Francesca Toni

Department of Computing

Imperial College London

Why explanation?

SECTION 1

TRANSPARENCY AND MODALITIES

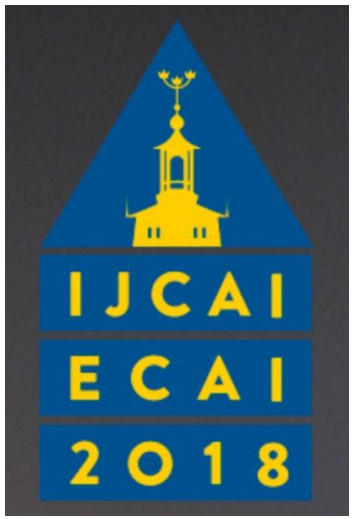
Article 12

Transparent information, communication and modalities for the exercise of the rights of the data subject

Chapter 3: Designing artificial intelligence

- Access to, and control of, data
  - Anonymisation
  - Strengthening access and control
  - Box 2: Open Banking
- Intelligible AI
  - Technical transparency
  - Explainability

"…the development of intelligible AI systems is a fundamental necessity if AI is to become an integral and trusted tool in our society."



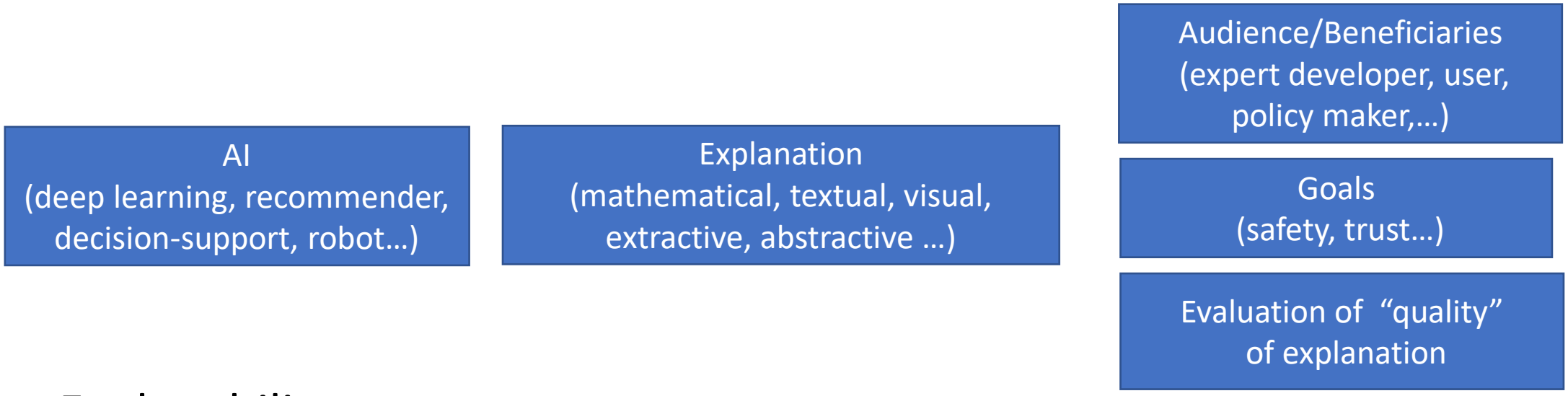
ICML | 2018

- 5th Workshop on Fairness, Accountability, and Transparency in Machine Learning (FAT/ML 2018)
- 3rd Workshop on Human Interpretability in Machine Learning (WHI 2018)
- Workshop on Interpretable & Reasonable Deep Learning and its Applications (IReDLiA 2018)
- Workshop on Explainable Artificial Intelligence (XAI 2018)

What is an explanation?

1) Inform and help understand why a particular conclusion was reached
2) provide grounds to contest the conclusion if undesired
3) Inform and help understand what could be changed to get a desired conclusion

(Wachter et al 2017)



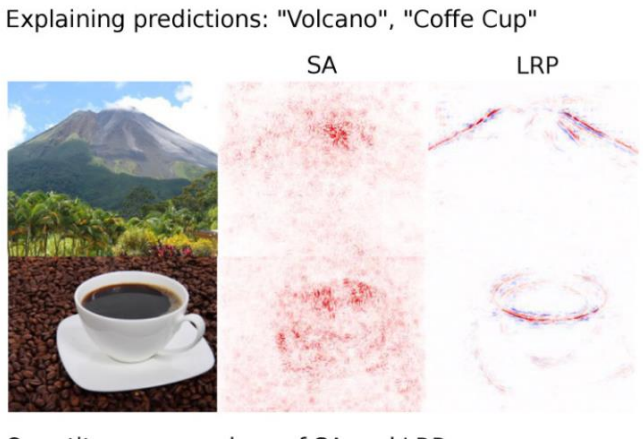
Weller 2017

Explanability =

Transparency, Interpretability, Verifiability, Comprehensibility

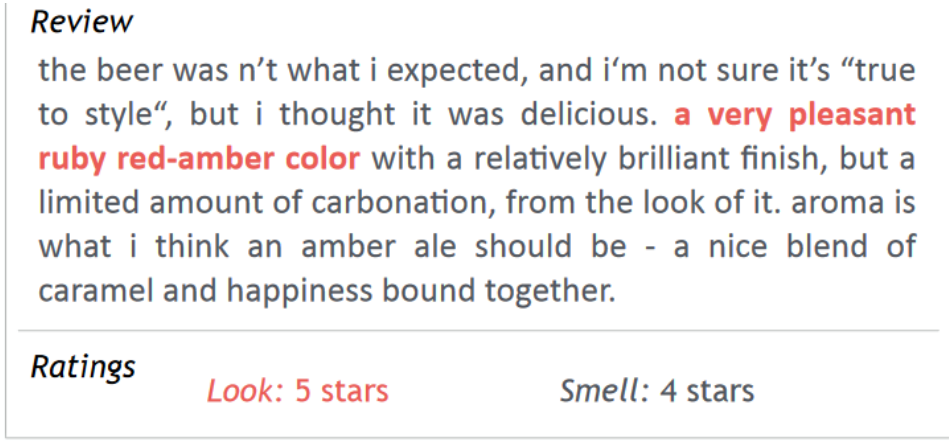
Examples

(A) Image classification

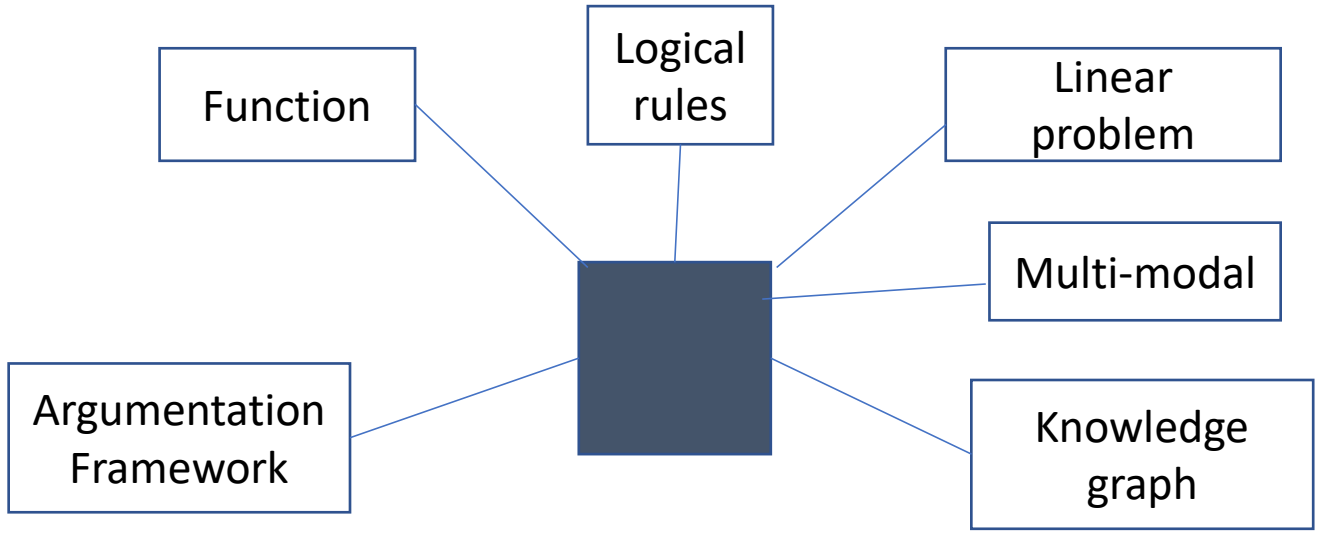


Samek, Wiegand, Müller 2017

(B) Natural Language Processing



Lei, Barzilay, Jaakkola 2016



Forms of explanation at this workshop

Program

AM

Richard Evans - Learning Explanatory Rules from Noisy Data

Stephen Muggleton - Ultra-strong machine learning - comprehensibility of programs learned with ILP

Alessio Lomuscio - An approach to reachability analysis for feed-forward ReLU neural Networks

Hajime Morita - Explainable AI that Can be Used for Judgment with Responsibility

PM

Christos Bechlivanidis - Concreteness and abstraction in everyday explanation

Seth Flaxman - Predictor Variable Prioritization in Nonlinear Models: A Genetic Association Case Study

Erisa Karafili - Argumentation-based Security for Social Good

Kristijonas Cyras - Explaining Predictions from Data Argumentatively

Oana Cocarascu/Antonio Rago - Argumentation-Based Recommendations: Fantastic Explanations and How to Find Them

Yannis Demiris - Multimodal Explanations in Human Robot Interaction

Euan Matthews - The Practicalities of Explanation