Juliette Moreau

CONTACT

Address: 9, rue Alexandre Boutin, 69100 Villeurbanne, France
Phone: +33 698 103 128
Email: juliette.moreau@free.fr

EDUCATION

Oct 2021 - Mar 2025 **PhD - CREATIS & CarMeN laboratories, Université Lyon 1, Lyon, France**
Supervised by Pr Laura Mechtouff, Dr Carole Frindel and Pr David Rousseau
Stroke lesion segmentation on CT imaging: Deep learning approaches and image features exploitation

Sep 2020 - Aug 2021 **MASTER bioinformatics - Paris-Saclay University, Saclay, France**
Analysis and modelisation and engineering of biological and medical information

Sep 2018 - Aug 2021 **AgroParisTech France's leading Institute of Technology for Life, Food and Environmental science, Paris, France**
Field : engineering and health : human, bioproducts and environment
Specialization: from information to decision through analysis and learning

Sep 2016 - Jul 2018 **intensive program preparing for national competitive exam for entry to engineering schools, Lycée Saint-Louis, Paris, France**
Branch : biologie, chemistry, physics, earth science - National ranking 46 out of 2104

WORK EXPERIENCE AND PROJECTS

Aug 2022 **Ischemic Stroke Lesion Segmentation Challenge (ISLES)**
25th International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI 20222) challenge
Proposition of a curriculum learning solution for multimodal MRI stroke lesion segmentation problem

Mar 2021 - Aug 2021 **Research internship, CREATIS, Lyon, France**
Introduction to deep learning for medical imaging segmentation on CT brain images

Jun 2020 - Jun 2020 **Participation to the synthetic biolology competition iGEM, Centre de Biologie Structurale, Montpellier, France**
Leading of a group project in modelisation of biologic systems with designing of DNA sequences

TEACHING

Sep 2022 - Jul 2024 **Computer science and digital society, INSA Lyon, Lyon, France**
120h (~24 students) - Introduction to python programming and SQL in Initial Formation for Engineering Professions (tutorials)

May 2022 - May 2023 **Multi-disciplinary introductory engineering courses, INSA Lyon, Lyon, France**
18h (~18 students) - Introduction to signal processing in Initial Formation for Engineering Professions (lecture + practical exercises)

Mar 2022 **Institut d'optique, Saint-Etienne, France**
7h (~15 students) - Introduction to deep learning for image processing in Master (practical exercises)

Nov 2021 **Biosciences, INSA Lyon, Lyon, France**
16h (~20 students) - Introduction to image processing in Master (lecture + practical exercises)

VARIOUS IMPLICATIONS

May 2025 **Science popularisation, lycée Sonia Delaunay, Cesson-Vert Saint Denis, France**
Presentation of my background and PhD work to a hundred of high school students

Oct 2023 - Mar 2025 **Lab Initiative For Environment (LIFE), Lyon, France**
Member of lab cell which implement actions to reduce lab carbon footprint (vegetarian meals, travel quota) and awarness-raising campain

Oct 2024 ***Fête de la science*, Lyon, France**
Animation of a "Trace your sound" workshop to junior high school pupils

Jul 2024 **Medical Imaging and Deep learning (MIDL) conference, Paris, France**
Volunteer for the conference organization (~400 people) and part of organizing team for Doctoral Symposium (~70 people)

Nov 2023 **CREATIS PhD students Day, Lyon, France**
Organization of the third year PhD student day (17 speakers)

Nov 2022 **Scientific trainer, ANF Deepscopie, Angers, France**
Introduction to deep learning for image processing to biology researchers (practical exercises)

Mar 2022 **Scientific trainer, European Molecular Biology Laboratory (EMBL)**
Introduction to deep learning to biology researchers (practical exercises)

PUBLICATIONS

International Journal

[1] **Juliette Moreau***, Laura Mechtouff, David Rousseau, Omer Eker, Yves Berthezene, Tae-Hee Cho, Carole Frindel, "Contrast quality control for segmentation task based on deep learning models: application to stroke lesion in CT imaging". In *Frontiers in Neurology* (2025), vol. 16, p. 1434334. DOI: 10.3389/fneur.2025.1434334

[2] Ezequiel de la Rosa*, Mauricio Reyes, Sook-Lei Liew, Alexandre Hutton, Roland Wiest, Johannes Kaesmacher, Uta Hanning, Arsany Hakim, Richard Zubal, Waldo Valenzuela, David Robben, Diana Sima Sima, Vincenzo Anania, Arne Brys, James Meakin, Anne Mickan, Gabriel Broocks, Christian Heitkamp, Shengbo Gao, Kongming Liang, Ziji Zhang, Md Mahfuzur Rahman Siddiquee, Andriy Myronenko, Pooya Ashtari, Sabine Van Huffel, Hyun-su Jeong, Chiho Yoon, Chulhong Kim, Jiayu Huo, Rachel Sparks, Sebastien Ourselin, Albert Clerigues, Arnau Oliver, Xavier Lladó, Liam Chalcroft, Ioannis Pappas, Jeroen Bertels, Ewout Heylen, **Juliette Moreau**, Nima Hatami, Carole Frindel, Abdul Qayyum, Moona Mazher, Domenec Puig, Shao-Chieh Lin, Chun-Jung Juan, Tianxi Hu, Lyndon Boone, Maged Goubran, Yi-Jui Liu, Susanne Wegener, Florian Kofler, Ivan Ezhov, Suprosanna Shit, Moritz Hernandez Petzsche, Bjoern Menze, Jan Kirschke, Michael Müller, Benedikt Wiestler, "DeepISLES: A Clinically Validated Ischemic Stroke Segmentation Model from the ISLES'22 Challenge". Submitted to *Nature Communications* (24th March 2024).

[3] **Juliette Moreau***, Laura Mechtouff, David Rousseau, Omer Eker, Yves Berthezene, Tae-Hee Cho, Carole Frindel, "Leveraging mixed models to optimize latent space relationships: A balance between interpretability and performance in stroke lesion segmentation". Soon to be submitted to *Scientific reports* (March 2025).

International Conference with Proceedings

[1] **Juliette Moreau***, Laura Mechtouff, David Rousseau, Tae-Hee Cho, Omer Eker, Yves Berthezène, Carole Frindel, “Difficulty Metrics Study for Curriculum-Based Deep Learning in the Context of Stroke Lesion Segmentation”. In *IEEE 20th International Symposium on biomedial imaging* ISBI 2023. DOI: 10.1109/ISBI53787.2023.10230836. Oral presentation.

[2] **Juliette Moreau**, Laura Mechtouff, David Rousseau, Tae-Hee Cho, Omer Eker, Yves Berthezène, Carole Frindel*, “Difficulty Metrics Study for Curriculum-Based Deep Learning in the Context of Stroke Lesion Segmentation”. Accepted to *47th Annual International Conference of the IEE Engineering in Medicine and Biology Society* EMBC 2025.

National Conference with Proceedings

[1] **Juliette Moreau***, David Rousseau, Laura Mechtouff, Tae-Hee Cho, Carole Frindel, “Impact du contraste des images scanner et IRM FLAIR dans les réseaux profonds pour la segmentation de la lésion d’AVC”. In *28ème Colloque sur le traitement du signal et des images* (GRETSI) 2022. Poster.

National Conference

[1] **Juliette Moreau***, Laura Mechtouff, David Rousseau, Tae-Hee Cho, Omer Eker, Yves Berthezène, Carole Frindel, “Etude de métriques de difficultés pour le curriculum learning dans le cadre de segmentation automatique de lésion d'AVC”. In *Colloque français d’Intelligence Artificielle en Imagerie Biomédicale* (IABM) 2023. Poster.

[2] **Juliette Moreau***, Laura Mechtouff, David Rousseau, Tae-Hee Cho, Carole Frindel, “Optimisation de la Segmentation d'Images Médicales par Apprentissage Automatique et Gestion du Contraste : Application à l'AVC”. In *Colloque français d’Intelligence Artificielle en Imagerie Biomédicale* (IABM) 2024. Poster.

[2] **Juliette Moreau***, Laura Mechtouff, David Rousseau, Tae-Hee Cho, Carole Frindel, “Nouvelle tâche prétexte pour l'apprentissage auto-supervisé dans le cadre de la segmentation de lésion d'AVC”. In *Colloque français d’Intelligence Artificielle en Imagerie Biomédicale* (IABM) 2025. Poster.

LANGUAGE

- **French** native language
- **English** fluent
- **German** scholar