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Amandine PEPIOT

PhD in biomathematics and applied mathematics engineer

Open to a post-doctoral position.

Webpage apepiot.github.io

Research

Doctoral studies 2019-2024
Under the supervision of Romulus Breban (Institut Pasteur)
Title of the thesis: *Eliminating HIV with voluntary testing? A game theoretic perspective* [thesis]
Lab: IPLESP, UMR-S 1136 Inserm-Sorbonne Université, France
Funding: Sidaction and teaching position at INSA Toulouse
Doctoral school: Pierre Louis de santé publique (ED 393)
Skills: epidemic models (4-disease compartmental model), numerical analysis, Matlab, utility theory, numerical optimization, high-performance computing, scientific paper writing.

Research engineer, IPLESP, Paris, France 2018-2019
- Estimation of incidence, hidden epidemic and time between infection and diagnosis of HIV based on departmental data on new diagnoses. Skills: back-calculation model, R, C++, Matlab.
- Analysis of the feasibility of using statistical models to obtain estimates of epidemiological indicators of HIV infection in West Africa (Togo, Burkina Faso, Mali). Skills: R, SAS.

Intern, IPLESP, Paris, France 2018
Subject: *Evaluating the impact of hometests on the HIV epidemic of men who have sex with men in France* [report]
Supervisors: Virginie Supervie (Inserm) and Romulus Breban (Institut Pasteur)
Skills: epidemic models, numerical analysis, Matlab

Intern, Terres Inovia, Grignon, France 2017
Subject: *Analysis and implementation of linear models to predict the average yield of rapeseed in France*
Supervisor: Sébastien Gervois (Terres Inovia)
Skills: time series, R, Shiny (RStudio)

Teaching

Teaching assistant at INSA Toulouse, France 2022-2024
Theoretical and applied mathematics for 1st, 2nd and 3rd years of engineering study. *Full time, 2 years.*

Teaching mission as a PhD student, Sorbonne Université, Paris, France 2019-2021
Tutorials of biostatistics for first- and second-year medical students. *64 hrs per year.*

Education

Doctoral studies 2019-2024
Sorbonne Université, Paris, France
Degree obtained in December 2024.

Academic exchange - Winter semester 2017-2018
Technische Universität Dresden, Germany
Theory and applications of partial differential equations, finite elements, mathematical applications in biology and risk modeling.

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Engineering school - applied mathematics 2015-2018
National Institute of Science and Technology (INSA), Rennes, France
Engineering program focused on theoretical and applied mathematics.
Degree obtained in June 2018.

Classe préparatoire aux grandes écoles MPSI-MP 2013-2015
Lycée Victor Hugo, Besançon, France
Intensive academic programs in mathematics, physics and industrial sciences designed to prepare students for entrance exams to France's prestigious higher education institutions.

Publications

Article, Pepiot A., Velter A., Rahib D. and Breban R., *Epidemiological strategies based on self-screening tools: A modeling assessment*, *under review*, 2024. (see Chap. VII.3., pages 86-244 of the thesis)

Article, Pepiot A, Supervie V. and Breban R. *Impact of voluntary testing on infectious disease epidemiology: A game theoretic approach.* PLOS ONE, 18(11): e0293968, November 2023 [article, preprint]

Talks

Poster, Pepiot A., Supervie V. and Breban R. *Can self-testing end infectious disease epidemics? A tentative answer through game theory*, ECMTB, Heidelberg, September 2022 [poster]

Presentation, Pepiot A., Supervie V. and Breban R. *Can self-testing end infectious disease epidemics? A tentative answer through game theory*, Journée Scientifique Sidaction, Paris, March 2022

Poster, Pepiot A., Supervie V. and Breban R. *Impact de l'auto-dépistage sur l'épidémiologie des maladies infectieuses : Approche par la théorie des jeux*, Séminaire annuel de l'école doctorale Pierre Louis de santé publique, Saint Malo, October 2020 [poster]

Poster, Pepiot A., Supervie V. and Breban R. *Vers une élimination des maladies infectieuses avec l'auto-dépistage ? Approche par la théorie des jeux et application à l'épidémie du VIH*. Université des Jeunes Chercheurs Sidaction, Carry-le-Rouet, November 2019 [poster]

Skills

Languages
- **French** - native
- **English** - proficient
- **German** - basic/intermediate

Programming
- Primary: Matlab, R, Python
- Secondary: AMPL, Julia, C++, SAS

Others
- LaTeX, Microsoft Office, Git (Github)

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