CONTESTING ALGORITHMIC DECISION-MAKING

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THE RIGHT TO CONTEST A DECISION FROM AUTOMATED PROCESSING

- Individuals affected by decisions based on predictive algorithms should have similar rights to those in the legal system, including the right to challenge them.

- EU’s GDPR: whenever a decision which legally or significantly affects an individual relies solely on automated processing, then the right to contest the decision must be guaranteed.

INTERTWINED PERSPECTIVES

• Legal
  o What does the right to contest entail? What assurances are needed to guarantee it?

• Technical
  o Building tools that enable us to address decisions being contested
TRANSPARENCY, EXPLAINABILITY, ACCOUNTABILITY ARE NECESSARY

• **Transparency** to ensure that stakeholders know that they are being subjected to automated decision making and that they have the right to challenge it.
  

• **Explainability** to be able to understand a decision and assess whether to contest it.
  

• **Accountability procedures** and effective methods of compensation to respond to errors and failures.
SO, IS CONTESTABILITY COVERED?

- The focus of a contesting procedure is expressly to ascertain *post hoc* whether relevant rules and regulations were followed for a particular decision.

- **Beyond the scope of explanation**: it is not only the decision itself, but also the socio-legal context in which it was taken that need to be contrasted.

- **Focus on specific, determined, sometimes technical aspects of the decision with respect to given constraints**, rather than interpretability.
CONTESTABILITY REQUIREMENTS

• Policies should **openly specify the regulations** and adequacy determinations for specific applications.


• **Pre-established procedures** in case of contest allowing to determine whether the relevant stipulations were followed in a way that is not open to interpretation.

• **Processes that support the redressing**, mitigation, and evaluation of potential harm.

Sociotechnical solutions
A 3-STEP PROPOSAL FOR A CONTESTABILITY PROCESS

1. Requirement collection
   o Stakeholder involvement
   o Relate requirements to specific functionalities of the system

2. Compliance contract
   o Formal specification of the constraints
   o Operational and must allow for detecting violations

3. Examining contested decisions under monitoring
   o Version control to record the different versions of the algorithm
   o Records of inputs and trace of events
ILLUSTRATING THE PROBLEM

Lufthansa’s automated pricing algorithm increased prices up to 30% immediately following the bankruptcy of competitor Air Berlin.

After complaints, the German consumer-protection regulator, Bundeskartellamt, conducted an investigation.

Lufthansa’s initial response was that the algorithm acted autonomously, but Bundeskartellamt made it clear that the fact that price increases were the result of an automated algorithm had no bearing on their decision.
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1. Requirement collection
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(1) Cheaper tiers must be fully booked before more expensive tiers are made available

(2) The price range for each tier must be comparable to previous years’ prices
A 3-STEP PROPOSAL FOR A CONTESTABILITY PROCESS

1. Requirement collection
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(1) Cheaper tiers must be fully booked before more expensive tiers are made available

(2) The price range for each tier must not differ by more than 30% from the average price of the same tier on the same route on the same day in the previous 5 years
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• Automated backward compliance checking (auditing)
• Normative MAS monitoring approaches
• Non-monotonic approaches
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• Record of inputs, state of the world, event occurrences
• Point in time when a tier has been sold out, prices for each tier through time, when seats from a certain tier were put on sale...
• Version of the algorithm that held at the time of the original decision
CONCLUSIONS

• Exhaustive record-keeping or the ability to recompute a decision are cornerstones of accountability.

• How do contestability and explainability differ in terms of costs, system requirements and trust calibration for naive and expert users?

• Guaranteeing contestability is its own research problem, and deserves its own methodologies in parallel to transparency, explainability and accountability.