Marko Tešić

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Research Experience

Royal Academy of Engineering UK IC Postdoctoral Research Fellow at Birkbeck, University of London — *Mar. 2021 – Present*

- Exploring the effects that explanations of AI predictions can have on human beliefs

Researcher on *The Bayesian Approach to Robust Argumentation Machines* project at MCMP, LMU, Munich & Birkbeck, University of London — *Sep. 2021 – Present*

- Automated argument generation and evaluation from Bayesian network models

Data Study Group (DSG) Principal Investigator at the Alan Turing Institute — *Oct. 2022 – Present*

- Scoping a data science challenge in collaboration with the data provider, the Department for Transport
- Supporting DSG participants and acting as quality control on code and challenge solutions
- Writing the final report on the outcomes of the data challenge to be published on the Turing website

Data Study Group (DSG) Facilitator at AI UK showcase, the Alan Turing Institute — *March 23, 2022*

- Led a group of researchers in analyzing climate change data

Data Study Group (DSG) Researcher at the Alan Turing Institute and LIDA, University of Leeds — *July 5–23, 2021*

- Optimizing Morrisons supermarkets' supply chain as part of a DSG team
- Analyzed data & trained gradient boosting tree models to predict future supplies

Research Intern at BlackRock, Factor Based Strategies Group — *Oct. 2019 – Mar. 2020*

- (Causal) Bayesian modeling of investment factors and ESG criteria

Member of the Translation Team UK on the project *Bayesian Argumentation via Delphi (BARD)* within IARPA at Birkbeck, University of London & UCL — *Oct. 2017 – Nov. 2018*

- Created intelligence gathering-inspired situations
- Built Bayesian network models of these situations
- Fully designed, ran, and analyzed experiments testing people's evidential, causal, and probabilistic reasoning

Member of the Research Team on the project *Scientific Reasoning and Argumentation* at the Center for Advanced Studies, LMU, Munich — *Oct. 2016 – Sep. 2017*

- Worked on explicating an inference pattern called 'Inference to the Best Explanation' (IBE) in Bayesian terms

Education

PhD in Psychology — *2020*

Department of Psychological Sciences, Birkbeck, University of London, UK
Thesis title: *Explanation and Argument*
Areas of research: causal-probabilistic reasoning, Bayesian networks, psychology of explanations
Supervisors: Ulrike Hahn and David Lagnado

MA in Logic and Philosophy of Science — *2016*

Munich Center for Mathematical Philosophy, Ludwig Maximilian University, Munich, Germany

BA in Philosophy — *2014*

University of Belgrade, Serbia

Publications

Marko Tešić & Ulrike Hahn. Can counterfactual explanations of AI systems' predictions skew lay users' causal intuitions about the world? If so, can we correct for that? (forthcoming in *Patterns*).

Data Study Group team. (2022). Data Study Group Final Report: Morrisons. Zenodo. https://doi.org/10.5281/zenodo.6498140.

Marko Tešić (2021). On the transferability of insights from the psychology of explanation to explainable AI. Human Centered AI workshop at NeurIPS 2021.

Marko Tešić & Ulrike Hahn (2021). Explanation in AI systems. In S. Muggleton & N. Chater (Eds.), *Human-Like Machine Intelligence* (pp. 114–136). Oxford University Press.

Marko Tešić*, Alice Liefgreen*, & David Lagnado (2020). The propensity interpretation of probability and diagnostic split in explaining away. *Cognitive Psychology, 121.*

Alice Liefgreen & **Marko Tešić** (2020). Explaining away and the propensity interpretation of probability: The case of unequal priors. In C. Dutilh Novaes, H. Jansen, J. A. van Laar, & B. Verheij (Eds.), *Reason to dissent. Proceedings of the 3rd European Conference on Argumentation, Vol. III* (pp. 385–403). College Publications.

Nicole Cruz, Saoirse Desai, Stephen Dewitt, Ulrike Hahn, David Lagnado, Alice Liefgreen, Kirsty Phillips, Toby Pilditch & **Marko Tešić** (2020). Widening access to Bayesian problem solving. *Frontiers in Psychology, 11*, 660.

Marko Tešić & Ulrike Hahn (2019). Sequential diagnostic reasoning with independent causes. In A.K. Goel, C.M. Seifert, & C. Freksa (Eds.), *Proceedings of the 41st Annual Conference of the Cognitive Science Society* (pp. 2947–2953). Montreal, QB: Cognitive Science Society.

Alice Liefgreen*, **Marko Tešić***, & David Lagnado (2018). Explaining away: Significance of priors, diagnostic reasoning, and structural complexity. In T. T. Rogers, M. Rau, X. Zhu, & C. W. Kalish (Eds.), *Proceedings of the 40th Annual Meeting of the Cognitive Science Society* (pp. 2047–2052). Austin, TX: Cognitive Science Society.

Marko Tešić (2017). Confirmation and the generalized Nagel-Schaffner model of reduction: A Bayesian analysis. *Synthese, 196*(3), 1097–1129. DOI: 10.1007/s11229-017-1501-1.

* *indicates equal contribution*

Honors and Awards

The Alan Turing Institute Post-Doctoral Enrichment Award	*July 2022 – Jan. 2023*
The Royal Academy of Engineering UK IC Postdoctoral Research Fellowship	*Mar. 2021 – Present*
Ph.D. studentship from the Department of Psychological Sciences, Birkbeck, UoL	*2018 – 2020*
Ph.D. studentship from the BARD project	*2017 – 2018*
Dositeja scholarship for graduate studies	*2017/18; 2015/16; 2014/15*
BAYHOST scholarship for graduate studies	*2015/16; 2014/15*

Skills

Software Skills:

- Text editing: LaTeX
- Programming languages: R, Python, Matlab, NetLogo

Other:

- **Violinist** at Paprika: The Balkan and East European Band and The Pico Players (a symphony orchestra)
- Xen-Do **kickboxing**
- **Resident Advisor** at the University of London Halls of Residence (*2019 – 2021*)
  - Residents' welfare support
  - Academic assistance, peer-counseling
  - Emergency response (physical and mental first aid, fire emergency, Covid-19 related)

Online courses and further training:

- Machine Learning (Coursera)
- Neural Networks and Deep Learning (Coursera)
- Improving Deep Neural Networks: Hyperparameter Tuning, Regularization and Optimization (Coursera)
- Structuring Machine Learning Projects (Coursera)
- Python Data Structures (Coursera)
- Science Policy Primer (5-day course organized by The Royal Society, London, UK)
- Business and Commercialization (4-day course organized by The Royal Academy of Engineering, London, UK)
- Media training (full day course organized by The Royal Academy of Engineering, London, UK)