

# Giovanni Visonà

📍 Tübingen, Germany   ✉ giovanni@gvisona.com   🌐 gvisona.com   in giovanni-visona   📱 gvisona

## Current Position

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### Biomedical AI/ML Engineer

Heidelberg, Germany

GSK.ai

2024 – Ongoing

- Research and development of state-of-the-art ML models to optimize performance on a range of biomedical prediction tasks.
- Consistently placed top 3 in my department for both code contributions and code reviews in the past 4 quarters.
- Implemented bespoke support tools to enhance job scheduling and experiment analysis for my team.
- Contributed to establishing more extensive process documentation for internal workflows.
- Liaised with experts in biology, medicine, and experimentation to ensure optimal collection of data to train biomedical ML models.
- Secure handling of sensitive data.

## Experience

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### ESR Researcher in Machine Learning for Precision Medicine

Tübingen, Germany

Max Planck Institute for Intelligent Systems

2019 – 2024

- Designed and implemented deep-learning-based models and probabilistic models to solve problems in biology and biomedicine.
- ESR in the Marie Curie Innovative Training Network entitled “Machine Learning Frontiers in Precision Medicine”
- Gained expertise with several types of biological data, including sequencing data, proteomics, mass spectra, clinical records, molecular networks, chemical structures.
- Published as first author or shared first author in internationally renowned journals, including Nature Communications, Bioinformatics, and Briefings in Bioinformatics.
- Gained mentoring experience, helping supervise Master students. Part of the MAXMINDS mentoring network to help disadvantaged students affected by the 2023 earthquake in Türkiye and Syria.

### Junior Developer and Consultant

Padova, Italy

Espedia Consulting - Ethica Group

2016 – 2018

- Contributed to the creation of customized software solutions for clients, prioritizing robustness in design, and ensuring on-time delivery.
- Applied object-oriented principles and design patterns to create scalable and maintainable code in Python and JavaScript.
- Developed presentations and proposals by synthesizing data and insights into actionable recommendations.

## Education

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### University of Tübingen

2019 – 2024 (Awaiting

PhD in Computer Science

PhD Defense)

- Thesis: “Biomedical Machine Learning Beyond the Training Distribution”. Supervisors: Prof. Bernhard Schölkopf and Dr. Gabriele Schweikert.
- Currently waiting to defend my PhD thesis.

### University of Edinburgh

2018 - 2019

MSc in Artificial Intelligence

- Graduated with Distinction.
- Thesis: “Optimising Recommendation Slates Using Deep Determinantal Point Processes”. Supervisors: Dr. Roberto Pellegrini and Aleksandr Petrov.

**University of Trento**  
*Master's Degree in Physics*

2014 – 2016

- Graduated with 110/110 marks with honours.
- Thesis: "Polymer Templating of Porous Silicon for Drug Delivery Applications". Supervisor: Dr. Paolo Bettotti.

**Università di Torino**  
*Bachelor's Degree in Physics*

2012 – 2014

- Graduated with 110/110 marks with honours.
- Thesis: "Modelization of Nano Amplified Targeted Therapy (nATT)". Supervisor: Prof. Cristiana Peroni  
Collaborator: Dr. Andrea Attili.

## Publications

<b>Network propagation for GWAS analysis: a practical guide to leveraging molecular networks for disease gene discovery</b>	2024
<i>Briefings in Bioinformatics</i> , DOI: <a href="https://doi.org/10.1093/bib/bbae014">10.1093/bib/bbae014</a>	
<b>Multimodal learning in clinical proteomics: enhancing antimicrobial resistance prediction models with chemical information</b>	2023
<i>Bioinformatics</i> , DOI: <a href="https://doi.org/10.1093/bioinformatics/btad717">10.1093/bioinformatics/btad717</a>	
<b>A historical perspective of biomedical explainable AI research</b>	2023
<i>Patterns</i> , DOI: <a href="https://doi.org/10.1016/j.patter.2023.100830">10.1016/j.patter.2023.100830</a>	
<b>Getting personal with epigenetics: towards individual-specific epigenomic imputation with machine learning</b>	2023
<i>Nature Communications</i> , DOI: <a href="https://doi.org/10.1038/s41467-023-40211-2">10.1038/s41467-023-40211-2</a>	
<b>Machine-Learning-Aided Prediction of Brain Metastases Development in Non-Small-Cell Lung Cancers</b>	2023
<i>Clinical Lung Cancer</i> , DOI: <a href="https://doi.org/10.1016/j.clcc.2023.08.002">10.1016/j.clcc.2023.08.002</a>	
<b>Targeted dose enhancement in radiotherapy for breast cancer using gold nanoparticles, part 2: a treatment planning study</b>	2017
<i>Medical Physics</i> , DOI: <a href="https://doi.org/10.1002/mp.12178">10.1002/mp.12178</a>	
<b>Targeted dose enhancement in radiotherapy for breast cancer using gold nanoparticles, part 1: A radiobiological model study</b>	2017
<i>Medical Physics</i> , DOI: <a href="https://doi.org/10.1002/mp.12180">10.1002/mp.12180</a>	

## Technologies

**Languages:** Python, R, Go, SQL

**Tools:** Pytorch, Pandas, Polars, Ibis, FastAPI, Scikit-learn, SQLite, HDF5, Git, Github, Docker, Kubernetes (CKAD-certified), Spark, Airflow

**Other:** CI/CD (Azure, Github Actions), Cloud Computing (GCP)

## Scientific Expertise

**Machine learning and Data Science:** Deep Learning, Diffusion Models, , Classical ML (GLMs, Trees, GAMs, etc.), EDA, Data Visualization, Interpretable ML, Graph ML, Data Mining, Data Modelling

**Probability and Statistics:** Hypothesis testing, A/B testing, Linear Algebra

**Biology and Medicine:** Epigenetics, Genomics, Proteins, Pathways, Immunology, Small Molecules, Molecular Dynamics, Clinical Data (EHRs), Antimicrobial Resistance, Mass Spectrometry