PERRILLAT-MERCEROT ANGÉLIQUE

Modeling Research Fellow & Scientific Dissemination Technical Leader

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WORK EXPERIENCE

Modeling Research Fellow & Scientific Dissemination Technical Leader

Novadiscovery

Nov. 2020 – Ongoing Lyon (France)

- Biomodeler
  - ▷ Developement of an ODE model toward neoangiogenesis from literature review to calibration. integration of the model in a lung cancer collaborative approach (12 biomodelers)
  - ▷ Project manager of a knowledge-based model credibility evaluation
- Leader in scientific dissemination and management intermediary
  - ▷ Definition, implementation and monitoring of actions in accordance with the company roadmap and reported needs. Alignment of the actions for coherency purposes. Set up and update of tracking files and storage
  - ▷ Set up and maintain the organization and animation of internal events (up to 90 participants)
  - ▷ Facilitator for exposure and knowledge sharing actions
  - ▷ Member of the IUB for the knowledge module of Jinko
- Vocational Trainings
  - ▷ Scientific publication and copyright, URFIST Paris, remote - June 2023
  - ▷ Leadership training week, SIS-UP, Lyon - April 2022

Research engineer, post-doctoral researcher

Laboratory I3M (CNRS-UP-CHU-SIEMENS)

Oct. 2019 – Nov. 2020 Poitiers (France)

- Research thematic: Study of the cerebral energy metabolism through mathematical modeling
- Partnering with the STIM laboratory, ERL CNRS 7003
- Teaching contract 64h/year: Teaching assistant, University of Poitiers - Sept. 2019 to Sept. 2020.

EDUCATION

PhD in biomathematics

LMA laboratory, University of Poitiers

Sept. 2016 – Oct. 2019 Poitiers (France)

- "Study of models for energetic substrates kinetics".
  - ▷ Defended on 10/22/19
  - ▷ Supervisors: Miranville Alain and Guillevin Rémy.
  - ▷ Rapporteurs: Olivier Saut and Jean Noël-Vallée. Examiners: Frédérique Clément, Jacques Demongeot, Jean-Pierre Françoise and Luc Pellerin. Special guests: Nicolas Bourmeyster and Anne-Karine Bouzier-Sore.
- Representative of PhD students at "Ecole doctorale SISMI" from July 2017 to October 2019.
- Teaching contract 64h/year: Oral examinator and teaching assistant, University of Poitiers - Sept. 2016 to Sept. 2017.

ABOUT ME

31-years old french & italian researcher

Agile critical-thinking and creative problem-solving

Inclusive leadership and operative organization

SKILLS

Applied Mathematics | Neurosciences | Modeling: ODE, PDE, DDE | Communication | In Silico Clinical Trial | Model credibility

Linux | LaTeX | Google's suite | Matlab | R | Python | GitLab | Miro | Jinko

Leadership | Management | Problem anticipation | Organization | Adaptability | Critical-Thinking | Problem-solving | Pro-activity

LANGUAGES

French
Native language.

English
Excellent, CEF C1.

Italian
Excellent, CEF C1. CLES B2 Feb. 2019.

CNU QUALIFICATIONS

25 - Mathematics | 69 - Neurosciences | 26 - Applied Mathematics

MISCELLANEOUS

Not just half italian
Passion for the italian culture.
Extra classes in italian - 2013 – 2014

- Vocational trainings
  - ▷ Summer School: Mathematical Biology on the Mediterranean Conference University of Aegean, Samos (Greece) - Sept. 2019
  - ▷ Summer School CEMRACS: Numerical and mathematical modeling for biological and medical applications: deterministic, probabilistic and statistical descriptions, Centre International de Rencontres Mathématiques (CIRM), Marseille (France) - Juil. 2018
  - ▷ Winter School: Méthodes Déterministes et Stochastiques en Neurosciences, Centre International de Mathématiques et d'Informatique (CIMI), Toulouse (France) - Dec. 2017
  - ▷ Doctoral trainings: Conduite de thèse, Team management, Teaching, University lecturing and pedagogie, and Spanish, University of Poitiers, Chasseneuil du Poitou (France)

Master in applied mathematics

University Claude Bernard

Sept. 2014 – Sept. 2016 Lyon (France)

- Specialization: mathematical applications in biology and medecine (probabilistic and deterministic models)
- Extra course: Numerical analysis and optimization
- Internship, Inria team Dracula, Lyon.
  - ▷ Contribution to the analysis of a mathematical model incorporating the role of prions in Alzheimer's disease.
  - ▷ Supervisors: Pujo-Menjouet Laurent, Tine Léon-Matar, Mazzocco Pauline, Rezaei Human.

Pet lover
Passion for pets: dog, cat and rodent owner (currently 3 cats and 2 fish). ACACED Chien, Chat & NAC - 2023

Online player
League of Legends

REFEREES

Vice President of Science Emmanuel PHAM
@ Novadiscovery, Lyon
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Executive Manager Claudio MONTEIRO
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Prof. Alain MIRANVILLE
@ LMA laboratory UMR 7348, University of Poitiers
alain.miranville@math.univ-poitiers.fr

PU-PH Nicolas BOURMEYSTER
@ STIM laboratory, ERL CNRS 7003, Hospital of Poitiers
email: nicolas.bourmeyster@univ-poitiers.fr

PUBLICATIONS

Accepted L'Hostis, A., Palgen, J. L., Perrillat-Mercerot, A., Peyronnet, E., Jacob, E., Bosley J. R., Duruisseaux M., Toueg R., Lefèvre L., Kahoul R.,Ceres, N. & Monteiro, C. (2023). Knowledge-based mechanistic modeling accurately predicts disease progression with gefinitib in EGFR-mutant lung adenocarcinoma. Accepted by npj Systems Biology and Applications.

Accepted Jacob, E., Perrillat-Mercerot, A., Palgen, J. L., L'Hostis, A., Ceres, N., Boissel, J. P., Bosley J., Monteiro C. & Kahoul, R. (2023). Empirical methods for the validation of Time-To-Event mathematical models taking into account uncertainty and variability: Application to EGFR+ Lung Adenocarcinoma. Accepted by BMC Bioinformatics.

April 2022 Perrillat-Mercerot A., Deliot N., Miranville A., Guillevin R., & Constantin B. (2022). *Mathematical Analysis of Membrane Transporters Dynamics: A Calcium Fluxes Case Study.* Acta Biotheoretica, 70(2), 1-32.

Jan. 2022 Palgen J. L., Perrillat-Mercerot A., Ceres N., Peyronnet E., Coudron M., Tixier E., Illigens B., Bosley J., L'Hostis A. & Monteiro C. (2022). *Integration of heterogeneous biological data in multiscale mechanistic model calibration: application to lung adenocarcinoma.* Acta biotheoretica, 70(3), 1-24.

Jan. 2021 Perrillat-Mercerot A., Miranville A., Agosti A., Rocca E., Ciarletta P., & Guillevin R. (2021). *Partial differential model of lactate neuro-energetics: analytic results and numerical simulations.* Mathematical Medicine and Biology: A Journal of the IMA.

Dec. 2019 Perrillat-Mercerot A., Guillevin C., Guillevin R. et Miranville A. (2019). *Using mathematics in MRI data management for glioma assesment*, Journal of Neuroradiology.

Nov. 2019 Perrillat-Mercerot A., Guillevin C., Guillevin R. and Miranville A. (2019). *What mathematical models can or cannot do in glioma description and understading*, Discrete & Continuous Dynamical Systems - S.

Aug. 2019 Perrillat-Mercerot A., Bourmeyster N., Guillevin C., Miranville A. and Guillevin R. (2019). *Analysis of a mathematical model for the glutamate/glutamine cycle*. Bulletin of Mathematical Biology, 81(10).

March 2019 Perrillat-Merceot A., Bourmeyster N., Guillevin C., Miranville, A., and Guillevin, R. (2019). *Mathematical Modeling of Substrates Fluxes and Tumor Growth in the Brain. Acta Biotheoretica*, 67(2), 149-175.

April 2018 Helal, M., Igel-Egalon, A., Lakmeche, A., Mazzocco, P., Perrillat-Mercerot, A., Pujo-Menjouet, L., Rezaei H. & Tine, L. M. (2018). *Stability analysis of a steady state of a model describing Alzheimer's disease and interactions with prion proteins*. Journal of Mathematical Biology, 78(1-2), 1-25.

Feb. 2018 Guillevin C., Guillevin, R., Miranville, A., and Perrillat-Mercerot, A. (2018). *Analysis of a mathematical model for brain lactate kinetics*. Mathematical Biosciences & Engineering, 15(5), 1225-1242. (alphabetical order)

Jan. 2017 Guillevin R., Miranville A. & Perrillat-Mercerot A. *On a reaction-diffusion system associated with brain lactate kinetics*. Electronic Journal of Differential Equations, 23 (2017), 1-16. (alphabetical order)

INTERNATIONAL TALKS

Sep. 2019 Perrillat-Mercerot A., Miranville A., Guillevin R. *Investigation on complex nutrient fluxes*, International Workshop Mathematical Biology on the Mediterranean Conference (MBMC), Samos (Greece)

May. 2019 Perrillat-Mercerot A, Miranville A, Guillevin R. *Substrate fluxes between cells and capillaries*, Workshop Recent advances in Phase-Field modeling: from Engineering to Biology, Pavia (Italy).

Jul. 2018 Guillevin C., Guillevin R., Miranville A. and Perrillat-Mercerot A. *What about lactate kinetic in a (gliomatous) brain ?*, Invited speaker for a special session at The 12th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Taipei (Taiwan).

NATIONAL TALKS

Sept. 2020 Perrillat-Mercerot A., Miranville A., Guillevin R. *From MRS data to mathematical equations and back*, Internal presentation, Grenoble.

Mars 2020 Perrillat-Mercerot A., Miranville A., Guillevin R. *Modélisation et étude du métabolisme énergétique cérébral*, Internal presentation, Strasbourg.

June 2019 Perrillat-Mercerot A, Miranville A., Guillevin R. *Approche des flux de lactate cérébral, du 1D au 3D*, 39ème Colloque de la Société Francophone de Biologie Théorique, Poitiers (France).

June 2019 Perrillat-Mercerot A, Miranville A., Guillevin R. *Mathématiques et gliome, une histoire d'opération*, 39ème Colloque de la Société Francophone de Biologie Théorique, Poitiers (France).

June 2019 Perrillat-Mercerot A, Miranville A., Guillevin R. *Modèles mathématiques en neuro-onco imagerie*, Congrès annuel de l'Association de Neuro-OnCologues d'Expression Française, Poitiers (France).

May 2019 Perrillat-Mercerot A, Miranville A, Guillevin R. *How MRI and mathematics can get together*, Invited talker by the university of Pavia, Pavia (Italy).

Nov. 2018 Perrillat-Mercerot A, Miranville A, Guillevin R. *Quand les mathématiques usent d'opérations contre les gliomes*, Talk during the Forum Jeunes Mathématiciennes et Mathématiciens, Mathématiques et Sciences du Vivant, Orléans (France).

Nov. 2018 Perrillat-Mercerot A, Bourmeyster N., Guillevin C., Guillevin R. and Miranville A., *What about nutrient kinetic in a (gliomatous) brain ?*, Invited by the University of Pavia and Polytechnique of Milan for a laboratory collaboration, Pavia/Milan (Italy).

Sep. 2017 Guillevin C., Guillevin R., Miranville A., and Perrillat-Mercerot A. *Un modèle pour l'étude de la croissance tumorale*. Talk during the journée maths et cancer, Poitiers (France).

June 2017 Guillevin C., Guillevin R., Miranville A., and Perrillat-Mercerot A. *Modèle réduit pour la cinétique des lactates*. 37ème Colloque de la Société Francophone de Biologie Théorique, Poitiers (France). Rewarded by the Prix Delattre.

…and 5 posters and e-posters (detailed on my website)

MAKE MATHEMATICS ACCESSIBLE

2023 Mentoring for a M1 student in bio-informatics

2018 - 2019 Two publications of popularisation:

▷ (cowritten with Paul Dequidt) *Des données biologiques aux modèles et inversement*, Website Image Des Mathématiques, session échos de la Recherche.

▷ *En tête à tête*, Microscoop: magazine of the CNRS Centre Limousin Poitou-Charentes delegation, 78(2018), 14-15.

2017 - 2019 Organizing stand during annual national event of mathematical popularisation: Fêtes de la science and Nuit des chercheurs at Poitiers, Sept. Oct. 2017 - 2019

2018 - 2019 56h of volunteering, helping young students to prepare the bachelor's degree in mathematics

2017 - 2018 Interventions in schools and associations for young students: Femmes & Sciences (Montmorillon - March, April 2017), Nombredor (Chasseneuil du Poitou, April 2018), exchanges with 9 years old pupils (Saint-Agnès, June 2018)

March 2018 Coorganisation of the Maths-En-Jeans 2018 congress at Poitiers (700 participants).