





# PATRICK ALTMAYER

## Researching Trustworthy Artificial Intelligence (AI) for Finance and Economics

I am an economist by background with an interest in cross-disciplinary research on the intersection of Trustworthy AI and Financial Economics. For my PhD in Trustworthy AI, I currently focus on Counterfactual Explanations and Probabilistic Machine Learning under supervision of [Cynthia Liem](#) at [Delft University of Technology](#).

### EDUCATION

- 2025  
|  
2021
- PhD in Computer Science**  
Delft University of Technology  Delft, Netherlands  
  
Thesis topic: Counterfactual Reasoning and Probabilistic Methods for Trustworthy AI with Applications in Finance
  - 2021  
**Master in Data Science**  
Barcelona School of Economics  Barcelona, Spain  
  
Thesis: Deep Vector Autoregression for Macroeconomic Data
  - 2018  
**Master in Finance**  
Barcelona School of Economics  Barcelona, Spain  
  
Thesis: Option Pricing in the Heston Stochastic Volatility Model
  - 2017  
**Master of Arts with Honours in Economics**  
University of Edinburgh  Edinburgh, United Kingdom  
  
Thesis: Can misguided monetary policy explain the European housing bubble?

### PROFESSIONAL EXPERIENCE

- 2021  
|  
2018
- Economist**  
Bank of England  London, United Kingdom  
    - Co-author of two staff working papers (upcoming).
    - Co-initiated and led app development.
    - Briefing work for policy committees.
  - 2017  
**Postgraduate Intern**  
Bank of England  London, United Kingdom  
    - Econometric analysis of transaction data set in R.
    - Internal presentation of project results.

## CONTACT INFO

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For more information, please contact me via email.

## SKILLS

Experienced in Machine Learning, Finance, Economics and Monetary Policy.

Highly skilled in Julia, R, Python and Markdown.

Experience with Flux.jl, Turing.jl, Tensorflow, PyTorch, Stan.

*Last updated on 2022-11-04.*



## TEACHING EXPERIENCE

- 2022 • **Bachelor's Thesis Supervision**  
Research supervisor for group of students 📍 Delft, Netherlands
  - Proposal of final-year research project on Endogenous Dynamics in Algorithmic Recourse.
  - Supervision of group of three undergraduate students working on the project.
- 2021 • **Foundations of Data Science Summer School**  
Teaching Assistant at Barcelona School of Economics 📍 Barcelona, Spain
- 2020 | 2019 • **Introduction course to R and Git**  
Lead Trainer at Analytics Enablement Hub, Bank of England. 📍 London, United Kingdom
- 2017 | 2016 • **Honours Modules in Econometrics**  
Teaching assistant at School of Economics, University of Edinburgh 📍 Edinburgh, United Kingdom



## SELECTED PUBLICATIONS

- 2022 • **Yield Curve Sensitivity to Investor Positioning Around Economic Shocks**  
Bank of England Staff Working Paper (upcoming) 📍 London, United Kingdom  
Altmeyer P., Boneva L., Kinston R., Saha S., Stoja E.
- 2021 • **Deep Vector Autoregression for Macroeconomic Data**  
Masters Thesis (selected for publication): [\[PDF\]](#), [\[GitHub\]](#) 📍 Barcelona, Spain  
Agustí M., Altmeyer P., Vidal-Quadras Costa I.
- 2018 • **Option Pricing in the Heston Stochastic Volatility Model: an Empirical Evaluation**  
Masters Thesis (selected for publication): [\[PDF\]](#) 📍 Barcelona, Spain  
Altmeyer P., Grapendal J., Pravosud M., Quintana G.



## CONFERENCES, WORKSHOPS AND POSTERS

- 2022 • **JuliaCon 2022**  
Presented Julia packages I developed 📍 Virtual
  - [Explaining Black-Box Models through Counterfactuals](#) (main talk)
  - [Effortless Bayesian Deep Learning through Laplace Redux](#) (lightening talk)
  - [Julia and Quarto: A Match Made in Heaven?](#) (experience talk)
- 2022 • **ProbAI 2022 Summer School**  
Poster presentation “Explainable AI: Probabilistic Methods for Counterfactual Explanations”: [\[poster\]](#) 📍 Helsinki, Finland
- 2022 • **TU Delft EEMCS PhD event**  
Poster presentation “Counterfactual Explanations and Algorithmic Recourse”: [\[poster\]](#) 📍 Delft, Netherlands
- 2022 • **De Nederlandse Bank Conference “Central Bankers Go Data Driven: Applications of AI and ML for Policy and Prudential Supervision”**  
Poster presentation of Altmeyer, Agustí, and Vidal-Quadras Costa (2021). 📍 Amsterdam, Netherlands
- 2022 • **IFC and Bank of Italy workshop on “Data science in central banking”**  
Presentation of Altmeyer, Agustí, and Vidal-Quadras Costa (2021): [\[event link\]](#), [\[YouTube\]](#) 📍 Virtual

- 2021 • **NeurIPS 2021 MLECON Workshop**  
Poster presentation of Altmeyer, Agusti, and Vidal-Quadras Costa (2021): [\[event link\]](#) 📍 Virtual
- 2021 • **IFABS 2021 Oxford**  
Presented our upcoming BoE Staff Working Paper on yield curve pricing [\[event link\]](#) 📍 Virtual
- 2019 • **Money markets and Central Bank Balance Sheets**  
Presented research on demand for central bank reserves at ECB: [\[event link\]](#) 📍 Frankfurt, Germany

## 🔗 SELECTED OPEN-SOURCE SOFTWARE

- 2021-2022 • **CounterfactualExplanations.jl**  
Julia package for Counterfactual Explanations: [\[docs\]](#), [\[GitHub\]](#)
- 2021-2022 • **LaplaceRedux.jl**  
Julia package for effortless Bayesian Deep Learning: [\[docs\]](#), [\[GitHub\]](#)
- 2021-2022 • **deepvars**  
R package implementing Deep Vector Autoregression (Altmeyer, Agusti, and Vidal-Quadras Costa 2021): [\[GitHub\]](#)

## 📢 OUTREACH AND VOLUNTEERING

- 2022 | 2021 • **Personal blog**  
Communication AI in an accessible, visual manner: [\[url\]](#)
- 2020 • **Class representative**  
Masters in Data Science 📍 Barcelona, Spain
- 2016 • **TEDx talk**  
Held a TEDx talk about European Integration: [\[YouTube\]](#) 📍 Edinburgh, United Kingdom

## 🏆 SCHOLARSHIPS AND AWARDS

- 2020 • **Novartis Datathon**  
3rd Price Winner of Datathon 📍 Barcelona, Spain
- 2020 • **Fee Waiver and Funding for Masters**  
Full funding for Masters in Data Science through BSE and Bank of England 📍 Barcelona, Spain
- 2017 • **Fee waiver for Masters**  
Total tuition fee waiver for Master in Finance through BSE 📍 Barcelona, Spain
- 2017 • **School of Economics Prize**  
Edinburgh University School of Economics Joint Prize for the best performance in Economics 📍 Edinburgh, United Kingdom
- 2015 • **School of Economics Prize**  
School of Economics Prize for academic excellence in Economics 📍 Edinburgh, United Kingdom