

Sreejita Ghosh

Curriculum Vitae

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Nationality: Indian



I am passionate about interdisciplinary research involving different Machine Learning techniques, both *shallow* and deep, depending on the kind of dataset, problem and resources. I especially am interested in anthropocentric applications of ML and explainable AI. I have experienced in working with small datasets with high dimensions, as well as large datasets, such as from the UK Biobank, and working on the high computing clusters of UMCU.

Current positions

- 09/2021-Present **Postdoc**, part of the *ExposomeNL network* and the *WP5 of EXPANSE project* at Institute of Risk Assessment Sciences (IRAS), Utrecht University, the NL,
- Using the domain-expert agnostic data mining abilities of interpretable Machine learning technique for causal network discovery.
 - Working in close collaboration with a team of Epidemiologists, Bio-statisticians on Exposome research.
 - Co-supervision of an Epidemiology Masters students on her 13-month project at IRAS.
 - Setting up and co-maintenance of Github organization for current research group and teaching teammates to get onboard with Github and version-control in general.
 - Lecture and co-supervision of Practicals in [Molecular Epidemiology Course 2022](#) .
- 10/2021-Present **Postdoc**, part of the *MyDigiTwin project* at the *Circulatory Health Research Unit*, University Medical Centrum Utrecht, the NL,
- Working in close collaboration with a team of Epidemiologists, Cardiologists, Bioinformaticians, and other Cardiovascular disease researchers.
 - Preparing first authored paper on application of interpretable Machine Learning techniques for improved cardiovascular disease incidence prediction in patients with comorbidities.
 - Presented a talk and supervised lab in Utrecht University Summer School on Big Data on August 15, on *Introduction to shallow and interpretable Machine Learning*, aimed at medical and epidemiology students.
- 06/2022-Present **Visiting Researcher**, *Dept. of Epidemiology and Biostatistics*, Imperial College London, the UK.

Previous positions

- 10/2016-09/2021 **PhD student**, *Bernoulli Institute of Mathematics, Computer Science and Artificial Intelligence*, University of Groningen, the NL, thesis titled [Intrinsically interpretable machine learning in Computer-Aided-Diagnosis](#) successfully defended on 10/09/2021..
- Developing ML models capable of handling even systematic missingness which is one of the biggest weaknesses of real-world datasets, learning from high dimensional but low sample size data, which could be easily explainable to clinicians, thus gaining their trust.
 - Close collaboration with medical teams at Institute of Metabolism and Systems Research, University of Birmingham, and University Medical Centrum Groningen, understanding their needs, and translating their needs into novel ML algorithms.
 - Supervision of 3 Bachelors and 4 Masters student project (papers currently being prepared)
 - Graduate Teaching Assistant for courses 'Introduction to Data Science', 'Neural Networks and Computational Intelligence', and 'Modelling and Simulation'
 - Presented first-authored work at prestigious conferences such as European Symposium of Artificial Neural Networks 2017 and IEEE International Joint Conference on Neural Networks 2020, along with presenting at international workshops in Germany and in the Netherlands.
 - On 21/03/2017 secured [1st place in the Health track of poster competition at ICT.Open 2017](#), at Amersfoort, by presenting work on computer aided diagnosis of rare and inborn steroidogenic disorders in children.

- 02/2016-07/2016 **Master thesis student**, *Philips Research, Eindhoven, The Netherlands*,
• Learned a *Nearest prototype based classifier (NPC)* and applied it on a real-life medical dataset to predict the severity of heart failure patients admitted in a hospital.
• Learned first-hand the difference in motivation and resource constraints in academic and industry research, submitted thesis titled **Heart Failure Severity Prediction From Medical Records**.

Education

- 10/2016-01/2019 **Successful completion of courses during PhD**, *University of Groningen, the Netherlands*: , "Introduction to Data Science", "Neural Networks and Computational Intelligence", "Course on computer clusters by CIT", "Publishing in English".
- 09/2014-09/2016 **Master's Degree Biomedical Engineering (specialization: Diagnostic imaging and instrumentation)**, *University of Groningen, Faculty of Science and Technology*.
- 06/2010-05/2014 **Bachelor of Technology, Biomedical Engineering**, *Vellore Institute of Technology, VIT University, India*.

Certificates and Professional Skills

- 10/2022 **Certificate from Coursera on Epidemiology for Public Health by Dr. Filippos Filippidi, Imperial College London**, (1) *Measuring Disease in Epidemiology*, (2) *Study Designs in Epidemiology*, and (3) *Validity and Bias in Epidemiology*.
- 02/2021 **Certificate from Coursera on Deep Learning specialization by Andrew Ng**, *Neural Networks and Deep Learning, Improving Deep Neural Networks: Hyperparameter Tuning, Regularization and Optimization, Structuring Machine Learning Projects, Convolutional Neural Networks, Sequence Models*.
- 11/2019 **Certificate from I am a scientist, UK**, *Academy Zone*, Online training course of science engagement competition.

- Languages **Python, Matlab, \LaTeX and R (all very good), and Bash (for HPC clusters)**.
- Version control **Gitlab, Github**.
- OS **Ubuntu, Windows**.
- Project management **Agile, Slack, Github, Basecamp**, Got used to *Agile (Scrum)* way of working during *Master thesis project at Philips Research*. During *PhD*, while coordinating the course '*Introduction to Data Science*' used *Basecamp* and *Github* for project management. Teaching current academic colleagues the project management function of *Github*.

Published work

[My Google Scholar page.](#)

Personal skills

- Science communicator Can communicate complex technical ideas and findings to domain experts from other domains, to general public, and to school students.
- Adaptable Enjoys working in multi-cultural team from diverse educational backgrounds.
- Fast learner Quick to adjust technical skills to the needs of collaborators and clients.
- Languages English (native), Dutch (ongoing A2>A2/B1), Bengali (native), Hindi (good).

Extra-curricular

- Science outreach Enjoy talking to school students about Machine Learning and Biomedical Engineering, and inspiring them towards a career in Science and Engineering. , '*Scientist of the week*' in *Coding Zone of I am a Scientist, UK, Stay at home edition* .
- Hobbies Jiu-jitsu, swimming, bouldering, acrylic painting, and reading fictions.

Referees

Available on request