# **Counterfactual Explanations for Employment Services**

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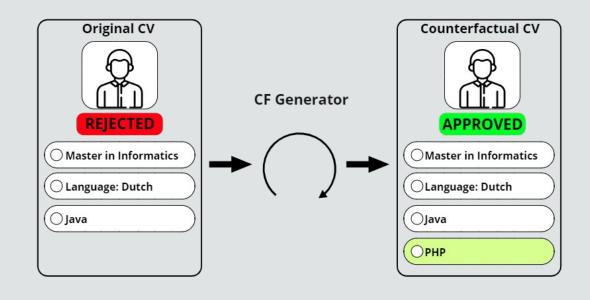
Abstract of the paper. This paper introduces the applications of a specific XAI methodology, Counterfactual Explanations, to the employability field. We show the usage through eight potential use cases..

#### **Methodology** Job seeker Automatic individualized career advice 'Why was I recommended this job' Gain trust Job requirements 110101 Institutional level 110111 Learn new insights 1100 Show hidden bias Suggested change Prediction Candidate skil Comply with GDPR (counterfactual) set (factual) Black box CF Data scientists Model verification Model improveme

*Fig. 1* – *Schematic overview of used methodology* 

- Train any black box model to predict whether a person is applicable for a job.
- Use an algorithm to generate the counterfactual explanations (We used NICE/SEDC)

# **Counterfactual generation**



### **Use cases**

- Automatic individualized career advice
- Acquiring new insights from the model and data
- 'Why was I recommended this job?'
- Gain trust and social acceptance
- Show hidden bias
- Legal compliance
- Model improvement
- Model verification



# **Use case 1: Career advice**

JOB AREAS		
	Information Technology	CV Area Match: Information Technology CV match level NOT RECOMMENDED You need the following skills to be RECOMMENDED
	Economy	
-pf-	Biology	
	Chemistry	

## **Use case 2: New insights**

