Jacopo Teneggi

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EDUCATION

Johns Hopkins University — Baltimore, MD
PhD in Computer Science — 2022—present

- Advisor: Prof. Jeremias Sulam.

MSE in Biomedical Engineering — 2020—2022

- Concentration: Biomedical Data Science (3.93/4.00 GPA).
- Master's Thesis: *"Multiple-Instance Learning as a Framework to Explain via the Shapley Value"*
  Committee: Prof. Jeremias Sulam (Advisor), Prof. Soledad Villar, Prof. Adam Charles.

Politecnico di Torino — Torino, Italy
BS in Biomedical Engineering (3.93/4.00 GPA) — 2017—2020

PUBLICATIONS

2025 Protein Design with Agent Rosetta: A Case Study for Specialized Scientific Agents.
Teneggi, J., Marwah, T., Bietti, A., Renfrew, P.D., Mulligan, V.K. and Golkar, S., NeurIPS AI4Science and SEA Workshops.

2025 Direct Preference Optimization for Adaptive Concept-Based Explanations.
Teneggi, J., Wang, Z., Yi, P., Shu T. and Sulam, J., arxiv.

2025 Conformal Risk Control for Semantic Uncertainty Quantification in Computed Tomography.
Teneggi, J., Stayman, J.W. and Sulam, J., MICCAI.

2025 Fourier Diffusion Models: A Method to Control MTF and NPS in Score-Based Stochastic Image Generation.
Tivnan M, Teneggi, J., et al., IEEE TMI.

2024 Testing Semantic Importance via Betting.
Teneggi, J. and Sulam, J., NeurIPS.

2023 Examination-level Supervision for Deep Learning-Based Intracranial Hemorrhage Detection on Head CT.
Teneggi, J., Yi, P.H., Sulam, J., Radiology: Artificial Intelligence. (Cover feature)

2023 SHAP-XRT: The Shapley Value Meets Conditional Independence Testing.
Teneggi, J.*, Bharti, B.*, Romano, Y. and Sulam, J., Transactions on Machine Learning Research.

2023 How to Trust Your Diffusion Model: A Convex Optimization Approach to Conformal Risk Control.
Teneggi, J., Tivnan, M., Stayman, J.W. and Sulam, J., ICML.

2022 Fast Hierarchical Games for Image Explanations.
Teneggi, J., Luster, A., and Sulam, J., IEEE TPAMI. (Best paper award at IMLH, ICML 2021)

2021 Fitting splines to axonal arbors quantifies relationship between branch order and geometry.
Athey, T.L., Teneggi, J., Vogelstein, J.T., Tward, D.J., Mueller, U. and Miller, M.I., Frontiers in Neuroinformatics.

2021 Entropy estimation within in vitro neural-astrocyte networks as a measure of development instability.
Teneggi, J., Chen, X., Balu, A., Barrett, C., Grisolia, G., Lucia, U. and Dzakpasu, R., Physical Review E.

AWARDS AND FELLOWSHIPS

- NeurIPS 2025 top reviewer. — 2025

- Mathematical Institute for Data Science (MINDS) summer fellowship. 2024
- RSNA Trainee Research Prize in imaging informatics. 2022
- Best Paper Award, Workshop in Interpretable Machine Learning in Healthcare (IMLH) @ ICML. 2021
- IEEE HKN Mu Nu Chapter Inductee. 2019
- Politecnico di Torino *Young Talents* scholarship (full-ride, top 200 applicants). 2017

SERVICE

- Journal reviewing: IEEE TPAMI, TMLR (expert reviewer), Medical Physics.
- Conference reviewing: NeurIPS, ICML, ICLR, CPAL, MICCAI (expert reviewer), DeepMath.

INDUSTRY EXPERIENCE

Polymathic AI, Research Scientist Intern May 2025 - August 2025

AI agents for specialized scientific applications.

Profluent Bio, ML Scientist Intern June 2023 - September 2023

Parameter efficient fine-tuning of LLMs for guided protein generation.

nference, Inc., Data Scientist Intern June 2021 - September 2021

Distributed pretraining of LLMs on biomedical corpora.

TEACHING AND MENTORSHIP EXPERIENCE

Mentor, Malone Center for Engineering in Healthcare Internship Program Fall 2024
The goal of this program is to establish stronger ties with universities in Mexico and Latin America.

Mentor, Whiting Internships in Science and Engineering (WISE) Spring 2024
WISE provides research learning opportunities for Baltimore City public high school students.

Teaching assistant, *(EN.580.464) Advanced Data Science for Biomedical Engineering* Spring 2023
Instructors: Prof. Jeremias Sulam.

Teaching assistant, *(EN.500.115) Gateway Data Science* Spring 2022
Instructors: Prof. Fadil Santosa, Prof. Jeremias Sulam.

Teaching assistant, *(EN.553.285) Intro to Scientific Computing in Python* Intercession 2022
Instructors: Prof. Phillip Kerger.

Co-Instructor, *INMAS Python Workshop* Fall 2021
Instructors: Prof. Phillip Kerger.

ENTREPRENEURSHIP

European Innovation Academy, Torino, Italy 2019

Developed a gut microbiome company idea to improve maternal health.

Junior Enterprise Torino Politecnico (JEToP), Torino, Italy 2017-2020

Lead an 100+ people organization as Vice President.

MEDIA COVERAGE

- Johns Hopkins Department of Computer Science. [1][2]
- Microsoft Research Project InnerEye blog. [article]

- Radiology: Artificial Intelligence Podcasts. [part1] [part2]

TALKS AND POSTERS

- NeurIPS [poster]
  Protein Design with Agent Rosetta: A Case Study for Specialized Scientific Agents 2025
- AAAI SECURE-AI4Health Symposium [poster]
  Conformal Risk Control for Semantic Uncertainty Quantification in Computed Tomography
  Adaptive Explanations via Direct Preference Optimization 2025
- MICCAI [poster]
  Conformal Risk Control for Semantic Uncertainty Quantification in Computed Tomography 2025
- Symposium on Human Alignment of AI [poster]
  Testing Semantic Importance via Betting 2025
- Deep Reconstruction Workshop [talk]
  Uncertainty Quantification with Conformal Guarantees for Inverse Problems in CT 2025
- NeurIPS [poster]
  Testing Semantic Importance via Betting 2024
- SIAM Conference on Mathematics of Data Science [poster]
  I Bet You Did Not Mean That: Testing Semantic Importance via Betting 2024
- Machine Learning in Healthcare Club, UNSW [talk]
  I Bet You Did Not Mean That: Testing Semantic Importance via Betting 2024
- Explainable AI Seminars @ Imperial College London [talk]
  SHAP-XRT: The Shapley Value Meets Conditional Independence Testing 2024
- SIAM Conference on Uncertainty Quantification [poster]
  How to Trust Your Diffusion Model: A Convex Optimization Approach to Conformal Risk Control 2024
- SPIE Photonics West Meeting [keynote]
  How to Trust Your Diffusion Model 2024
- Radiological Society of North America (RSNA) Annual Meeting [poster]
  K-RCPS: Uncertainty Quantification for Diffusion Models via Conformal Prediction and Conformal Risk Control in CT Denoising 2023
- International Seminar on Distribution-Free Statistics [talk]
  How to Trust Your Diffusion Model: A Convex Optimization Approach to Conformal Risk Control 2023
- AI-X Foundry Fall Symposium [poster]
  How to Trust Your Diffusion Model: A Convex Optimization Approach to Conformal Risk Control 2023
- (EN.540.405) Modern Data Analysis and Machine Learning for ChemBEs [talk]
  Explainable ML: A Brief Overview with Practical Examples 2023
- Bern Interpretable AI Symposium [talk]
  h-Shap: Fast Hierarchical Games for Image Explanations 2023
- 57th Conference on Information Sciences and Systems [talk]
  Uncertainty Quantification in CT Denoising 2023
- QMUL Intelligent Sensing Winter School [talk]
  h-Shap: Fast Hierarchical Games for Image Explanations 2022

- Radiological Society of North America (RSNA) Annual Meeting [talk]
  Weakly-Supervised Learning Substantially Reduces the Number of Labels Required for Intracranial Hemorrhage Detection on Head CT 2022
- SIIM Conference of Machine Learning in Medical Imaging [talk]
  Multiple-Instance Learning Substantially Reduces the Number of Labels Required for Intracranial Hemorrhage Detection on Head CT 2022
- SIAM Conference on Mathematics of Data Science [talk]
  Interpreting ML Models with Shapley Values 2022
- Princeton Machine Learning Theory Summer School [poster]
  Fast Hierarchical Games for Image Explanations 2022
- ICML 2021 Workshop in Interpretable Machine Learning in Healthcare [talk]
  Fast Hierarchical Games for Image Explanations 2021