

# Sreejita Ghosh

## Curriculum Vitae

Yalelaan 2, Utrecht, The Netherlands  
✉ s.ghosh1@uu.nl ✉ s.ghosh@umcutrecht.nl  
📄 ghoshsreejita.com  
0000-0001-7865-2736  
🌐 sreejita/  
Nationality: Indian



Profile: Passionate about research, teaching, and outreach activities associated with interpretable Machine Learning (ML) and anthropocentric interdisciplinary research. Currently a postdoc at IRAS in the UU, and the Circulatory Research group of UMC Utrecht, trying to investigate the effect of certain exposures and comorbidities on cardiovascular disease outcomes and mortality through intrinsically interpretable ML techniques.

### Work experience

- 09/2021-Present **Postdoc**, IRAS, Utrecht University, Part of the ExposomeNL network and the EXPANSE project.
- 10/2021-Present **Postdoc**, Circulatory Health Research Unit, University Medical Centrum Utrecht.
- 06/2022-Present **Visiting Researcher**, Dept. of Epidemiology and Biostatistics, Imperial College London.
- 10/2016-01/2021 **PhD candidate**, Bernoulli Institute of Mathematics, Computer Science and Artificial Intelligence, University of Groningen, The Netherlands.  
Defended thesis titled **Intrinsically interpretable machine learning in Computer-Aided-Diagnosis** on 10/09/2021
- 02/2016-07/2016 **Master thesis student**, Philips Research, HTC, Eindhoven, The Netherlands.

### Education

- 10/2016-01/2021 **Successful completion of courses**, University of Groningen, the Netherlands.  
"Introduction to Data Science", "Neural Networks and Computational Intelligence", "Course on computer clusters by CIT", "Publishing in English" and "Dutch, level A0>A1, A1>A2"
- 09/2014-09/2016 **Master's Degree Biomedical Engineering (specialization: Diagnostic imaging and instrumentation)**, University of Groningen, Faculty of Science and Technology.  
Thesis: - Heart Failure Severity Prediction From Medical Records  
Dr. Gert-Jan de Vries (Philips Research, Eindhoven), Dr. R.J. Renken (Neuroimaging Center, Universitair Medisch Centrum Groningen) and Prof.Dr. Michael Biehl (Johann Bernoulli Institute, University of Groningen)
- 06/2010-05/2014 **Bachelor of Technology, Biomedical Engineering**, Vellore Institute of Technology, VIT University, India.  
Thesis: Epileptic seizure prediction from EEG signals with Pattern Recognition  
Adviser: Dr. Prabhav Reddy (VIT University)

### Technical Skills

- Languages **Python, Matlab, R, SQL** (basics).
- Version control Gitlab, Github.
- OS Ubuntu, Windows.
- Project management Agile (Scrum), Slack, Github, Basecamp.

### Administrative activities

- 12/2021-Present **Setting up of Github organization for current research group and teaching team-mates to get onboard with version-control and Github**, One health Chemical-Exposome, IRAS, Utrecht University, The Netherlands.
- 10/2016-12/2017 **Organization of student colloquium and group meetings for the Intelligent systems group**, Bernoulli Institute, University of Groningen, The Netherlands.
- 09/2014-01/2016 **Master student representative in Course and curriculum committees of MSc. Biomedical Engineering**, University of Groningen, The Netherlands.

---

## Certificates and Professionalization activities

- 02/2021 **Coursera, *Deep Learning specialization***, 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.  
coursera.org/verify/specialization/4UJ83YTSVS2T
- 11/11/2019-22/11/2019 Participated in Academy Zone of I am a Scientist, UK, ***Online training course of science engagement competition***.
- 14/06/2019 Followed workshop, ***Storytelling***, Trained on how to communicate research to experts and non-experts, Career Perspective Series, RUG.
- 24/05/2019 Followed workshop, ***Numerical Python for programmer***, CIT, RUG.
- 17/05/2019 Followed workshop, ***Introduction to Python for programmers***, CIT, RUG.
- 21/03/2019 Followed workshop, ***Visualization in R***, CIT, RUG.

---

## Journal and Conference Contributions

**Ghosh, S.**, E.S Baranowski, M. Biehl, W. Arlt, P. Tino, and K. Bunte. Interpretable models capable of handling systematic missingness in imbalanced classes and heterogeneous datasets. *arXiv preprint arXiv:2206.02056*, 2022. awaiting decision from journal it is submitted to.

**S. Ghosh**, P. Tino, and K. Bunte. Visualisation and knowledge discovery from interpretable models. In *Proceedings of International Joint Conference on Neural Networks*. IEEE, 2020.

E.S. Baranowski, **S. Ghosh**, C.H.L Shackleton, A.E. Taylor, B.A Hughes, M. Biehl, T. Guran, K. Bunte, P. Tino, and W. Arlt. Steroid metabolomics: A powerful technique for differentiating inborn disorders of steroidogenesis. 2018. Poster presented at the 17th International Congress on Hormonal Steroids and Hormones Cancer (ICHSCH) by Elizabeth Baranowski.

**S. Ghosh**, E.S. Baranowski, R. van Veen, Gert-Jan de Vries, M. Biehl, W. Arlt, P. Tino, and K. Bunte. Comparison of strategies to learn from imbalanced classes for computer aided diagnosis of inborn steroidogenic disorders. In Michel Verleysen, editor, *25th European Symposium on Artificial Neural Networks, Computational Intelligence and Machine Learning, ESANN 2017*, pages 199–205. Ciaco - i6doc.com, 4 2017.

R. Pauli, P. Tino, J.C. Rogers, R. Baker, R. Clanton, P. Birch, A. Brown, G. Daniel, L. Ferreira, L. Grisley, G. Kohls, S. Baumann, A. Bernhard, A. Martinelli, K. Ackermann, H. Lazaratou, F. Tsiakoulia, P. Bali, H. Oldenhof, L. Jansen, A. Smaragdi, K. Gonzalez-Madruga, M. A Gonzalez-Torres, M. Gonzalez de Artaza-Lavesa, M. Steppan, N. Vriends, A. Bigorra, R. Siklosi, **S. Ghosh**, K. Bunte, R. Dochnal, A. Hervás, C. Stadler, A. Fernandez-Rivas, G. Fairchild, A. Popma, D. Dikeos, K. Konrad, B. Herpertz-Dahlmann, C M. Freitag, P. Rotshtein, and S A. De Brito. Positive and negative parenting in conduct disorder with high versus low levels of callous-unemotional traits. *Development and Psychopathology*, 2 2020.

E.S Baranowski, **S. Ghosh**, C. HL Shackleton, A.E Taylor, B. A Hughes, L. C Gilligan, A. Utari, S. MH Faradz, A E van Herwaarden, C. H L van der Grinten, M. Biehl, T. Guran, K. Bunte, P. Tino, and W. Arlt. Steroid metabolomics: A rapid computational approach for accurate differentiation of inborn disorders of steroidogenesis. *Endocrine Abstracts*, 63, 5 2019.

---

## Conference and Workshop participation and presentation

- 20/07-24/07/2020 **Poster presentation at World Congress on Computational Intelligence 2020**, *International Joint Conference on Neural Networks (IJCNN 2020)*, Glasgow (online).
- 01/07-03/07/2020 **Presentation: 12th Mittweidaer Workshop for Computational Intelligence (oMiWoCi)**, *University of Applied Sciences, Mittweida, Germany*.
- 24/01/2020 **Poster presentation at Alice and Eve: Women in Computer Science**, *University of Twente*, the Netherlands.

- 11/09-13/09/2019 **Presentation: 11th Mittweidaer Workshop for Computational Intelligence (Mi-WoCi)**, University of Applied Sciences, Mittweida, Germany.
- 28/03-29/03/2019 **Attended: International Workshop on Intelligent Systems and Computational Intelligence (WISCI) 2019**, Groningen, The Netherlands.
- 25/06-27/06/2018 **Presentation: 10th Mittweidaer Workshop for Computational Intelligence (Mi-WoCi)**, University of Applied Sciences, Mittweida, Germany.
- 22/03-23/03/2018 **Presentation: International Workshop on Intelligent Systems and Computational Intelligence (WISCI) 2018**, Groningen, the Netherlands.
- 24/07-26/07/2017 **Presentation: 9th Mittweidaer Workshop for Computational Intelligence (Mi-WoCi)**, University of Applied Sciences, Mittweida, Germany.
- 23/05/2017 **Poster and oral presentations**, Representing the Intelligent Systems group at the international advisory panel visit of the Johann Bernoulli Institute of Mathematics and Computer Science, Groningen, the Netherlands.
- 26/04-29/04/2017 **Poster presentation at 25th European Symposium on Artificial Neural Networks**, Brugge, Belgium.
- 21/03-22/03/2017 **Poster presentation at ICT.Open 2017**, Amersfoort, the Netherlands.

---

## Awards

- 12/06/2020 **Scientist of the Week**, Coding Zone, I am a Scientist, UK, Stay at home edition.  
<https://coding20.imascientist.org.uk/2020/06/12/the-coding-zone-scientist-of-the-week>
- 21/03/2017 **1st place in the Health track poster competition**, ICT.Open 2017, Amersfoort, for poster: Computer aided diagnosis under the influence of heterogeneous data and imbalanced classes.

---

## Teaching and supervision

- 03/2022-Present Co-supervision (with Dr. J.J. Vlaanderen) of an **MSc.** Student, "*Investigation of influence of air pollution on mortality*", **60 ECTS**, Xuan Chen, UU and UMC Utrecht.
- 05/2022-Present Co-supervision (with Dr. J.J. Vlaanderen) of an **MSc.** summer project student, "*To find urban exposure based health risk scores and comparing algorithm prediction ability of mortality using these risk scores for interesting sub-population*", Nawid Habib, Imperial College London.
- 19/2022-22/2022 **Lecture and co-supervision of Practicals** in Molecular Epidemiology Course 2022, talk on "*Interpretable non-parametric machine learning techniques for knowledge extraction*", and co-supervision of practicals in RNotebook.
- 04/2020-07/2020 **Co-supervision** (with Dr. K. Bunte and Prof. M. Biehl) of a **BSc.** Student Thesis, "*Analysing Asthma Remission using Probabilistic Learning Vector Quantization*", **15 ECTS**, Sander de Haan, RUG.
- 04/2020-07/2020 **Co-supervision** (with Dr. K. Bunte and Prof. M. Biehl) of a **BSc.** Student Thesis, "*An Analysis of Asthma Remission Using Kullback-Leibler Matrix Learning Vector Quantization*", **15 ECTS**, Sjoerd Bruin, RUG.
- 12/2019-02/2020 **Co-supervision** (with Dr. K. Bunte) of a short programming project (**B.Sc.**), "*Visualization of an interpretable classifier*", **5 ECTS**, Ethan Waterink, RUG.
- 04/2019-07/2019 Co-supervision (with Dr. K. Bunte and Prof. M. Biehl) of an **MSc.** Student Internship, "*Asthma Data Analysis using a Probabilistic Variant of Random Forest*", **15 ECTS**, Codrut-Andrei Diaconu, RUG.
- 04/2018-07/2019 **Co-supervision** (with Dr. K. Bunte) of an **MSc.** Student Internship, "*Bicluster and supervised analysis of PCOS and ACC patient data*", **15 ECTS**, Roel W. Visser, RUG.
- 04/2018-05/2019 **Co-supervision** (with Dr. K. Bunte) of an **MSc.** Student Internship, "*Classifying different types of asthma using Generalized Matrix Learning Vector Quantization and Localized Generalized Matrix Learning Vector Quantization*", **15 ECTS**, Mark A. Helmus, RUG.

- 12/2018-03/2019 **Co-supervision** (with Dr. K. Bunte) of an **MSc. Thesis**, "*Pattern recognition for the analysis of Asthma using multiple sources of measurements*", **15 ECTS**, Kyriaki-Nektaria Pantelidou, RUG.
- 2017/2018 **Teaching assistant for MSc. course**, "*Introduction to Data Science*", **5ECTS**, for Dr. Kerstin Bunte, Dr. Mircea Lungu and Dr. George Azzopardi, RUG, (taught in two iterations, each having more than 100 students, ).
- 11/2017-01/2018 **Teaching assistant for MSc. course**, "*Neural Networks and Computational Intelligence*", **5ECTS**, for Prof. Michael Biehl, RUG, (more than 90 students).
- 09/2015-12/2015 **Teaching assistant for MSc. course**, "*Modelling and Simulation*", **5ECTS**, for Prof. Michael Biehl, RUG, (more than 60 students).

---

## Research Visit

- 28/01-02/02/2018 **Prof. Peter Tino and Prof. Wiebke Arlt**, *University of Birmingham, UK*, Computer Science, Psychology, and Medical School collaboration, and project discussion.

---

## Outreach

- 04/2020-present **Science communicator**, *Skype A Scientist*, Explaining interpretable ML models to school students and inspiring them towards a career in STEM.
- 11/2019 **Science writer**, "*The Physics and Mathematics in my Machine Learning Research*", *Periodiek 2019-3*, Faculty of Science and Engineering, University of Groningen, the Netherlands.  
[https://perio.fmf.nl/archief/perio\\_2019-3.pdf](https://perio.fmf.nl/archief/perio_2019-3.pdf) p6-7
- 12/2019-01/2020 **Science communicator**, *I am a Mathematician, the United Kingdom*, Answered Mathematics and machine learning related questions on the forum and live chats.  
<https://secrets.imamathematician.uk/questions-to/sreejitaghosh/>
- 09/2019-09/2020 **Science communicator**, *Big Data Zone, Career Zone, Stay at Home zones of I am a Scientist, United Kingdom*, Answered machine learning related questions on the forum and live chats.  
<https://bigdatan19.imascientist.org.uk/questions-to/sreejitaghosh/>

---

## Referees

- PhD Promoter, Supervisor **Prof. Dr. Michael Biehl**, *Intelligent Systems group*, Bernoulli Institute, University of Groningen, NL, email: meikelbiehl@gmail.com.  
<http://www.cs.rug.nl/~biehl/>
- Co-Promoter, daily Supervisor of PhD **Dr. Kerstin Bunte**, *Intelligent Systems group*, Bernoulli Institute, University of Groningen, NL, email: k.bunte@rug.nl.  
<http://www.cs.rug.nl/~kbunte/>
- PI from IRAS for postdoc **Dr. Jelle Vlaanderen**, *One Health Chemical-Exposome*, IRAS, Utrecht University, email: j.j.vlaanderen@uu.nl.  
<https://exposome.nl/research/researchers/jelle-vlaanderen.html>
- PI from UMC Utrecht for postdoc **Dr. Floriaan Schmidt**, *Circulatory Health Research group*, UMC Utrecht, email: a.f.schmidt-2@umcutrecht.nl.  
<https://www.umcutrecht.nl/en/research/researchers/schmidt-floriaan-af>
- PI from IRAS for postdoc **Prof. Dr. Roel Vermeulen**, IRAS, Utrecht University, email: r.c.h.vermeulen@uu.nl.  
<https://exposome.nl/research/researchers/roel-vermeulen.html>