

Personal Information

Nationality Indian
Date of birth December 21st, 1996
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Education

2021 – 2024 **Université Paris-Saclay** *Gif-sur-yvette, France*
PhD, Mathématique et Informatique
2018 – 2020 **Chennai Mathematical Institute** *Chennai, India*
Masters degree, Data Science, CGPA **9.29**
2015 – 2018 **St. Xavier's College (Autonomous)** *Calcutta, India*
Bachelors degree, Statistics, CGPA **8.67**

Professional Competencies

Research domain **Quantitative Microbiological Risk Assessment** (QMRA) in food safety
Antimicrobial Resistance (AMR) transmission in ONE Health framework
Bayesian optimization (BayesOpt) for expensive black-box functions
Publications [Google scholar](#), [HAL](#)
Programming **Python, R**
Languages **French, English, Hindi, Bengali**
Other competencies **Git, \LaTeX , Bash, FSKX, HTML**

Employment

January 2024 - present **Agence Nationale de Sécurité Sanitaire (ANSES)**, Lyon, France
CDD 18 months *Post-Doc: JPIAMR project [ENVIRE](#)*
Supervisor: Dr. Lucie COLLINEAU
→ **Project:** One Health interventions to reduce development and transmission of AMR.
This collaborative work with [FU-Berlin](#) aims the following contributions:
→ Develop a **QMRA** model for ESBL *E. coli* resistant to **fluoroquinolones** and **colistin**
→ Model human exposure via the **foodborne**, **occupational** and **environmental** pathways
→ Assess the effectiveness and potential synergistic effects of different **interventions**
January 2021 - 2024 **Agence Nationale de Sécurité Sanitaire (ANSES)**, Maison-Alfort, France
CDD 36 months *Doctorant: EU-PRIMA project [ArtiSaneFood](#)*
Supervisor: Dr. Laurent GUILLIER
→ **Project:** Microbial food safety for artisanal foods in the Mediterranean region.
This collaborative work with [CNIEL](#) and [ACTALIA](#) has a three-fold contribution:
→ Built a 3-pathogen **QMRA** model: *E. coli*, *Salmonella* & *Listeria* in raw milk cheese
→ Provided a cost-efficient implementation of the model in **R** and **FSKX** format
→ Proposed a **Bayesian multi-objective optimization** algorithm for the QMRA model

Research Experiences

3-14 June 2024 **Freie Universität Berlin (FU-Berlin)**, Berlin, Germany
Short study visit: [Department of Veterinary Medicine](#)
Collaborator : Prof. Roswitha MERLE & Nunzio SARNINO

- **Project ENVIRE** : Interventions to control the dynamics of antimicrobial resistance from chickens through the environment [\[project\]](#)

October 2019 – 2024 **Laboratoire des signaux et systemés (L2S)**, Gif-sur-yvette, France
Doctorant: [Université Paris-Saclay](#)
Supervisor : Prof. Julien BECT & Prof. Emmanuel VAZQUEZ

- **Thesis** : Multipathogen quantitative risk assessment in raw milk soft cheese, monotone integration and Bayesian optimization [\[PhD thesis\]](#)

May – July 2019 **Laboratoire des signaux et systemés (L2S)**, Gif-sur-yvette, France
Summer intern: [CentraleSupélec](#)
Supervisor : Prof. Emmanuel VAZQUEZ

- **Internship** : Reviewing Python toolboxes for Gaussian Process Regression [\[report\]](#)

Publications

1. **Numerical issues in maximum likelihood parameter estimation for Gaussian process interpolation** with Sébastien Petit, Julien Bect and Emmanuel Vazquez
 - In the proceedings of LOD 2021: International Conference on Machine Learning, Optimization, and Data Science [\[open access\]](#)
2. **Integration of bounded monotone functions: Revisiting the nonsequential case, with a focus on unbiased Monte Carlo (randomized) methods** with Julien Bect and Emmanuel Vazquez
 - In the proceedings of 53èmes Journées de Statistique de la Société Française de Statistique (SFDS) [\[open access\]](#)
3. **Quantitative risk assessment of Haemolytic and Uremic Syndrome (HUS) from consumption of raw milk soft cheese** with Janushan Christy, Laurent Guillier, Frédérique Audiat-Perrin, Moez Sanaa, Fanny Tenenhaus-Aziza, Julien Bect and Emmanuel Vazquez
 - Food and Ecological Systems Modelling Journal (FESMJ) [\[open access\]](#)
4. **Multipathogen quantitative risk assessment in raw milk soft cheese** with Laurent Guillier, Julien Bect, Janushan Christy, Fanny Tenenhaus-Aziza, and Emmanuel Vazquez
 - Microbial Risk Analysis (MRA) Journal (special issue of ICPMF-12) [\[open access\]](#)
5. **Multipathogen quantitative risk assessment in raw milk soft cheese, monotone integration and Bayesian optimization**
 - PhD thesis defended at STIC doctoral school, Université Paris-Saclay [\[open access\]](#)

Presentations & scientific communications

16 June 2024 **ModStatSAP '24 @ Institut des Systèmes Complexes - Paris, France**

- **Title** : Quantitative assessment of ESBL-producing E. coli contamination, transmission dynamics, and evolution in broiler farms in the presence of on-farm intervention measures. [\[slides pdf\]](#)

20 March 2024 **PhD Thesis Defense @ CentraleSupélec - Paris-Saclay, France**

- **Title** : Multipathogen quantitative risk assessment in raw milk soft cheese, monotone integration and Bayesian optimization [\[slides pdf\]](#)

- 2 October 2023 **COPIL ArtiSaneFood '23 @ Maison du lait - Paris, France**
 - **Title** : [Appréciation quantitative des risques multipathogènes dans le fromage à pâte molle au lait cru et optimisation Bayésienne \[slides pdf FR\]](#)
- 13-16 June 2023 **ICPMF 12 @ University of Hokkaido - Sapporo, Japan**
 - **Title** : [Minimizing the risk of foodborne illness and analytical costs using a QMRA model for raw milk cheeses \[slides pdf\]](#)
- 24-25 May 2023 **ArtisaneFood seminar @ Instituto Politécnico de Bragança, Portugal**
 - **Title** : [Minimizing multi-pathogen risk and costs through control measures: an application case for raw milk cheese \[slides pdf\]](#)
- 3-6 April 2023 **GdR Mascot NUM @ Le Domaine Port aux Rocs - Le Croisic, France**
 - **Title** : [Bayesian multi-objective optimization for stochastic simulators \[slides pdf\]](#)
- 18-19 October 2022 **JSDA 2022 @ ANSES - Maison-Alfort, France**
 - **Poster** : [Bayesian multi-objective optimization for quantitative risk assessment in microbiology \[poster pdf\]](#)
- 16 September 2022 **COPIL ArtiSaneFood '22 @ L'Association des ODG Laitiers - Caen, France**
 - **Title** : [Optimisation Bayésienne pour l'appréciation quantitative des risques en microbiologie \[slides pdf\]](#)
- 15 September 2022 **Journée de doctorats @ L2S, CentarleSupélec - Gif-sur-yvette, France**
 - **Title** : [Bayesian multi-objective optimization for quantitative risk assessment in microbiology \[slides pdf\]](#)
- 12-15 September 2022 **IDF World Dairy Summit @ New Delhi, India (online)**
 - **Poster** : [Quantitative risk assessment and optimization of process intervention parameters for French raw milk soft cheese \[poster pdf\]](#)
- 29 Aug. – 2 Sept. 2022 **IDESSAI @ Max-Planck Institute - Saarbrücken, Germany**
 - **Poster** : [Bayesian multi-objective optimization for quantitative risk assessment in microbiology \[poster pdf\]](#)
- 7-9 July 2022 **ArtisaneFood annual meeting @ Università di Bologna - Bologna, Italy**
 - **Title** : [ArtiSaneFood WP 7: Study impact of intervention strategies \[slides pdf\]](#)
- 13-17 June 2022 **53èmes Journées de Statistique @ Université Claude Bernard - Lyon, France**
 - **Title** : [Integration of bounded monotone functions: Revisiting the nonsequential case, with a focus on unbiased Monte Carlo \(randomized\) methods \[slides pdf\]](#)
- 7-9 June 2022 **GdR Mascot NUM @ Sigma Clermont - Clermont-Ferrand, France**
 - **Poster** : [Bayesian multi-objective optimization for quantitative risk assessment in microbiology \[poster pdf\]](#)
- 4-8 October 2021 **LOD – 7th International Conference - Grasmere, UK (online)**
 - **Title** : [Numerical issues in maximum likelihood parameter estimation for Gaussian process interpolation \[slides pdf\]](#)
- 29 September 2021 **Journée de doctorats @ L2S, CentarleSupélec - Gif-sur-yvette, France**
 - **Poster** : [Variance reduction with stratified sampling for bounded monotone function \[poster pdf\]](#)
- 10 March 2021 **DCE reading group @ The Alan Turing Institute - London, UK (online)**
 - **Title** : [Numerical issues in maximum likelihood parameter estimation for Gaussian process interpolation \[slides pdf\]](#)
- 26 July 2019 **Internship defense @ L2S, CentarleSupélec - Gif-sur-yvette, France**
 - **Title** : [A review of python packages for Gaussian process regression \[slides pdf\]](#)

Workshops & formations

- 24 – 28 June 2024 **Parma University – Parma, Italy**
- *Summer School* : [Sensitivity Analysis of Model Output \(SAMO\)](#)
- 9 – 10 November 2023 **EFSA, BfR – Berlin, Germany**
- *Workshop* : [Using Epidemiological Studies in Health Risk Assessments](#)
- 29 Aug. – 2 Sept. 2022 **INRIA-DFKI, Max-Planck Institute – Saarbrücken, Germany**
- *Summer school* : [Trusted and sustainable Artificial Intelligence \(AI\)](#)
- 20 June 2022 **ONE – Conference 2022, The Square - Bruxelles, Belgium**
- *Workshop* : [Harmonized Food Safety Knowledge Exchange \(FSKX\)](#)
- 14 – 18 June 2021 **Université Pierre et Marie Curie, Sorbonne – Paris, France**
- *Summer school* : [Numerical analysis: Multi-fidelity, multi-level, model selection](#)
- 16 – 20 December 2019 **Indo-French Centre for Applied Mathematics, IISER – Pune, India**
- *Winter school* : [Graphs and Random Process](#)
- 3 – 14 December 2018 **Indo-French Centre for Applied Mathematics IISER – Kolkata, India**
- *Winter school* : [Uncertainty quantification and sensitivity analysis](#)

Relevant Coursework

[Courses I followed as a part of my bachelors and masters degree studies:](#)

Mathematics	Real analysis, Numerical Linear algebra, Single and multivariate calculus, Combinatorics
Statistics	Probability Theory, Sampling theory, Parametric & Non-parametric Statistical Inference, Multivariate Analysis, Linear Statistical Models, Statistical Quality Control, Econometrics, Time Series Analysis, Demography, Macro & Micro Economics
ML & AI	Deep & Reinforcement learning, Distributed Computing for Big Data, Big Data with HADOOP, Design & Analysis of Algorithms, Information retrieval, Natural Language Processing, Bayesian Data Analysis, Computer vision, Mathematical Finance

References

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