Patrick Altmeyer

Amsterdam, North Holland, The Netherlands

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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   2021-2025

Published research on Counterfactual Explanations, Predictive Uncertainty Quantification and Mechanistic Interpretability in top-tier venues: ICML, AAAI, IEEE SaTML.
Supervised multiple bachelor's and master's theses as well as 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's 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's 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., 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

Technical Reports

Altmeyer, P., Boneva, L., Kinston, R., Saha, S., & Stoja, E. (2023). *Yield curve sensitivity to investor positioning around economic shocks* (Bank of England Working Papers No. 1029). Bank of England. https://doi.org/None

Altmeyer, P., Grapendal, J. D., Pravosud, M., & Quintana, G. D. (2018). *Option pricing in the heston stochastic volatility model: An empirical evaluation* [Master's thesis]. http://hdl.handle.net/10230/35862

Altmeyer, P. (2017). *Can misguided monetary policy explain the european housing bubble?* https://thevoice.bse.eu/wp-content/uploads/2017/09/can-misguided-monetary-policy-explain-the-european-housing-bubble-patrick-altmeyer.pdf

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.* https://resolver.tudelft.nl/uuid:be47ad5a-5a4b-457c-b214-35c6c78cae36

Dobiczek, K. (2024). *Natural language counterfactual explanations in financial text classification.* 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.* https://resolver.tudelft.nl/uuid:4cf92f8f-2a4c-43e8-9746-2ff33ca65de5

Zagorac, I. (2024). *A study on counterfactual explanations.* 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.* https://resolver.tudelft.nl/uuid:47786bb4-ae24-4972-94a0-1bd18d756486

Iscan, I. (2024). *Advancing explainability in black-box models.* 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.* https://resolver.tudelft.nl/uuid:b0ecc3fe-4454-4c44-a624-5d335d108634

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

Yücel, A. F. (2024). *Metrics to ascertain the plausibility and faithfulness of counterfactual explanations.* 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*. [https://resolver.tud](https://resolver.tudelft.nl/uuid:cb0bf4ac-4055-489b-b768-e5b53ec6fa47) elft.nl/uuid:cb0bf4ac-4055-489b-b768-e5b53ec6fa47

Dobiczek, K. (2022). *Quantifying the endogenous domain and model shifts induced by the CLUE recourse generator*. https://resolver.tudelft.nl/uuid:6a249d72-9e1e-4e81-abdc-463260c7d1bc

Software

Altmeyer, P., caterino, pasquale, Ardman, M., sb, Ionescu, A., Makarov, I., Cazacu, A., eeeerrw, Farmanbar, M., & Monticone, P. (2024). *JuliaTrustworthyAI/LaplaceRedux.jl: v1.1.1* (Version v1.1.1). Zenodo. https://doi.org/10.5281/zenodo.13758044

Altmeyer, P., Farmanbar, M., Waczak, J., Isbarov, J., Monticone, P., pricklypointer, & Huijzer, R. (2024). *JuliaTrustworthyAI/ConformalPrediction.jl: v0.1.13* (Version v0.1.13). Zenodo. https://doi.org/10.5281/zenodo.12799930

Skills

Languages: German (native), English (fluent), Spanish (intermediate), Dutch (intermediate)
Programming: Julia, R, Python, MATLAB, C++, SQL, git, Bash, Quarto, LaTeX

Selected Awards & Honours

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 scholarship for master's in data science awarded jointly by Bank of England and BSE. (2020)
Full scholarship for master's in economics and finance awarded BSE. (2017)
Edinburgh University 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.