

# Imke Mayer

*PhD, statistics and applied math*

26 years old

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## Research experience and professional activities

- 2021–Present **Associated Researcher**, *Inria Sophia-Antipolis*, Montpellier, France.  
Project team PreMediCaL.
- 2021–Present **Research Associate**, *Institute for Public Health, Charité – Universitätsmedizin*, Berlin, Germany.  
NeTKoH SWT; causal inference methodology for public health.
- 2020 **Visiting student researcher (interrupted; planned: 4 months)**, *Biomedical Informatics Research Center, Stanford University*, Stanford, CA, USA.  
Causal inference, policy learning. Begun but interrupted due to COVID-19. Advisors: Stefan Wager & Nigam Shah.
- 2019–2021 **Teaching assistant**, *École Polytechnique*, Palaiseau, France.
- 2018–2021 **PhD candidate**, *École des Hautes Études en Sciences Sociales & École Polytechnique*, Paris & Palaiseau, France.  
*Analysis of heterogeneous data with missing values – Application to critical care management.* Statistics, machine learning, personalized medicine. Advisors: Jean-Pierre Nadal & Julie Josse.
- 2018 **Visiting student researcher (5 months)**, *Biomedical Engineering Department, Johns Hopkins University*, Baltimore, MD, USA.  
*Theoretical guarantees for sparse dictionary learning* (Master's thesis). Advisor: René Vidal.
- 2017 **Research intern (2 months)**, *Sorbonne Université*, Paris, France.  
False discovery rate control in linear models. Advisors: Claire Boyer & Maxime Sangnier.
- 2016 **Working student (7 months)**, *Foodora GmbH*, Berlin, Germany.  
Data analysis and forecasting for logistics operations and business intelligence.
- 2013 **Intern (1 month)**, *DRK Klinikum Westend*, Berlin, Deutschland.  
Nursing assistant in the surgical department.

## Teaching

- Summer 2021 **Internship advisor**, *Inria*, Montpellier, France.  
Pre-doctoral internship of Pan Zhao. Topic: Creation of a reference platform for R implementations of causal inference methods.
- Winter 2021 **Course instructor**, *AI4Health Winter School*, Paris, France.  
Causal inference for observational clinical data.
- Spring 2020 **Teaching assistant**, *École Polytechnique - IPP*, Palaiseau, France.  
Causality and missing values (Master level).
- Summer 2019 **Internship advisor**, *École Polytechnique - IPP*, Palaiseau, France.  
Master 1 internship of Teresa Alves de Sousa. Topic: matching methods to assess the impact of tranexamic acid on survival for major trauma patients with head injury.
- Spring, Fall 2019 **Teaching assistant**, *École Polytechnique - HEC*, Palaiseau, France.  
Regression, Unsupervised Learning and Data Analysis, Data for Management (Master level).

## Education and scholarships

- 2020-2021 **Google PhD Fellowship**, *Machine Learning*.
- 2020 **Fondation Sciences Mathématiques de Paris (FSMP) travel scholarship for pre-doctoral research visit**, *Stanford University*, Stanford, CA, USA.
- 2017-2018 **Master 2 Mathematics and applications (Mathématiques, Vision, Apprentissage), highest honors**, *ENS Paris-Saclay*, Cachan, France.
- 2016-2017 **Master 1 Mathematics and applications, highest honors**, *Sorbonne Université*, Paris, France.
- 2015 **FSMP travel scholarship for applied mathematics undergraduate summer school**, *Brown University*, Providence, RI, USA.
- 2013-2016 **Bachelor double degree mathematics and computer science, highest honors**, *Sorbonne Université*, Paris, France.
- 2013-2018 **Excellence Major honor scholarship**, *Agence pour l'Enseignement Français à l'Étranger (AEFE)*, France.
- 2013 **French Baccalauréat (scientific stream) and German Abitur, highest honors**, *Lycée français*, Berlin, Germany.
- 2012 **German Student-Academy scholarship (course in neurolinguistics and cognitive science)**, *Stiftung Bildung & Begabung*, Rostock, Germany.

## Publications

- 2021 **I. Mayer**, J.-D. Moyer, A. Dreyfus, M. Boutonnet, P.-J. Cungi, A. Fourcrier, A. Harrois, A. James, J.-P. Nadal, J. Josse, T. Gauss. **Machine Learning Augmented Causal Inference To Estimate The Treatment Effect of Tranexamic Acid In Traumatic Brain Injury**, *submitted*, <https://www.researchsquare.com/article/rs-600886/latest.pdf>.
- 2021 **I. Mayer**, J. Josse, Traumabase Group. **Generalizing treatment effects with incomplete covariates**, *submitted*, <https://arxiv.org/pdf/2104.12639.pdf>.
- 2020 B. Colnet, **I. Mayer**, G. Chen, A. Dieng, R. Li, G. Varoquaux, J.-P. Vert, J. Josse, S. Yang. **Causal inference methods for combining randomized trials and observational studies: a review**, *under revision*, <https://arxiv.org/pdf/2011.08047.pdf>.
- 2020 E. Sbidian, J. Josse, G. Lemaitre, **I. Mayer**, M. Bernaux, A. Gramfort, N. Lapidus, N. Paris, A. Neuraz, I. L., N. Garcelon, B. Rance, O. Grisel, T. Moreau, A. Bellamine, P. Wolkenstein, G. Varoquaux, E. Caumes, M. Lavielle, A. Mekontso Dessap, E. Audureau **Hydroxychloroquine with or without azithromycin and in-hospital mortality or discharge in patients hospitalized for COVID-19 infection: a cohort study of 4,642 in-patients in France**, *submitted*, <https://www.medrxiv.org/content/medrxiv/early/2020/06/19/2020.06.16.20132597.full.pdf>.
- 2020 **I. Mayer**, E. Sverdrup, T. Gauss, J.-D. Moyer, S. Wager, and J. Josse. **Doubly robust treatment effect estimation with missing attributes**, *Annals of Applied Statistics*, <https://projecteuclid.org/euclid.aoas/1600454872>.
- 2020 **I. Mayer**, J. Josse, F. Raimundo and J.-P. Vert. **MissDeepCausal: causal inference from incomplete confounders using deep latent variable models**, *submitted*.
- 2019 **I. Mayer**, J. Josse, N. Vialaneix, N. Tierney. **R-miss-tastic: a unified platform for missing values methods and workflows**, *submitted*, <https://arxiv.org/abs/1908.04822>.

## Oral and poster communications

- Sept. 2021 **Convention of the French Society of Anesthesia & Intensive Care Medicine (talk)**, *Palais des Congrès*, Paris, France.

- Aug. 2021 **Joint Statistical Meetings (invited talk)**, *Topic Contribution Session*, Seattle, WA, USA.
- July 2021 **European Causal Inference Meeting (talk)**, *London School of Economics*, London, England.
- June 2021 **Working Group on Risk (invited talk)**, *ESSEC Business School*, Paris, France.
- Jan. 2021 **Séminaire Systèmes complexes (invited talk)**, *EHESS*, Paris, France.
- Sep. 2020 **European Network for Business and Industrial Statistics (invited talk, cancelled due to COVID-19)**, *Technical University of València*, València, Spain.
- May 2020 **American Causal Inference Conference (talk, postponed to 2021 due to COVID-19)**, *University of Texas*, Austin, TX, USA.
- Jan. 2020 **Young Statisticians and Probabilists (invited talk)**, *Institut Henri Poincaré*, Paris, France.
- Jan. 2020 **MaiAGE seminar (invited talk)**, *INRA*, Jouy-en-Josas, France.
- Jan. 2020 **Séminaire Palaisien (invited talk)**, *ENSAE, DATAIA*, Palaiseau, France.
- Dec. 2019 **NeurIPS workshop on Causality and Machine Learning (poster)**, *Advances in Neural Information Processing Systems 32*, Vancouver, Canada.
- Dec. 2019 **Econometrics and Big Data seminar (invited talk)**, *Aix-Marseille University*, Marseille, France.
- Sept. 2019 **Statistique, mathématiques et applications (talk)**, Fréjus, France.
- June 2019 **51èmes Journées de Statistique (talk)**, *Université de Lorraine*, Nancy, France.
- June 2019 **Séminaire Systèmes complexes (invited talk)**, *EHESS*, Paris, France.
- May 2019 **Data science seminar for MDs in critical care management (talk)**, *Traumabase Group*, Paris, France.
- March 2019 **European Causal Inference Meeting (poster)**, *Leibniz Institute*, Bremen, Germany.
- March 2019 **DAGStat Conference (poster)**, *LMU München*, Munich, Germany.

### Software development

- Website **CRAN Task View on Causal Inference**, *under review*, with Pan Zhao.
- Website **R-miss-tastic: a unified platform on missing values methods**, *funded by the R Consortium*.
- R package **misaem**, *Maintenance taken over from original author Wei Jiang*.

### Scientific commitment

- June 2021 **Organization committee member and Session Chair**, *Workshop Leveraging Observational Data using Machine Learning*, Inria, Inserm, Owkin.
- 2020–Present **Member of the Editorial Board of the YoungStatS research blog**, *Young Statisticians of Europe*.
- 2020–Present **Referee**, *International Conference on Learning Representations (ICLR)*, *Biometrical Journal*, *Annals of Intensive Care*, *Journal of the Royal Statistical Society*.
- 2020–Present **Secretary of the Groupe Jeunes of the SFdS (French Statistical Society)**, (*responsibilities: organization of satellite events at the JdS, construction of European Young Statisticians network*).
- 2019–2021 **Organizer of the Young Statisticians and Probabilists colloquium**, *SFdS*.

### Languages and programming skills

German Native

R Advanced

English Perfectly proficient  
French Perfectly proficient  
Korean Elementary

Python Intermediate  
C++ Intermediate  
SQL, matlab Basics

## Associative commitment and interests

2019–2021 **Elected member of the parity and diversity committee**, *CMAP, École Polytechnique*, Palaiseau, France.

2018–Present **Member of R Foundation *Forwards* taskforce on women and other underrepresented groups**, (*responsibilities: diversity scholarship coordination*).

Hobbies I was born and grew up in Berlin and have been living mostly in France since 2013. I like to travel to different countries, because new foreign cultures and languages fascinate me. Curious and committed I meet all ventures and new challenges. In my free time I read a lot, do various sports (running, swimming, yoga, hiking and Korean folk dance) and regularly attend German and foreign language plays. I also enjoy playing the piano and sometimes the clarinet to relax.