Raphaël Romero

Machine Learning Researcher

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Work Experience

2026–present **Postdoctoral Researcher**, GeoAI Research Group, GIS&T team, Ghent University
STREAMS project (imec.icon) with Nico Van de Weghe, on traffic safety around road works for vulnerable road users, using spatio-temporal data from roadside sensors.

2024–2025 **Postdoctoral Researcher**, AIDA Research Group, Ghent University
Machine learning for temporal and graph-structured data, with Jefrey Lijffijt and Tijl De Bie. Collaborations with Jesse Davis and Maaike Van Roy (KU Leuven) on event prediction in soccer, and with Lucy Mitchell, Luc Lens and Frederic Verbruggen (Ghent University) on bird movement (Ecobird AI).

2020–2024 **PhD in Machine Learning**, AIDA Research Group, Ghent University
– Supervisors: Jefrey Lijffijt, Tijl De Bie
– Subject: *Modeling weighted and temporal graphs: methods and evaluation*
– Collaborations: Charlotte Laclau and Mathilde Pérez (Télécom Paris), Marco Corneli (Université Côte d'Azur), Riccardo Rastelli (University College Dublin)

2024 **Visiting PhD Student**, Department of Mathematics, Imperial College London
Summer visit working with Nick Heard and Alexander Modell, as part of the NeST programme.

2019–2020 **Data Scientist**, Shift Technology, Paris
Network-based fraud detection models, data engineering, deployment of production pipelines and client delivery.

2018 **Data Science Intern**, Jalgos A.I., Paris
Prediction of stock price movements from financial news, and client projects on data visualisation and predictive modelling.

Education

2017–2018 **Master 2 (MSc) MVA**, ENS Paris-Saclay
Research master's in Applied Mathematics, Machine Learning and Computer Vision.
Courses: probabilistic graphical models; convex optimization and applications in machine learning; 3D computer vision; object recognition and computer vision; computational statistics, kernel methods for machine learning; high-dimensional statistics; audio signal processing (time-frequency analysis); deep learning; audio signal analysis, indexing and transformations.

2015–2017 **Master of Engineering**, Télécom Paris
Majors: applied mathematics, data science, computer science.

2013–2015 **CPGE MPSI/MP***, Lycée Charlemagne, Paris
Modules: mathematics, physics, computer science.

Technical Experience & Languages

Libraries Python, PyTorch, JAX, Pyro, PyTorch Geometric, NetworkX, Pandas, NumPy, SciPy
Programming MATLAB, R, C++, C#, SQL, C, HTML/CSS, JavaScript, Java
DevOps & Tools TeamCity, Octopus Deploy, MongoDB
Languages French (native), English (fluent), Spanish (fluent), Dutch (B1)

Publications and conferences

Journal Articles

2026 Buyl, M., Rogiers, A., Noels, S., Bied, G., Domínguez-Catena, I., Heiter, E., Johary, I., Mara, A. C., **Romero, R.**, Lijffijt, J., & De Bie, T. *Large Language Models Reflect the Ideology of Their Creators.* npj Artificial Intelligence, 2(1), 7.

2025 Pérez, M., **Romero, R.**, Kang, B., De Bie, T., Lijffijt, J., & Laclau, C. *SimHawNet: A Modified Hawkes Process for Temporal Network Simulation.* Data Mining and Knowledge Discovery, 39(5), 48.

2024 **Romero, R.**, Buyl, M., De Bie, T., & Lijffijt, J. *Exploring the Performance of Continuous-Time Dynamic Link Prediction Algorithms.* Applied Sciences, 14(8), 3516.

2023 **Romero, R.**, Lijffijt, J., Rastelli, R., Corneli, M., & De Bie, T. *Gaussian Embedding of Temporal Networks.* IEEE Access, 11, 117971–117983.

Conference Papers

2026 Pérez, M., **Romero, R.**, Lijffijt, J., & Laclau, C. *How Predicted Links Influence Network Evolution: Disentangling Choice and Algorithmic Feedback in Dynamic Graphs.* 42nd Conference on Uncertainty in Artificial Intelligence (UAI 2026), PMLR 337:5374–5392.

2025 **Romero, R.**, De Bie, T., Heard, N., & Modell, A. *Multiresolution Analysis and Statistical Thresholding on Dynamic Networks.* Advances in Neural Information Processing Systems 38 (NeurIPS 2025).

2025 Johary, I., **Romero, R.**, Mara, A. C., & De Bie, T. *JobHop: A Large-Scale Dataset of Career Trajectories.* IEEE International Conference on Big Data (BigData 2025), pp. 2184–2191.

2025 **Romero, R.**, Daems, R., & De Bie, T. *Temporal Graph AutoEncoder: Mapping Dynamic Graphs to Dynamical Systems with Neural ODEs.* NeurIPS 2025 Workshop on New Perspectives in Graph Machine Learning.

2025 **Romero, R.**, Mitchell, L., Verbruggen, F., Lens, L., & Lijffijt, J. *Characterizing Bird Movement Using Spectral Clustering.* AALTD Workshop at ECML-PKDD 2025, Porto.

2025 **Romero, R.**, Mashayekhi, Y., Lai, F., Van Roy, M., De Bie, T., & Davis, J. *Next-Event Prediction in Soccer: Assessing the Impact of Player and Team Information.* 12th Workshop on Machine Learning and Data Mining for Sports Analytics at ECML-PKDD 2025, Porto.

2022 **Romero, R.**, & De Bie, T. *Embedding-based Next Song Recommendation for Playlists.* European Symposium on Artificial Neural Networks (ESANN 2022).

Research Interests

Road safety, cyclist–vehicle interactions, temporal network analysis, weighted graphs, spatio-temporal data, dynamical systems, recommender systems, AI fairness, AI for ecology, AI for job market analysis, urban mobility and planning, AI for social good.

Teaching Experience

2022–2024 **Teaching Assistant**, AI Research Seminar, Ghent University

2023–2025 **Master's Thesis Supervision**, Ghent University
- Gilles De Praetere (2024–2025): "Towards Intelligent Defaults in Chart Design"
- Dries Vansteelant (2023–2024): "Tools for Temporal Network Analysis in Python: Benchmarking and Improvements"

Reviewing

2024–2026 AISTATS 2026, NeurIPS 2026, EWAF 2026, EWAF 2025, ECML-PKDD 2025, Data Mining and Knowledge Discovery (DAMI)