

## Trustworthy and Explainable Artificial Neural Networks for Choice Behaviour Analysis

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**DOI**

[10.4233/uuid:82fcb7b1-153c-4f6f-9d8c-bbdc46cc2d4e](https://doi.org/10.4233/uuid:82fcb7b1-153c-4f6f-9d8c-bbdc46cc2d4e)

**Publication date**

2020

**Document Version**

Final published version

**Citation (APA)**

Alwosheel, A. S. A. (2020). *Trustworthy and Explainable Artificial Neural Networks for Choice Behaviour Analysis*. [Dissertation (TU Delft), Delft University of Technology]. TRAIL Research School. <https://doi.org/10.4233/uuid:82fcb7b1-153c-4f6f-9d8c-bbdc46cc2d4e>

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# Propositions

Accompanying the dissertation

## **Trustworthy and Explainable Artificial Neural Networks for Choice Behaviour Analysis**

by

**Ahmad Alwosheel**

1. The black-box issue of artificial neural networks is a solvable problem (this thesis).
2. In ten years from now, it is not the black-box issue that will hamper the use of data-driven models for policy making, but the shift toward privately-owned data (this thesis).
3. Having benchmark choice behaviour datasets is necessary for a successful use of machine learning methods (this thesis).
4. To understand the rationale of trained artificial neural networks, using methods, that illuminate the black-box, is not enough. In addition, domain knowledge must be employed (this thesis).
5. Detecting the bias in data and models is easier than detecting analysts' bias.
6. Just like Artificial Neural Networks, human decision-making is black-box.
7. Creating knowledge, which is the main task of most PhDs, is easier than capitalizing on it.
8. Social distancing leads to social disengagement.
9. AI models will eventually be responsible for making most decisions and policies.
10. The rational agent will never consider conducting a PhD.

These propositions are regarded as opposable and defensible, and have been approved as such by the promoters prof. dr. ir. C.G. Chorus and dr. ir. S. van Cranenburgh