

Déborah Boyenval

PhD graduate

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Born 02/12/1994

Academic Background

- Oct. 2018 - Dec. 15th 2022 **PhD in Computer Science**, *Formal modelling 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.
Supervised by Gilles Bernot, Jean-Paul Comet and Franck Delaunay
- Oct. 2021 - Sept. 2022 **Part-time ATER**, Université Côte d'Azur, 1st and 3rd year of computer science bachelor.
- 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 modelling 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.
- Oct 6th. 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.
July 22th. 2016
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 Assistant

- 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 Gaele, Boyenval Déborah, Roth Elise, Asgarova Afag, Chang Yunhua, Li Xiao-Mei, Foudi Adlen, and Ballesta Annabelle, Pharmaceutics, vol. 14, pp. 2465, Nov, 2022.*

Proceedings

- 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.

Preprints

2023 **A purely discrete formalisation and formal verification of intrinsic cell cycle checkpoints: a proof of concept with Prolog and TotemBioNet**, Boyenval Déborah, Bernot Gilles, Collavizza Hélène, Comet Jean-Paul and Delaunay Franck, To be submitted to Journal of Theoretical Biology.

Oral Communications

Talks

- 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 modelling 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 modelling 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 CTL model-checking, Hoare logic, Software engineering, Prolog, René Thomas' formalism
- EDOs system CMAES, Sensitivity Analysis, Circadian data analysis (Cosinor)
- Statistics Regression, PCA

Programming skills

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

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