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Affiliations

Visiting Researcher 06.2026 - 08.2026
Broad Institute of MIT and Harvard, Cambridge, USA (hosts: Dr. Hilary Finucane, Dr. Konrad Karczewski)

Doctoral Researcher 01.07.2024 - Present
Helmholtz Munich

Doctoral Researcher 01.10.2022 - Present
Technical University of Munich

Education

PhD in Computational Biology October 2022 - Present
Technical University of Munich & Helmholtz Munich

- **Supervisor: Prof. Dr. Julien Gagneur**
- **Research Focus:** Developing methods to capture rare variant effects in diseases and complex traits. Working with biobank scale data (UK Biobank) and large rare-disease cohorts (Solve-RD).
- Enrolled in the prestigious **Munich School for Data Science (MUDS)** PhD program
- Supervised 3 Master's thesis, and multiple graduate and undergraduate student interns.

Master of Science August 2020 - May 2022
Indian Institute of Science Education and Research, Pune

- Majored in Mathematics, GPA: 8.5 (out of 10)
- **Master thesis** (Supervisor: Dr. Annalisa Marsico)
Implemented explainable AI methods to quantify secondary structure binding preferences of RNA-Binding Protein

Bachelor of Science August 2017 - May 2020
Indian Institute of Science Education and Research, Pune

- Majored in Mathematics, GPA: 8.5 (out of 10)
- **Research assistant** (Supervisor: Prof. M. S. Madhusudhan)
Developed an algorithm to learn structural patterns from protein micro-environments using deep learning.

Publications

1. **Shubhankar Londhe**, Eva Holtkamp, Georgios Tsitsiridis, Anna Starovoit, Pedro Tomaz da Silva, Johannes Hingerl, Hilary Finucane, Julien Gagneur. "Phenotypes of ultra-rare variant carriers benchmark variant effect scores". *bioRxiv* (2026).
2. Nils Wagner, Aleksandr M Neverov, Alexandra C Martin-Geary, **Shubhankar Londhe**, Carina Schröder, Vicente A Yépez, Nicola Whiffin, Julien Gagneur. "Aberrant splicing prediction during human organ development". *bioRxiv* (2025).
3. Vicente A Yépez, German Demidov, Kornelia Ellwanger, ... **Shubhankar Londhe**, ... Solve-RD consortium, Julien Gagneur, Holm Graessner. "The Solve-RD Solvathons as a pan-European interdisciplinary collaboration to diagnose patients with rare disease". *Nature Genetics* (2025).
4. **Shubhankar Londhe**, Jonas Lindner, Zhifen Chen, Eva Holtkamp, Florian R. Holzlwimmer, Francesco Paolo Casale, Felix Brechtmann, and Julien Gagneur. "Functional gene embeddings improve rare variant polygenic risk scores". *bioRxiv* (2024).

5. Felix Brechtmann, Thibault Bechtler, **Shubhankar Londhe**, Christian Mertes, and Julien Gagneur. “Evaluation of input data modality choices on functional gene embeddings”. *NAR Genomics and Bioinformatics* (2023)

6. Marc Horlacher, Giulia Cantini, Julian Hesse, Patrick Schinke, Nicolas Goedert, **Shubhankar Londhe**, Lambert Moyon, and Annalisa Marsico. “A systematic benchmark of machine learning methods for protein–RNA interaction prediction”. *Briefings in Bioinformatics* (2023)

Talks

- 1. **ERDERA Science Club Series** October 2025
Functional gene embeddings improve rare variant based gene discovery
- 2. **Annual meeting of the European Society of Human Genetics (ESHG), Milan, Italy** May 2025
Functional gene embeddings improve rare variant polygenic risk scores
- 3. **Weihenstephan Bioinformatics Symposium, Freising, Germany** April 2025
Functional gene embeddings improve rare variant polygenic risk scores
- 4. **Annual meeting of the American Society of Human Genetics (ASHG), Denver, USA** November 2024
Functional gene embeddings improve rare variant polygenic risk scores

Skills

- **Programming**
5+ years Python (PyTorch, pandas, optuna, etc.), L^AT_EX
3+ years GPU computing, Snakemake, Git, SLURM, bash, R (ggplot, tidyverse, etc.)
- **Teaching** (teaching team, TUM)
 - Machine Learning for Human Genetics October 2026 - Present
 - A Practical Introduction to Data Science October 2026 - Present
 - Computational Modelling for System Genetics October 2022 - April 2026
 - Data Analysis and Visualization in R October 2022 - April 2026
 - Machine Learning for Regulatory Genomics April 2023 - October 2025
- **Languages**
Native: English, Marathi | Fluent: Hindi

Grants & Achievements

- **EMBO Scientific Exchange Grant #12502** June - August 2026
3-month research exchange at the Broad Institute of MIT and Harvard with Hilary Finucane and Konrad Karczewski.
- **iGEM (International Genetically Engineered Machine), Silver Medal** November 2019
Performed the quantitative modelling of the engineered synthetic operon system in the bacteria.
- **All India Rank 51** in the all-India level IISER Aptitude Test July 2017

References

Available on request.