Curriculum Vitae

Elodie Germani

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👤 About me

🪪**Name, Surname:** Germani Elodie
🎂 **Date and place of birth:** 10/09/1997, Pontoise (95), France
🇩🇪**Situation:** Postdoctoral researcher, Albarqouni Lab, Universitätsklinikum Bonn (Germany)

✉️**Email:** elodiegermani@gmail.com
🌐**Website:** https://elodiegermani.fr
🎓**Google Scholar:** https://scholar.google.com/citations?user=BTAAgQEAAAAJ&hl=fr
🐱**GitHub:** https://github.com/elodiegermani

💼 Research experiences

Oct 2024 - Now
Universitätsklinikum Bonn, Germany

Postdoctoral researcher in machine learning for medical imaging
Albarqouni Lab, Klinik für Diagnostische und Interventionelle Radiologie

- **Bias**, **generalizability**, and **fairness** of **Foundation Models** in clinical practice: application on breast mammography classification.

- **Affordable imaging techniques** for clinical practice: quality transfer on low-field MRI for brain anomaly detection in neonatology, AI-based detection of trachoma using smartphone images.

Supervision :
- Pr. Shadi Albarqouni, Professor, Universitätsklinikum Bonn

Oct 2021 - Oct 2024
Université de Rennes France

Doctorate in neuroimaging and computer sciences
IRISA - UMR 6074 (Empenn et LACODAM)

- **Transfer learning** and **neural style transfer** to facilitate the re-use of data from public databases & improve the **generalizability** of fMRI studies.

- Exploring and understanding the analytical space of fMRI results using **statistical modeling** (clustering, statistical testing).

- Impact of analytical variability on **reproducibility.**

Supervision :
- Dr. Camille Maumet, Researcher, Inria, Rennes
- Pr. Elisa Fromont, Professor, Université de Rennes

Aug 2023 - Nov 2023
Concordia & McGill University, Montreal, Canada

Academic visitor
Big Data for Neuroinformatics lab (Concordia Univ.), ORIGAMI Lab (McGill Univ.)

- Exploring the impact of workflow variations in a study on predicting **Parkinson's disease progression** using functional MRI features and machine learning models.

Supervision :
- Pr. Tristan Glatard, Professor, Concordia University
- Pr. Jean-Baptiste Poline, Professor, McGill University

Internship Master (2nd year)
IRISA - UMR 6074 (Empenn)

Jan 2021 - Jul 2021
Université de Rennes 1 France

- Reproduction of fMRI data analyses pipelines used in a many-analyst study (**Project *Narps Open Pipelines***). Quantifying analytical variability and impact of sample sizes on the variations between results.

Supervision :
- Dr. Camille Maumet, Researcher, Inria, Rennes

Internship Master (1st year)
IMAGIMM

Apr 2020 - Jul 2020
Centre d'Immunologie de Marseille-Luminy

- Development of an **R/Shiny interactive app** to facilitate the analysis of histo-cytometry images using graphic-image interaction and statistics.

Supervision :
- Mathieu Fallet, Research engineer
- Dr. Hugues Lelouard, Senior Researcher, CNRS, Marseille

🎓 Education

My academic career started with a Diplôme de Formation Générales en Sciences Médicales, corresponding to the first three years of medicine studies in France. At the end of my 4th year, after careful consideration, I chose to take a shift in my career and did a Master's degree in Bioinformatics. Following my 2nd year internship within the Empenn team, I started a Ph. D. in Computer Sciences at the IRISA - UMR 6074. I am currently a postdoctoral researcher at the University Hospital from Bonn, within Pr. Shadi Albarqouni lab.

Ph.D. in Computer Sciences - *"Exploring and mitigating analytical variability in fMRI results with representation learning"*

Laboratory: IRISA - UMR 6074 (Empenn et LACODAM)

2021 - 2024
Université de Rennes France

Supervision :
- Dr. Camille Maumet, Researcher, Inria, Rennes
- Pr. Elisa Fromont, Professor *(CNU 27)*, Université de Rennes

Jury:
- Pr. Mathieu Acher, Professor *(CNU 27)*, Université de Rennes
- Dr. Ninon Burgos, Researcher, CNRS *(Section 7)*, Paris
- Dr. Carole Lartizien, Senior Researcher, CNRS *(Section 7)*, Lyon
- Pr. Karim Lekadir, Professor *(CNU 61)*, Universitat de Barcelona

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2019 - 2021
Université de Rennes 1 France

Master's degree in Bioinformatics - *Sp. Computer Science*

Mention: "Très bien" *(rank 1/17 - Head of class)*.

2015 - 2019
Université de Versailles St Quentin en Yvelines France

Medicine School
- Diploma of General Training in Medical Sciences (DFGSM)
- 1st year common to health studies (PACES)

📚 Teaching

Year	University	Public / Level	Course	N. of hours	Type	Tasks / Details
2021 - 2022	UFR de Mathématiques Université de Rennes 1	L1 Biology (BECV)	UE MAT1 & MAT2 Mathematics for biology	45h	Practical sessions	Python programming on statistics, and probability. Preparation of sessions (exercises, slides). Exam evaluation.
2021 - 2023	Fondation Rennes 1	Middle school	L Codent, L Créent	20h	Practical sessions	Creative programming workshop in Python for middle school girls to promote and demystify computer science among girls.
2022 - 2023	UFR d'Informatique (ISTIC) Université de Rennes 1	L1 Computer science (ISTN)	UE INF2 Principles of computing systems	24h	Practical sessions and projects	Python programming on computer components, and systems architecture. Project supervision: bibliographic review.
2022 - 2023	UFR d'Informatique (ISTIC) Université de Rennes 1	L1 Computer science (ISTN)	UE PPC Professional project & communication	8h	Practical sessions	Initiation to document management with Open Office. Exam evaluation.
2022 - 2024	UFR d'Informatique (ISTIC) Université de Rennes	M2 Computer science Sp. Software engineering	UE MAL Machine Learning	10h	Practical sessions	Machine learning, Python (scikit-learn, Keras). Creation of the materials (exercises, datasets). Project supervision: software for recognizing handwritten letters and numbers.
2023 - 2024	UFR d'Informatique (ISTIC) Université de Rennes	L2 Informatique (ISTN)	UE DSD Data sciences	24h	Practical sessions	R programming for data science. Statistical tests, modeling, visualization, and time series analysis. Exam evaluation.
2023 - 2024	UFR de Médecine Université de Rennes	M2 Signaux et Images en Biologie et Médecine (SIBM)	UE3 Exploiting massive and complex data	3h	Lecture	Pipeline and workflows, analytical variability, and publication practices. Adaptation of materials. Exam evaluation.
2024	Arab-German Young Academy of Sciences and Humanities (AGYA)	Students in Master's degrees or doctorates.	AGYA Summer School on Affordable AI	10h	Practical sessions	Machine learning in Python.
2024 - 2025	University of Bonn	Medicine students	Seminar AiR "Artificial Intelligence in Radiology: Applications and Research"	3h*	Lecture	Basic notions of artificial intelligence applied to medical imaging. Lectures on AI for classification in radiology and biases of AI models. Creation of materials, logistics.

Total: 154h

🏆 Award and distinctions

- **Award Young Talents For Women In Science 2024 - Fondation L'Oréal & UNESCO**:
Awarded with 34 other doctorates and post-doctorate among 800 applications. This award aims to promote the careers and contributions of young women scientists. €15,000 grant, Leadership and Management training. [Press Book]

- **Mobility scholarships: MITACS Global Research Award** (6,000$ CAD) and **Doctoral School Matisse** (2,400€) to make an academic visit at Concordia University (Montreal) with Pr. Glatard.

- **IABM 2024: Best poster in medical imaging (500€),** funded by Guerbet. Grant for free registration + 400€ to fund a trip to Grenoble for the IABM 2024 conference.

🌟 Community

- **German Postdoc Network**: Working Group for the organization of the Annual Conference.

- Student comity of the **Doctoral Council (Doctoral School Matisse)** from Sep. 2022 to Sep. 2024.

- **FLUID Workshop at AAAI 2025**: outreach comity.

- **AGYA Summer School on Affordable AI 2024**: organization, logistics, mentoring, tutor.

- **Hackathons Narps Open Pipelines**: organization of several hackathons at IRISA and ORIGAMI), Project manager for OHBM Brainhack 2022 and 2023.

- **IDA 2022**: student comity.

📖 Reviewing

- **Conferences:** MIDL 2025 (Salt Lake City, USA), MICCAI 2024 (Marrakech, Morocco). Area Chair for MICCAI 2025 (Daejeon, South Korea).

- **Journal:** Scientific Report, Imaging Neurosciences.

👩‍🎓 Supervision

- **Ilayda Selin Turk - *TU Munich** (Nov 2024 - Present)*
Master thesis - "*Investigating Bias in AI Algorithms for Breast Cancer Detection from Mammography Imaging: A Focus on Generalization to Unseen Populations*".
Co-supervision with Pr. Shadi Albarqouni.

- **Malek Al Abed - *TU Munich** (Oct 2024 - Present)*
Master thesis - "*Deep Learning for Low-field Brain Image Quality Transfer*".
Co-supervision with Pr. Shadi Albarqouni.
Additional collaborators: Pr. Hemmen Sabir, Dr. Anne Groteklaes et Dr. Sebiha Demir.

- **Thibault Chanus - *ENS Rennes** (Oct 2023 - Jan 2024)*
Project of Master 1 - Diffusion models for style transfer.
Co-supervision with Pr. Elisa Fromont.

- **Maiwenn Fleig - *Düsseldorf University** (Apr 2023 - Jul 2023)*
Engineer - Diffusion models on fMRI data.
Co-supervision with Pr. Elisa Fromont.

💬 Scientific outreach

- **"Pint of Science"**: Event manager for the 2024 edition on the theme "*Our Body*".

- **"TISSAGE"**: Creating and animating a quiz on *Artificial Intelligence vs Human Intelligence*. [Slides]

- **"L Codent, L Créent"**: Organizing educational sessions of creative programming for middle school girls. to promote computer science and demystify coding. Presentation of the program at Femmes&Sciences 2022. [Slides]

- **"Info sans ordi"**: Sessions of "Computing without computer" to promote computer science to the general public and scholars. [Website]

- **"Brain Awareness Week"**: Organizing a quiz about neuroimaging research. Editions 2022 and 2024 (project leader). [Slides]

📝 Publications

In machine learning and medical imaging, the first authors are the people who carry out the work, and the last authors are the supervisors. Journal ranks come from Scimago, and conference ones from Conference rank. * means co-authors with equal contributions.

Journal papers

- **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 2024, *PLOS One* was Q1 in "*Multidisciplinary*".
  [Paper][HAL][Code]

- **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*".
  [Paper] [HAL] [Code] [Derived data]

- **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 on "*Medicine (miscellaneous)*".
  [Paper] [HAL] [Code]

Conference papers

- **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.
  Rank A-B. **Oral presentation.**
  [Paper] [HAL] [Code] [Support]

Abstracts & Posters - International conferences

- **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.
  [Poster]

- **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.
  [Poster] [Code]

Abstracts & Posters - National conferences

- **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., Baghwat, 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. ***Awarded Best Poster in Medical Imaging at the conference.***
  [Poster]

- **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.
  [Poster]

Others

- **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., Ehses, 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, Spychala, 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.
  Aperture Neuro, 2024, Vol. 4. DOI: 10.52294/001c.92760.
  [Paper]

- **The HCP Multi-Pipeline dataset**
  Germani, E., Fromont, E., Maurel, P.*, Maumet, C.*
  [Data]

Preprints submitted, under review, or in revision

- **On the validity of fMRI studies with subject-level data processed through different pipelines**
  Germani, E.*, Rolland, X.*, Maurel, P., Maumet, C.
  In revision at Imaging Neuroscience.
  [Papier]

- **The HCP multi-pipeline dataset: an opportunity to investigate analytical variability in fMRI data analysis**
  Germani, E., Fromont, E., Maurel, P.*, Maumet, C.*
  In revision at Scientific Data.
  [Paper]

- **Mitigating analytical variability in fMRI results with style transfer**
  Germani, E., Fromont, E.*, Maumet, C.*
  Submitted to MIDL 2025.
  [Paper]