhD in Computer Science**, *Formal modeling of cyclic biological behaviours with checkpoints: the cell cycle regulation*, Laboratoire d'Informatique Signaux et Systèmes de Sophia Antipolis, Institut de Biologie de Valrose, Université Côte d'Azur, *Fondation Université Côte d'Azur Ph.D thesis award 2024.*
Supervised by Gilles Bernot, Jean-Paul Comet and Franck Delaunay

Jan.-Jun. 2018 **Master 2 Internship**, *Mathematical modeling of sex-specific chronotoxicity of an anticancer drug: the irinotecan*, INSERM U935 Villejuif, Team Chronotherapy and Cancer
Supervised by Annabelle Ballesta

Fev.-Jun. 2017 **Master 1 Internship**, *Study and qualitative modeling of a pathway for the synchronisation of peripheral circadian clocks by the suprachiasmatic nucleus*, Laboratoire d'Informatique Signaux et Systèmes de Sophia Antipolis, Institut de Biologie de Valrose, Université Côte d'Azur
Supervised by Gilles Bernot, Jean-Paul Comet and Franck Delaunay

2016 – 2018 **Master in Life Sciences, Université Côte d'Azur**, *Major in Biology, Informatics and Mathematics (BIM)*, Université Côte d'Azur

Jun. 2016 Jul. 2016 **Bachelor Internship**, *Study of the reciprocal link between the nervous system and the immune system*, Institut de Pharmacologie Moléculaire et Cellulaire, Université Côte d'Azur
Supervised by Pr. Nicolas Glaichenhaus and Franck Ceppo

2013 – 2016 **Bachelor in Life Sciences, Université Côte d'Azur**, *Specialization in Biology, Informatics and Mathematics (BIM) in the 3rd year*, Université Côte d'Azur

Teaching

Oct. 2021 - Sept. 2022 **Part-time ATER**, Université Côte d'Azur

2018 – 2021 **Teaching Assistant**, *1st and 2nd year BSc, MSc*, Web Introduction and Application, System and Network Administration, Database Theory and SQL, Imperative Programming and Python, Algorithms for Biology, Université Côte d'Azur

Publications

Publications

2022 **Sex and Circadian Timing Modulate Oxaliplatin Hematological and Hematopoietic Toxicities**, *Dulong Sandrine, Souza Lucas, Machowiak Jean, Peuteman Benoit, Duvallet Gaelle, Boyenval Déborah, Roth Elise, Asgarova Afag, Chang Yunhua, Li Xiao-Mei, Foudi Adlen, and Ballesta Annabelle, Pharmaceutics, vol. 14, pp. 2465, Nov, 2022*

Proceedings

2024 **BoNesis: a Python-based declarative environment for the verification, reprogramming, and synthesis of Most Permissive Boolean networks**, *Stéphanie Chevalier, Déborah Boyenval, Gustavo Magaña-Lopez, Théo Roncalli, Athénaïs Vaginay, Loïc Paulevé*, 18th International Conference on Computational Methods in Systems Biology (CMSB 2024), June, 2024

2020 **What is a cell cycle checkpoint? The ToTemBioNet answer**, *Boyenval Déborah, Bernot Gilles, Collavizza Hélène, and Comet Jean-Paul*, 18th International Conference on Computational Methods in Systems Biology (CMSB 2020), Sep, 2020

Oral Communications

Talks

December 2023 **Formal modeling of the discrete dynamics of intrinsic cell cycle checkpoints: a proof of concept**, *GT-Bioss*, Online

September 2022 **Formal modeling of biological cyclic behavior with checkpoints: the case of the cell cycle with CTL Model-checking**, *Women In Machine Learning and Data Science*, UPMC Paris VI

March 2022 **A discrete modeling study devoted to the formalization and verification of mammalian cell cycle checkpoints**, *Lifeware Public Seminar*, Inria Saclay

November 2021 **Mammalian cell cycle: formalizing phases**, *GT-Bioss Annual Day, Lyon*

June 2021 **Logical modeling in biology through the case study of the cell cycle and its checkpoints**, *Public Seminar of the Institute of Biology of Valrose*, Nice

November 2020 **Study of cell cycle checkpoints: specification and verification**, *GT-BIOSS Mensual Seminars*, Remote

September 2020 **What is a cell cycle checkpoint, The TotemBioNet answer**, *CMSB 2020*, Remote

April 2021 **From phase characterization toward observable properties verification**, *Public PhD Seminar, NeuroMod Institute*, Sophia Antipolis

Poster Sessions

July 2021 **JOBIM 2021**, *Logical and incremental formalization of cell cycle checkpoints*, Remote

November 2019 **Modelife Annual Meeting**, *Introduction of Priorities in Biological Regulatory Networks*, Frejus France

June 2019 **Summer School Formal Modeling of Biological Regulatory Networks**, *A discrete cell cycle model, From phase characterization toward observable properties verification*, Porquerolles

Modeling skills

Formal modeling: Design of biological regulatory network, CTL model-checking, Hoare logic, Prolog, René Thomas' formalism, Synthesis of boolean networks, Answer-Set Programming

ODE system: Parameter estimation (CMAES), Sensitivity Analysis, Circadian data analysis

Statistics: Trajectory inference, RNA velocity analysis, Application on hematopoetic systems

Omics: Analysis of multimodal omics data (sc-RNA-seq and CITE-seq)

Biological background: Cancer biology, Cell cycle regulation, Circadian system, PK-PD of certain anti-cancer drugs

Programming skills

Programmation	Python, Prolog, R, Matlab, Java, SQL, HTML3/CSS5/PHP/Javascript/Ajax, Shell, LaTeX, Git
Tools	Moodle (Creation of online teaching materials), PyMol
Biological Databases	Protein DataBank, Genome browsers (Ensembl, UCSC), Uniprot, Prosite, Reactome, CollectTRI

Associative

2018 – 2019 **Fablab manager**, *UCA Valrose campus*, Support for 3D printing projects (Ultimaker)

2019 – 2021 **Treasurer of ADAMS-DS4H (Association of Doctoral And Master's Students of DS4H)**, Search for financial partnerships, organisation of academic events (CV and poster workshops) and federative events (integration party and sports events)

Languages

Native French, Fluent English