The Alan Turing Institute

Machine learning in children's social care

Three types of analytics

Descriptive: highlight patterns and relationships in the data

Predictive: identify possible future outcomes

Prescriptive: identify a course of action

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Three questions

①   Should we be doing this?

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What are the advantages of using machine learning in children's social care? What are the risks?

Advantages

- Greater consistency and objectivity across cases and between social workers

Risks

The risks translate into three sets of ethical concerns

Concerns with human agency and social interaction

Concerns with wellbeing and public benefit

Concerns with social justice and equity

Three questions

① Should we be doing this?

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Three factors to consider

Data quality and use

Model

Implementation

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What data can we have access to? Why might the data be problematic?

Representativeness: does it mirror the make up of the population?

Relevancy: does it provide a comprehensive view of what I am trying to model?

Recency: how up to date is it?

Accuracy: are there elements of human bias or error in the data?

Three factors to consider

Data quality and use

Model

Implementation

The tricky areas of model design

Problem formulation and outcome definition

Pre-processing

Model building

The tricky areas of model design

Problem formulation and outcome definition: choosing a target variable

Pre-processing

Model building: performance and accuracy + interpretability

Three factors to consider

Data quality and use

Model

Implementation

Two areas of focus

User interface

Training and procedures

Three questions

① Should we be doing this?

② Can we do this right?

③ What is to be done?

What is to be done?

① Mandate the responsible design and use of ML models in CSC at the national level

② Connect practitioners and data scientists across local authorities to improve ML innovation

③ Institutionalise inclusive and consent-based practices for designing, procuring, and implementing ML models

④ Fund, initiate, and undertake active research programmes in system, organisation, and participant readiness

⑤ Understand the use of data in CSC better, its benefits and limitations

⑥ Use data insights to describe, diagnose, and analyse the root causes of the need for CSC

⑦ Focus on individual- and family-advancing outcomes, strengths-based approaches, and community-guided prospect modelling

⑧ Improve data quality and understanding through professional development and training

Thank you!

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