

Elodie Germani

Research & Teaching Assistant

Medical Imaging, Artificial Intelligence, Biostatistics

About me

Computational imaging researcher, specialized in healthcare imaging data and biomarkers. Currently working on AI-based tools to build robust and personalized representations of organs and systems.

Current situation : Research and Teaching Assistant (ATER) at Université de Rennes (France)

PhD Defense : September 2024, at University of Rennes

Teaching Qualification : Sections 27 (Computer sciences) and 61 (Signal Processing), since 2025.

Email : elodiegermani@gmail.com

Website : <https://elodiegermani.fr>

Google Scholar : <https://scholar.google.com/citations?user=BTAAgQEAAAAJ>

GitHub : <https://github.com/elodiegermani>

Research experiences

09/2025 - Present

*Université de Rennes,
France*

Postdoctoral Researcher and Teaching Assistant

Medicis, UMR Inserm U1099 Laboratoire Traitement Signal et Images

Medical imaging for personalized representation of patients in women's health.

- Segmenting endometriosis lesions in female pelvic MRI for surgical planning;
- Prompt uncertainty quantification in prompt-based segmentation models;
- Robustness and variability of radiomics features in female pelvic MRI.

09/2024 - 09/2025

*Universitätsklinikum Bonn,
Allemagne*

Postdoctoral Researcher

Albarqouni Lab, University Hospital Bonn

Fairness and biases in AI for medical image analysis.

- Bias in Foundation Models : a multi-site study on Mammography (Ref. [16]);
- Diffusion models for quality transfer in pediatric low-field MRI (Ref. [7]).

Supervised by : Pr. Shadi Albarqouni

06/2023 - 12/2023

*Concordia et McGill
University, Montreal,
Canada*

Visiting Researcher (MITACS Fellowship)

Big Data for Neuroinformatics lab (Concordia) ORIGAMI Lab (McGill)

LivingPark : reproduction and robustness evaluation of studies on MRI biomarkers for Parkinson's disease. Impact of methodological variations on the performance of prediction models based on resting-state fMRI biomarkers. (Ref. [3],[11]).

Supervised by : Pr. Tristan Glatard and Pr. Jean-Baptiste Poline.

09/2021 - 09/2024

*Université de Rennes,
France*

Doctoral Researcher

IRISA - UMR 6074 (Empenn and LACODAM)

Representation learning to explore and mitigate the effect of analytical variability in functional MRI studies.

- Data reuse to improve the robustness of neuroimaging studies (Ref. [2],[4]);
- Low-dimensional representation of fMRI data for decoding studies (Ref. [5]).

Supervised by : Dr. Camille Maumet and Pr. Elisa Fromont.

01/2021 - 07/2021 <i>Université de Rennes 1, France</i>	Research Internship <i>IRISA - UMR 6074 (Équipe Empenn)</i> Developing a codebase reproducing fMRI pipelines used in a many analyst study (Narps Open Pipelines project). Quantification of variability across pipelines results and evolution with sample size in group-level statistics (Ref. [7]). Supervised by : Dr. Camille Maumet.
04/2020 - 07/2020 <i>Centre d'Immunologie de Marseille-Luminy, France</i>	Research Internship <i>IMAGIMM Laboratory</i> Development of an R/Shiny application to facilitate histopathology data analysis. The application features an interactive interface linking images to quantitative measurements (graphs) (Ref. [5]). Supervised by : Mathieu Fallet and Dr. Hugues Lelouard.

Diploma

2021 - 2024 <i>Université de Rennes</i>	Doctoral degree in Computer Sciences <i>"Exploring and mitigating analytical variability in functional MRI with representation learning", defense on 16/09/2024.</i>
2019 - 2021 <i>Université de Rennes 1</i>	Master's degree in Bioinformatics Sp. Integrative Biology and Computer Sciences. Mention "Très Bien" (1/17).
2015 - 2018 <i>Université de Versailles St-Quentin</i>	License degree in Health Sciences Diploma of General Training in Medical Sciences (DFGSM) First year common to Health Studies (PACES) - <i>Succeeded in one year (70/699).</i>

Awards & Grants

- **Fondation APICIL** (10,000€)
Funding for starting a project on brain imaging signatures of pain in women with endometriosis.
- **L'Oréal-UNESCO Young Talents Award - For Women In Science** (15,000€, in 2024)
Selected for my doctoral research along with 34 other PhD and postdoctoral researchers from over 800 applications. This award aims to promote the careers and contributions of young women in science. [Press Book]
- **IABM Best Poster in Medical Imaging** (500€) and **Travel Award** (400€) in 2024.
- **MITACS Global Research Award** (6,000 CAD, in 2023)
Mobility grant for a research stay in the lab of Prof. Tristan Glatard at Concordia University, Montreal.
- **Rennes Métropole Mobility Grant** (2,400€, in 2023)
Additional funding for a research stay in Montreal, Canada, in Prof. Jean-Baptiste Poline's lab (ORIGAMI)

Scientific community

Invited talks

- **Seminars at international research institutes**
 - ORIGAMI Lab, McGill University (Montreal), July 2023
 - Big Data for Neuroinformatics Lab, Concordia (Montreal), September 2023
 - Center for Medical statistics, Medical University Vienna (Austria), February 202
 - IPI, LS2N (Nantes), March 2025
 - MediCIS, LTSI (Rennes), April 2025
 - **FAIMI Virtual Workshop on Fairness of AI in Medical Imaging**
Presentation of my work on bias and generalizability of Foundation Models for Breast Mammography classification.
Online - 25/11/2025
 - **Franco-German Day for Young Researchers**
Exchange and panel discussion on healthcare, numeric and artificial intelligence.
Institut Français, Berlin (Germany) - 21/10/2025.
 - **“Women in Science: Breaking Frontiers – A Data Perspective”**
Panel discussion on the importance of data diversity in health-related artificial intelligence.
Institut Français, Vienna (Austria) – 11/02/2025.
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Collaborative research projects

- **BRIDGE Project - Participating researcher (2025 - ongoing)**
The project : development of international data governance frameworks to enable the equitable sharing of brain MRI data. **My contribution** : I accessed, preprocessed, and analyzed three resting-state fMRI datasets and documented the practical requirements for these steps; I reported the results of these analyses comparing healthy control groups with pathological groups in resting-state fMRI.
 - **Narps Open Pipelines - Project lead (2021 - 2024), Participating researcher (2024 - ongoing)**
The project : The goal of the NARPS Open Pipelines project is to create a codebase reproducing the 70 pipelines from the NARPS study and to share it as an open resource for the community. **My contribution** : As the initiating developer, I created the code skeleton and set up the first pipelines; I presented this project at several hackathons. As a participant, I reproduced pipelines and took part in project events.
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Scientific events and networks

- **European Fall School on Endometriosis 2025** : Selected candidate for attendance and short presentation.
 - **Femme de Tech Network** : Member of the Femme de Tech Network at the Académie des Sciences (2025-).
 - **German Postdoc Network** : Member of the working group for the annual conference (2024-2025).
 - **FLUID Workshop (AAAI 2025)** : Member of the outreach committee.
 - **Summer School on Affordable AI 2024 (AGYA)** : Involved in organization, logistics, mentoring, and tutoring.
 - **Narps Open Pipelines Hackathons** : Internal organizer (IRISA and ORIGAMI lab), external project manager at OHBM Brainhack 2022 and 2023.
 - **IDA 2022** : Member of the student committee. Organization and logistics.
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Reviewing

- **Conferences** : reviewer for MIDL 2025 (Salt Lake City, USA) and 2026 (Taipei, Taiwan), MICCAI 2024 (Marrakech, Morocco). Area Chair (meta-reviewer) for MICCAI 2025 (Daejeon, South Korea) and MICCAI 2026 (Strasbourg, France).
- **Journals** : Scientific Report (4), npj Digital Medicine (4), Imaging Neurosciences (1), Nature Biomedical Engineering (2), Neurolmage: Clinical (1).

Supervision

- **Eliot Leguy - Polytech Nantes (October 2025 - Ongoing)**
Master's project and research internship on "Extracting robust radiomic biomarkers from female pelvic MRI".
- **Ilayda Selin Türk – TU Munich (November 2024 – March 2025)**
Master's Thesis – "Investigating Bias in AI Algorithms for Breast Cancer Detection from Mammography Imaging: A Focus on Generalization to Unseen Populations" Co-supervised with Prof. Shadi Albarqouni.
- **Malek Al Abed – TU Munich (October 2024 – July 2025)**
Master's Thesis – "Deep Learning for Low-field Brain Image Quality Transfer" Co-supervised with Prof. Shadi Albarqouni. Additional supervision : Prof. Hemmen Sabir, Dr. Anne Groteklaes, and Dr. Sebiha Demir.
- **Thibault Chanus – ENS Rennes (October 2023 – January 2024)**
Master 1 Project – Diffusion models for style transfer tasks. Co-supervised with Prof. Elisa Fromont.
- **Maiwenn Fleig – Düsseldorf University (April 2023 – July 2023)**
Engineering Project – Use of diffusion models for functional MRI data. Co-supervised with Prof. Elisa Fromont.

Teaching

During my doctoral and postdoctoral experiences, I taught various courses in **data science, machine learning, and computer science**. In total, I have taught more than **250 hours-equivalent TD (HETD)**. The audience was diverse and interdisciplinary, reflecting both my academic background and research interests. Full description in Annex 1 .

Data science

- **Mathematics** in L1 Biology (UR) : introduction to Python programming, data analysis, probability laws ;
- **Data science** in L2 Computer sciences (UR) : statistical testing, data modeling, and time series analysis in R ;
- **Basics of Data Analysis** in M1 Informatics for Business (UR) : introduction to data management in Python ;
- **Big Data Analysis** in M2 Signals and Images in Biology and Medicine (UR) : biases, concept of false positive/negative findings, processing pipelines, and statistical testing.

Machine learning and applied AI

- **Machine learning** in M2 Computer sciences (UR) : Introduction to machine learning in Python ;
- **AGYA Summer School on Affordable AI** (UKB) : Introduction to machine learning in Python ;
- **AiR Seminars "Artificial Intelligence in Radiology: Applications and Research"** for medicine students (UKB) : Teaching the role of AI tools in medical imaging : classification, detection, prediction, segmentation ;
- **Artificial Intelligence for Medical Diagnosis & Prediction** for medicine students (UKB) : Creation of hands-on tutorials (notebooks in Python) to teach medical data analysis with artificial intelligence.

Computer science

- **Computer systems** in L1 Computer science (UR) : Python programming to model computer components ;
- **Database management** in L2 and M1 Computer Science (UR) : Project on the comparison of different database management systems (PostgreSQL, MonetDB, etc.) ;
- **Applied programming** in L3 Electronics (UR) : initiation to programming with Python, C, and Matlab.

Scientific outreach

Public

- **Pint of Science** : Event manager for the 2024 edition, under the theme "*Our Body*".
- **Brain Awareness Week** : Designed and hosted a quiz : "*Research Careers in Neuroimaging*". Participated in the 2022 and 2024 editions (project lead in 2024). [Materials]
Invited presentation for the 2026 edition : "*Chronic Pain Signatures in Women's Brains*".[Event][Materials]
- **Open Days MediCIS** : Member of the organizing committee for the laboratory's open days (February 10–11, 2026), responsible for logistics and demonstrations.

- **TISSAGE** : Training in science communication offered by the Doctoral School as part of the TISSAGE project. Led a quiz on the topic “*Artificial Intelligence vs. Human Intelligence*”. [Materials]
- **Media** : SQYMag [Video], TVRennes [Video], Ouest France [Article], and others [Press Book].

Scholars

- **L Codent, L Créent** : Creative Python programming workshops for middle school girls to promote and demystify computer science. Participated from 2021 to 2023. Presentation at the Femmes et Sciences Colloquium in 2022. [Materials]
- **Computing without computer** : Workshops about computer science serious games. [Website]
- **CHICHE** : Presentation of the research academic path and of my research topic in middle and high schools (College Malherbe de Chateaubourg, Lycée Loth de Pontivy).
- **“J’peux pas j’ai informatique”** : Workshops about computer science and women for middle-/high-school teachers.

Other experiences

2025 <i>Soluvitrages</i>	Web Development Development of a web tool for managing appointments, inventory, and revenue. Python programming with Flask, connected to an SQL database.
2019 <i>SCC France</i>	IT Support Technician (Level 1) Assignment at the Ministry of Armed Forces (Paris, France). Scheduling and appointment management, computer replacement, technical support, and inventory management.
2017–2018 <i>i-Share</i>	Communication Assistant i-Share is a cohort study on student health (https://www.i-share.fr/). Tasks included promoting the study to students : setting up booths, giving presentations at forums, open days.

Technical skills

Programming	Python : Expert. <i>Deep learning (PyTorch, scikit-learn), Data (NumPy, pandas), Visualization (matplotlib, seaborn).</i> R : Intermediate HTML/CSS : Intermediate Java : Beginner Matlab : Beginner
Software	Neuroimaging (FSL, SPM) : Advanced
Other	L ^A T _E X : Advanced Git : Advanced Docker/Apptainer : Intermediate

Publications

Here are my publications published or accepted in peer-reviewed international journals and conferences. In artificial intelligence and medical imaging, the first authors are those who led the work, and the last authors are the supervisors. Journal rankings are based on Scimago, and conference rankings come from ICORE.

* indicates equal contribution among co-authors.

Journal Papers

[1] The HCP multi-pipeline dataset : an opportunity to investigate analytical variability in fMRI data analysis

Germani, E., Fromont, E., Maurel, P., Maumet, C.

Sci Data 12, 940. DOI : 10.1038/s41597-025-05247-7.

Dataset available in Public nEUro. *Scientific Data* was Q1 in Computer Science Applications in 2022.

Contributions : Conceptualization, Methodology, Programming, Analysis, Writing.

[Article] [HAL] [Code]

[2] On the validity of fMRI studies with subject-level data processed through different pipelines

Germani, E.*, Rolland, X.*, Maurel, P., Maumet, C.

Imaging Neuroscience ; 3. DOI : 10.1162/imag_a_00522.

Imaging Neuroscience is a young journal created after resignation of NeuroImage Editorial Board (Q1 in Neuroscience in 2023) following an increase in APC.

Contributions : Methodology, Programming, Analysis, Writing.

[Article] [HAL] [Code]

[3] Predicting Parkinson's disease trajectory using clinical and functional MRI features : a reproduction and replication study

Germani, E., Baghwat, N., Dugré, M., Gau, R., Montillo, A. A., Nguyen K. P., Sokolowski A., Sharp, M., Poline JB., Glatard, T.

PLOS ONE 20(2) : e0317566. DOI : 10.1371/journal.pone.0317566.

In 2023, PLOS ONE was Q1 in "Multidisciplinary".

Contributions : Conceptualization, Methodology, Programming, Analysis, Writing.

[Article] [HAL] [Code]

[4] On the benefits of self-taught learning for brain decoding

Germani, E., Fromont, E.*, Maumet, C.*

GigaScience, 2023, Vol. 12, pp.1-17. DOI : 10.1093/gigascience/giad029.

In 2023, *GigaScience* was Q1 in "Computer Science Applications and Health Informatics".

Contributions : Conceptualization, Methodology, Programming, Analysis, Writing.

[Article] [HAL] [Code] [Supplementary]

[5] SAPHIR : a Shiny application to analyze tissue section images

Germani, E., Lelouard, H., Fallet, M.

F1000Research, 2020, 9, pp.1276. DOI : 10.12688/f1000research.27062.2.

In 2020, *F1000Research* was Q1 in "Medicine (miscellaneous)". *F1000Research* is a journal with post-review, the manuscript has been approved after revision by 2 reviewers. The paper is in the category "Software Tool Article".

Contributions : Conceptualization, Methodology, Programming, Writing.

[Article] [HAL] [Code]

[6] When Multi-Institutional Dataset Aggregation Masks Shortcut-like Behavior in Foundation Models for Medical Imaging

Germani, E., Zeineddine, F., Mourad, C., Albarqouni, S.

Under review at Medical Image Analysis. Journal extension of Paper [8]. Invited to submit the paper to the MICCAI Special Issue of the journal.

International Conference Papers

- [7] **MRIQT : Physics-Aware Diffusion Models for Image Quality Transfer in Neonatal Ultra-Low-Field MRI**
Al Abed, M., Demiha, S., Groteklaes, A., Germani, E., Hemmen, S., Albarqouni, S.
International Symposium on Biomedical Imaging (ISBI) 2026. Presentation : Oral.
Contributions : Data curation, Supervision, Formal analysis.
[Preprint] [HAL]
- [8] **Bias and Generalizability of Foundation Models across datasets for Breast Mammography Classification**
Germani, E., Selin-Türk, I., Zeineddine, F., Mourad, C., Albarqouni, S.
International Conference on Medical Image Computing and Computer-Assisted Intervention, MICCAI 2025.
DOI : [10.1007/978-3-032-05185-1_3](https://doi.org/10.1007/978-3-032-05185-1_3)
Early-acceptance (9% of submission). Spotlight and poster presentation, short-listed for Best Paper Award.
Contributions : Conceptualization, Methodology, Programming, Analysis, Writing.
[Article] [HAL]
- [9] **Mitigating analytical variability in fMRI results with style transfer**
Germani, E., Fromont, E.*, Maumet, C.*
Conference in Medical Imaging with Deep Learning - MIDL 2025.
Contributions : Conceptualization, Methodology, Programming, Analysis, Writing.
[HAL] [Code]
- [10] **Uncovering communities of pipelines in the task-fMRI analytical space**
Germani, E., Fromont, E.*, Maumet, C.*
2024 IEEE International Conference on Image Processing (ICIP), Abu Dhabi, United Arab Emirates, 2024, pp. 3044-3050. DOI : [10.1109/ICIP51287.2024.10647701](https://doi.org/10.1109/ICIP51287.2024.10647701).
Conference specialized in image processing, ranked A-B. Presentation : Oral.
Contributions : Conceptualization, Methodology, Programming, Analysis, Writing.
[Article] [HAL] [Code] [Slides]

International Conference Abstracts

- [11] **Exploring variability patterns in the task-fMRI analytical space**
Germani, E., Fromont, E.*, Maumet, C.*
OHBM 2023 - 29th Annual Meeting of the Organization for Human Brain Mapping. Jul 2023, Montreal, Canada.
Presentation : Poster.
[Poster]
- [12] **fMRI data analysis : How does analytical variability vary with sample size ?**
Germani, E., Maumet, C.
OHBM 2022 - 28th Annual Meeting of the Organization for Human Brain Mapping. Jun 2022, Glasgow, United Kingdom. pp.1-5. Presentation : Poster.
[Poster] [Code]

National Conferences Abstracts

- [13] **Bridging the gap toward automated analysis of female pelvic MRI**
Germani, E., Baxter, J., Jannin, P., Nyangoh-Timoh, K.
IABM 2026 - 6ème édition du Colloque Français d'Intelligence Artificielle en Imagerie Biomédicale. Mar 2026, Lyon, France.
[Poster]

[14] Prédire l'évolution de la maladie de Parkinson à l'aide de données cliniques et d'IRM fonctionnelles : reproduction et robustesse d'une étude

Germani, E., Baghawat, N., Dugré, M., Gau, R., Sokolowski, A., Sharp, M., Poline, JB.*, Glatard, T.*

IABM 2024 - 2ème édition du Colloque Français d'Intelligence Artificielle en Imagerie Biomédicale. Mar 2024, Grenoble, France. Presentation : Poster. **Best poster in Medical Imaging award.**

[Poster]

[15] Representation learning for more reproducible fMRI data analyses

Germani, E., Fromont, E.*, Maumet, C.*

IABM 2023 - Colloque Français d'Intelligence Artificielle en Imagerie Biomédical. Mar 2023, Paris, France. Presentation : Poster.

[Poster]

Other valorisations

[16] Proceedings of the OHBM Hackathon 2023

Yang, Y.-F., Heinsfeld, A. S., Gondová, A., Vieira, B. H., Wang, Q., Mansour, S. L., Li, X., Haugen, B., Bandettini, P., Bryant, A., Chakravary, M. M., Clarke, N., Clénet, B., Clucas, J. C., Dugré, M., Earl, E., Germani, E., Goodale, S. E., Gulban, O. F., Huber, R., Jeganathan, J., Joulot, M., Kai, J., Sitek, K. R., Koiso, K., Korbmacher, M., Maullin-Sapey, T., Maumet, C., McPherson, B. C., Meisler, S. L., Mentch, J., Miedema, M., Moia, S., Nikolaidis, A., Taylor, P. A., Picard, M.-E., Pizzuti, A., Provins, C., Savary, E., Steinkamp, S. R., Taschler, B., Van Dyken, P. C., White, T., Yu, J.-C., Zou, Y., Haak, K. V.

Aperture Neuro, 2025, Vol. 5. DOI : [0.52294/001c.145051](https://doi.org/10.52294/001c.145051).

Summary of projects presented at OHBM Brainhack 2023. Presentation of the Narps Open Pipelines project.

[Article]

[17] Proceedings of the OHBM Brainhack 2022

Moia, S., Wang, H.-T., Heinsfeld, A. S., Jarecka, D., Yang, Y. F., Heunis, S., Svanera, M., De Leener, B., Gondova, A., Kim, S., Basavaraj, A., Bayer, J. M. M., Bayrak, R. G., Bazin, P.-L., Bilgin, I. P., Bollmann, S., Borek, D., Borghesani, V., Cao, T., Chen, G., De La Vega, A., Dresbach, S., Ehse, P., Ernsting, J., Esteves, I., Ferrante, O., Garner, K. G., Gau, R., Germani, E., Ghafari, T., Ghosh, S. S., Goodale, S. E., Gould Van Praag, C. D., Guay, S., Gulban O. F., Halchenko, Y. O., Hanke, M., Herholz, P., Heuer, K., Hoffstaedter, F., Huang, R., Huber, R., Jensen, O., Keeratimahat, K., Kosciessa, J. Q., Lukic, S., Magielse, N., Markiewicz, C. J., Martin, C. G., Maumet, C., Menacher, A., Mentch, J., Monch, C., More, S., Muller, L., Muller-Rodriguez, Leonardo, Nastase, Samuel A., Nicolaisen-Sobesky, E., Nielson, D. M., Nolan, C. R., Paugam, F., Pinheiro-Chagas, P., Pinho, A. L., Pizzuti, A., Poldrack, B., Poser, B. A., Rocca, R., Sanz-Robinson, J., Sarink, K., Sitek, K. R., Sychala, N., Stirnberg, R., Szczepanik, M., Torabi, M., Toro, R., Urchs, S. G. W., Valk, S. L., Wagner, A. S., Waite, L. K., Waite, A. Q., Waller, L., Wishard, T. J., Wu, J., Zhou, Y., Bijsterbosch, J. D.

Aperture Neuro, 2024, Vol. 4. DOI : [10.52294/001c.92760](https://doi.org/10.52294/001c.92760).

Summary of projects presented at OHBM Brainhack 2022. Presentation of the Narps Open Pipelines project.

[Article]

[18] HCP multi-pipelines [dataset]

Germani, E., Fromont, E., Maurel, P.*, Maumet, C.*

PublicNeuro Datasets. DOI : [10.70883/gtkk1541](https://doi.org/10.70883/gtkk1541).

Multi-pipeline dataset to facilitate the exploration of analytical variability across different contexts. The dataset is available on the [Public-nEUro](https://public-neuro.org/) platform and can be accessed upon signing a Data User Agreement.

[Data]

Préprints soumis, en review, en révision

[19] Disentangling Prompt Dependence to Evaluate Segmentation Reliability in Gynaecological MRI

Germani, E., Nyangoh-Timoh K., Jannin, P., Baxter SH. J.

Submitted at the International Conference on Medical Image Computing and Computer-Assisted Intervention 2026.

[HAL]

[20] Detection of endometriosis using radiomics biomarkers in pelvic MRI

Leguy, E., Nyangoh-Timoh K., Jannin, P., Baxter SH. J., Germani, E.

In preparation. Submission planned at the Workshop CAPI-WOMEN MICCAI 2026.

Annex 1 : Courses and teaching duties

Year	Institution	Audience	Course	Teaching Load (HETD)	Type	Tasks / Materials
2021 2022	Faculty of Mathematics University of Rennes 1	L1 Biology	Mathematics for Biology	45h	Lab (18h) Tutorial (27h)	Intro to programming and data analysis in Python. Statistics and probability tutorials (conditional probability, discrete and continuous distributions). <i>Session preparation (exercises, slides). Grading assignments.</i>
2021 2023	Fondation Rennes 1		L Codent, L Créent	20h	Lab (2×10h)	Creative programming in Python with middle school girls to promote computer science.
2022 2023 + 2025 2026	Faculty of Computer Science University of Rennes 1	L1 Computer Science	Computer Systems Principles	48h	Lab (2×20h) Tutorial (2×4h)	Introductory Python programming labs. Critical understanding and analysis : components and architectures of computer systems. <i>Project supervision : literature review on natural language processing.</i>
2022 2023	Faculty of Computer Science University of Rennes 1	L1 Computer Science	Professional Project & Communication	8h	Lab (8h)	Introduction to word processing with OpenOffice.
2022 2024	Faculty of Computer Science University of Rennes	M2 Computer Science, Software Engineering track	Machine Learning	20h	Lab (2×10h)	Introduction to machine learning in Python (scikit-learn, Keras). Critical understanding : hyperparameter selection, validation, performance metrics. <i>Design of teaching materials (exercises, datasets). Project supervision : software for handwritten letter and digit recognition.</i>
2023 2024 + 2025 2026	Faculty of Computer Science University of Rennes	L2 Computer Science	Data Science	48h	Lab (2×12h) Tutorials (2×12h)	Introduction to programming in R for data analysis. Critical understanding : modeling and statistical testing, data visualization, time series analysis. <i>Session preparation. Grading assignments.</i>
2023 2024	Faculty of Medicine University of Rennes	M2 Signals and Imaging in Biology and Medicine	Big and Complex Data Analysis	3h	Lecture (3h)	Teaching of processing pipeline concepts, analytical variability, and publication practices. <i>Adaptation of lecture materials and exam. Grading assignments.</i>
2024	Arab-German Young Academy of Sciences and Humanities	Master's and PhD students (interdisciplinary)	Summer School AGYA Summer School on Affordable AI	10h	Lab (10h)	Introduction to machine learning in Python. Critical understanding : hyperparameter selection, evaluation, resource-constrained scenarios. <i>Preparation and delivery of sessions.</i>
2024 2025	University Hospital Bonn	Medical students	AiR Seminars "Artificial Intelligence in Radiology: Applications and Research"	12h	Lecture (12h)	Teaching the role of AI tools in medical imaging : classification, detection, prediction, segmentation. Critical understanding : evaluation of ethical and regulatory considerations in deploying AI in healthcare – bias, uncertainty. <i>Preparation of course materials, logistics, support to instructors. Assessments : presentation and critical analysis of a research paper.</i>
2024 2025	University Hospital Bonn	Medical students	Artificial Intelligence for Medical Diagnosis & Prediction	16h	Tutorials (16h)	Creation of hands-on tutorials (notebooks in Python) to teach medical data analysis with artificial intelligence : data preparation and preprocessing, visualization, machine learning fundamentals, metrics and evaluation, deep learning, multimodal integration and foundation models.

2025 2026	University of Rennes	M1 Data Science	Basics of Data Analysis	30h	Lecture (7.5h) Tutorials (7.5h) Lab (15h)	Introduction to data science and Python program- ming : basics, numpy, pandas.
2025 2026	University of Rennes	M1 Computer Science	Advanced Database Management	45h	Lab (45h)	Project supervision : analyzing the differences bet- ween two SGBD in terms of indexing, storage, re- quests, or joins.
2025 2026	University of Rennes	L3 Electronics	Applied Programming	15h	Lab (12h) Tutorials (3h)	Introduction to Python, Matlab and C program- ming languages.
2025 2026	University of Rennes	L2 Computer Science	Databases	36h	Lab (18h) Tutorials (18h)	Introduction to the concept of databases (mo- delling, normalization, etc.). Practical applications with lab sessions on SQL.