Dr. Patrick Altmeyer

Düsseldorf, Germany
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Employment

Bank of England

Economist (London, UK) 2018-2020

Postgraduate Intern (London, UK) 06/2017-08/2017

University of Edinburgh

Teaching Assistant (part-time) (Edinburgh, UK) 2016-2017

Education

Delft University of Technology

Ph.D. Computer Science 2021-2026

Published first-author papers on Counterfactual Explanations, Predictive Uncertainty Quantification and Mechanistic Interpretability at top-tier venues: ICML, AAAI, IEEE SaTML.
Supervised bachelor's and master's theses that led to several publications as well as student software projects on related research topics.
Frequently invited as speaker at organizations including The Alan Turing Institute, The Bank of England, De Nederlandsche Bank, Verbond van Verzekeraars.
Founded and maintained Taija, an open-source software organization for Trustworthy Artificial Intelligence in Julia. Presented at JuliaCon Global for three consecutive years.
Mentored first-time open-source contributors as part of Google Summer of Code and Julia Season of Contributions.

Barcelona School of Economics (BSE)

Master Degree in Data Science, GPA 8.67/10 2020-2021

Dissertation: Deep Vector Autoregression for Macroeconomic Data (9.5)
Relevant modules: Machine Learning (9.0), Reinforcement Learning (10.0)

Master Degree in Economics and Finance, GPA 9.03/10 (top student) 2017-2018

Dissertation: Option Pricing in the Heston Stochastic Volatility Model (10.0)
Relevant modules: Financial Econometrics (10.0), Pricing Financial Derivatives (9.3)

The University of Edinburgh

Master of Arts with Honours in Economics, First Class (among top three students) 2013-2017

Dissertation: Can misguided monetary policy explain the European housing bubble? (82%)
Honours modules: Economics of Financial Markets (86%), Adv. Mathematical Economics (79%), Behavioural Economics (71%), Economics of Asymmetric Information (74%)

Publications

Altmeyer, P., Buszydlik, A., Deursen, A. van, & Liem, C. C. S. (2026). Counterfactual training: Teaching models plausible and actionable explanations. *2026 IEEE Conference on Secure and Trustworthy Machine Learning (SaTML)*. upcoming

Buszydlik, A., Altmeyer, P., Liem, C. C. S., & Dobbe, R. (2025). Understanding the affordances and constraints of explainable AI in safety-critical contexts: A case study in dutch social welfare. *Electronic Government. EGOV 2025. Lecture Notes in Computer Science*. https://link.springer.com/chapter/10.1007/978-3-032-02515-9_8

Dobiczek, K., Altmeyer, P., & Liem, C. C. (2025). Natural language counterfactual explanations in financial text classification: A comparison of generators and evaluation metrics. *Proceedings of the Fourth Workshop on Generation, Evaluation and Metrics (GEM^2)*, 958–972. https://aclanthology.org/2025.gem-1.75.pdf

Altmeyer, P., Demetriou, A. M., Bartlett, A., & Liem, C. C. (2024). Position: Stop making unscientific AGI performance claims. *International Conference on Machine Learning*, 1222–1242. https://proceedings.mlr.press/v235/altmeyer24a.html

Altmeyer, P., Farmanbar, M., Deursen, A. van, & Liem, C. C. S. (2024). Faithful Model Explanations through Energy-Constrained Conformal Counterfactuals. *Proceedings of the Thirty-Eighth AAAI Conference on Artificial Intelligence*, *38*, 10829–10837. https://doi.org/10.1609/aaai.v38i10.28956

Hengst, F., Wolter, R., Altmeyer, P., & Kaygan, A. (2024). Conformal intent classification and clarification for fast and accurate intent recognition. *Findings of the Association for Computational Linguistics: NAACL 2024*, 2412–2432. https://doi.org/10.18653/v1/2024.findings-naacl.156

Agustí, M., Costa, I. V.-Q., & Altmeyer, P. (2023). Deep vector autoregression for macroeconomic data. *IFC Bulletins Chapters*, *59*. https://www.bis.org/ifc/publ/ifcb59_39.pdf

Altmeyer, P., Angela, G., Buszydlik, A., Dobiczek, K., Deursen, A. van, & Liem, C. C. (2023). Endogenous macrodynamics in algorithmic recourse. *2023 IEEE Conference on Secure and Trustworthy Machine Learning (SaTML)*, 418–431. https://doi.org/10.1109/satml54575.2023.00036

Altmeyer, P., Deursen, A. van, & Liem, C. C. S. (2023). Explaining Black-Box Models through Counterfactuals. *Proceedings of the JuliaCon Conferences*, *1*, 130. https://doi.org/10.21105/jcon.00130

Preprints

Buszydlik, A., Altmeyer, P., Liem, C. C., & Dobbe, R. (2024). *Grounding and validation of algorithmic recourse in real-world contexts: A systematized literature review*. https://openreview.net/pdf?id=oEmyoy5H5P

Supervision

Master's Students

Buszydlik, A. (2024). *Finding recourse for algorithmic recourse* [Master's thesis, Delft University of Technology]. https://resolver.tudelft.nl/uuid:be47ad5a-5a4b-457c-b214-35c6c78cae36

Dobiczek, K. (2024). *Natural language counterfactual explanations in financial text classification* [Master's thesis, Delft University of Technology]. https://resolver.tudelft.nl/uuid:66730110-d296-4a57-b382-e9a6cc0a4aa5

Radder, M. E. (2024). *A counterfactual-based evaluation framework for machine learning models that use gene expression data* [Master's thesis, Delft University of Technology]. https://resolver.tudelft.nl/uuid:4cf92f8f-2a4c-43e8-9746-2ff33ca65de5

Zagorac, I. (2024). *A study on counterfactual explanations* [Master's thesis, Delft University of Technology]. https://resolver.tudelft.nl/uuid:6e2c240c-03c6-4e0e-af2c-5d257e77c77c

Bachelor's Students

Appachi Senthilkumar, R. (2024). *Are neural networks robust to gradient-based adversaries also more explainable? Evidence from counterfactuals*. Delft University of Technology. https://resolver.tudelft.nl/uuid:47786bb4-ae24-4972-94a0-1bd18d756486

Iscan, I. (2024). *Advancing explainability in black-box models*. Delft University of Technology. https://resolver.tudelft.nl/uuid:e50c1cae-d579-405a-9089-86a0ca925086

Nikolov, D. (2024). *How does predictive uncertainty quantification correlate with the plausibility of counterfactual explanations*. Delft University of Technology. https://resolver.tudelft.nl/uuid:b0ecc3fe-4454-4c44-a624-5d335d108634

Pezzali, G. (2024). *Do joint energy-based models produce more plausible counterfactual explanations?* Delft University of Technology. https://resolver.tudelft.nl/uuid:afe2d50d-f4b3-403f-b0e7-a0b8ede96bb0

Yücel, A. F. (2024). *Metrics to ascertain the plausibility and faithfulness of counterfactual explanations*. Delft University of Technology. https://resolver.tudelft.nl/uuid:d80b688c-b0f6-4c88-a0a2-891d738f25d4

Angela, G. (2023). *Endogenous macrodynamics in algorithmic recourse*. https://resolver.tudelft.nl/uuid:5023154a-53c6-44ca-9d09-1670ba0ded31

Buszydlik, A. (2022). *Quantifying the endogenous domain and model shifts induced by the DiCE generator*. Delft University of Technology. https://resolver.tudelft.nl/uuid:cb0bf4ac-4055-489b-b768-e5b53ec6fa47
Dobiczek, K. (2022). *Quantifying the endogenous domain and model shifts induced by the CLUE recourse generator*. Delft University of Technology. https://resolver.tudelft.nl/uuid:6a249d72-9e1e-4e81-abdc-463260c7d1bc

Software Projects

Luiz Franco, J. (2024). *JSoC: When Causality Meets Recourse*. https://www.taija.org/blog/posts/causal-recourse/
Caterino, P. (2024). *Google summer of code 2024 final report: Add support for conformalized bayes to ConformalPrediction.jl*. https://gist.github.com/pasq-cat/f25eebc492366fb6a4f428426f93f45f

Software

Altmeyer, P., & contributors. (2025). *CounterfactualExplanations.jl* (Version v1.4.5). https://doi.org/10.5281/zenodo.8239378
Altmeyer, P., & contributors. (2024). *ConformalPrediction.jl* (Version v0.1.13). https://doi.org/10.5281/zenodo.12799930
Altmeyer, P., & contributors. (2024). *LaplaceRedux.jl* (Version v1.2.0). https://doi.org/10.5281/zenodo.13758044

Skills

Languages: German (native), English (fluent), Spanish (intermediate), Dutch (intermediate)
Programming: Julia (Flux, MLJ, Zygote, ...), R, Python (PyTorch, TensorFlow, ...), git, bash, Quarto, LaTeX, neovim

Selected Awards & Honours

Awarded Google Summer of Code and Julia Season of Contributions grants. (2024)
1st Prize Winner of ING Experiment Week. (2023)
2nd Prize Winner of JuliaCon Pluto Notebook Competition. (2023)
3rd Price Winner of Novartis Datathon. (2020)
Full-Tuition Scholarship awarded jointly by Bank of England and BSE. (2020)
Full-Tuition Scholarship awarded BSE. (2017)
School of Economics Joint Prize for the best performance in Economics. (2017)
School of Economics Prize for academic excellence in Economics. (2014)

References

Available upon request.