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Students' Careers and AI: a decision-making support system for Academia

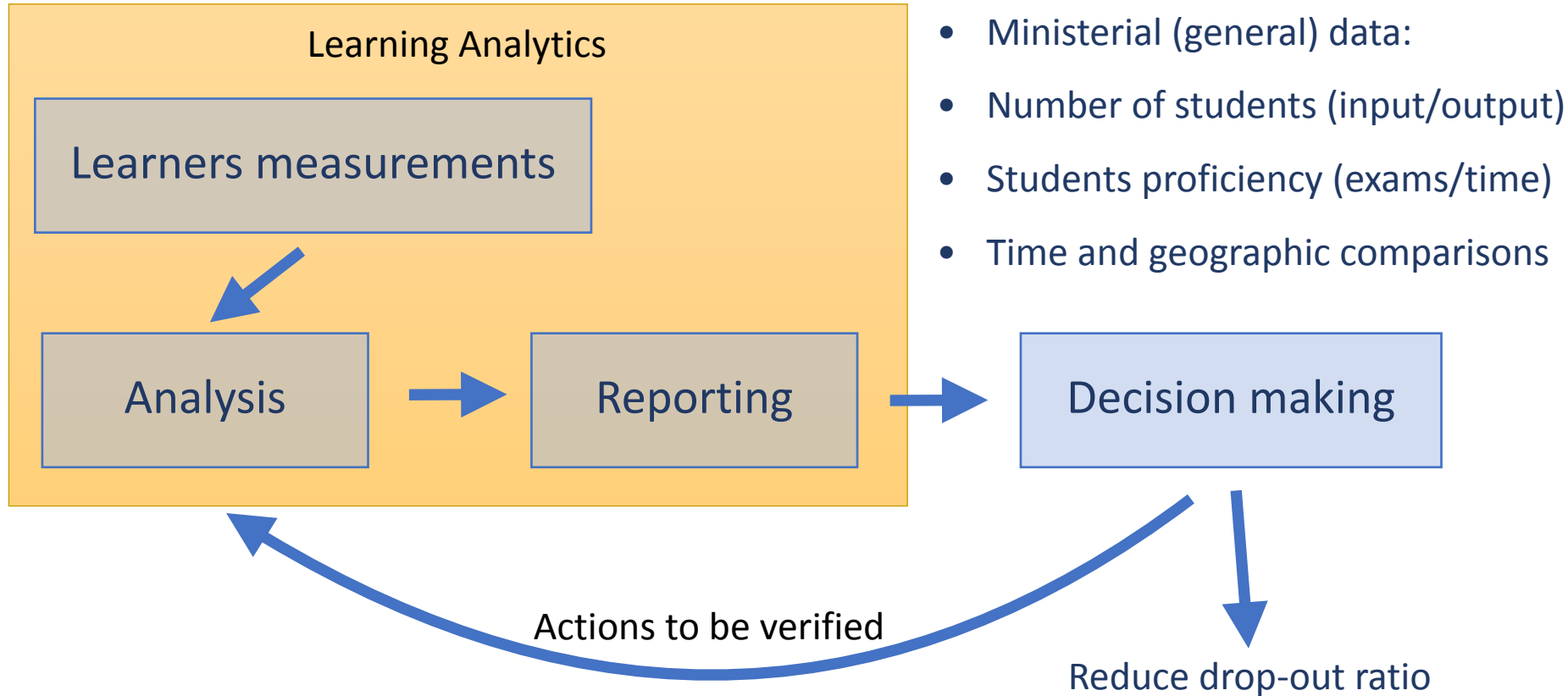
F. Bertini, A. Dal Palù, A. Formisano, A. Pintus, S. Rainieri, L. Salvarani

29/05/2023

Learning analytics in academia



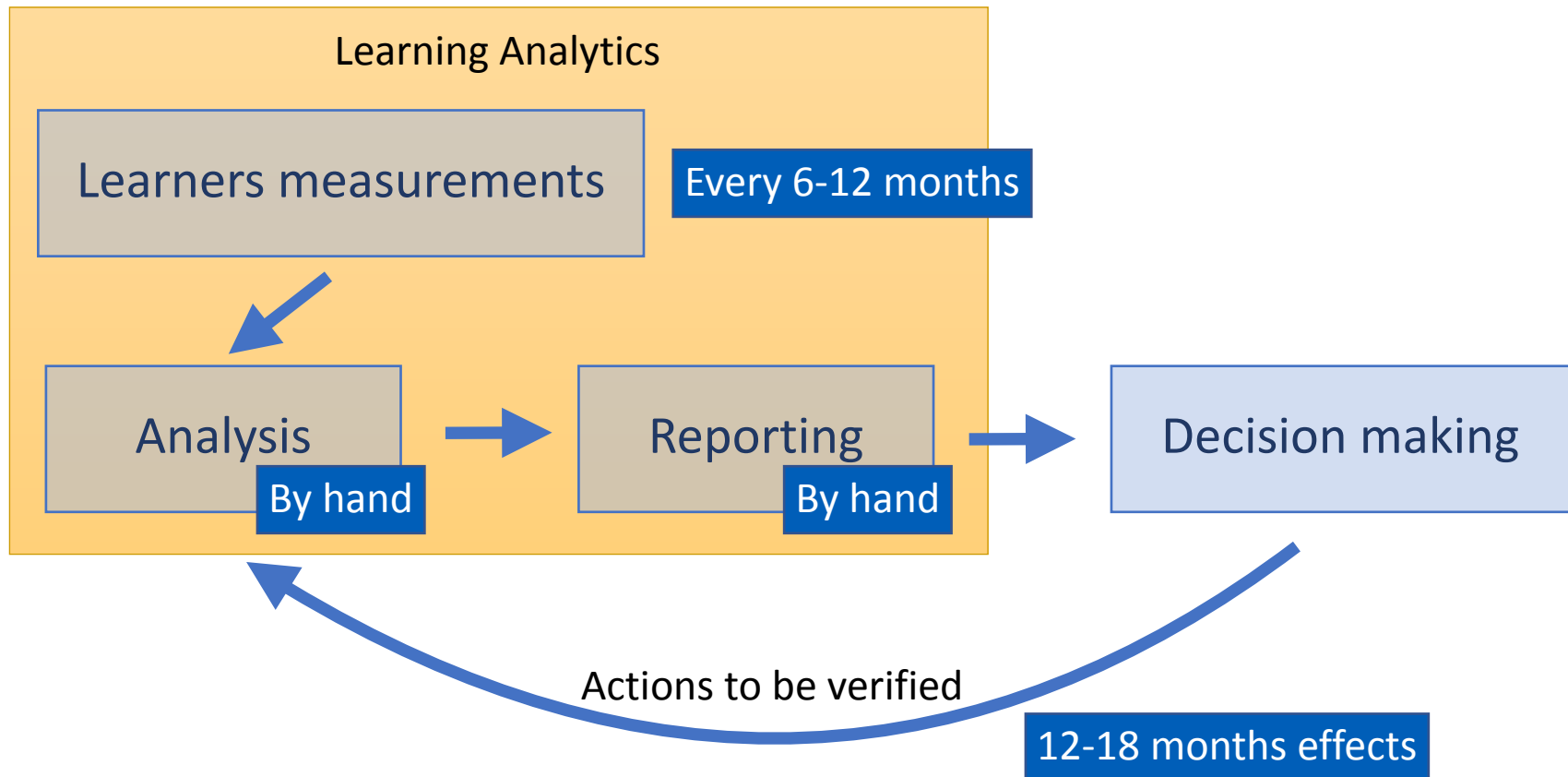
- Quality assurance is based on learning analytics



Learning analytics in academia



- Typical academic implementation



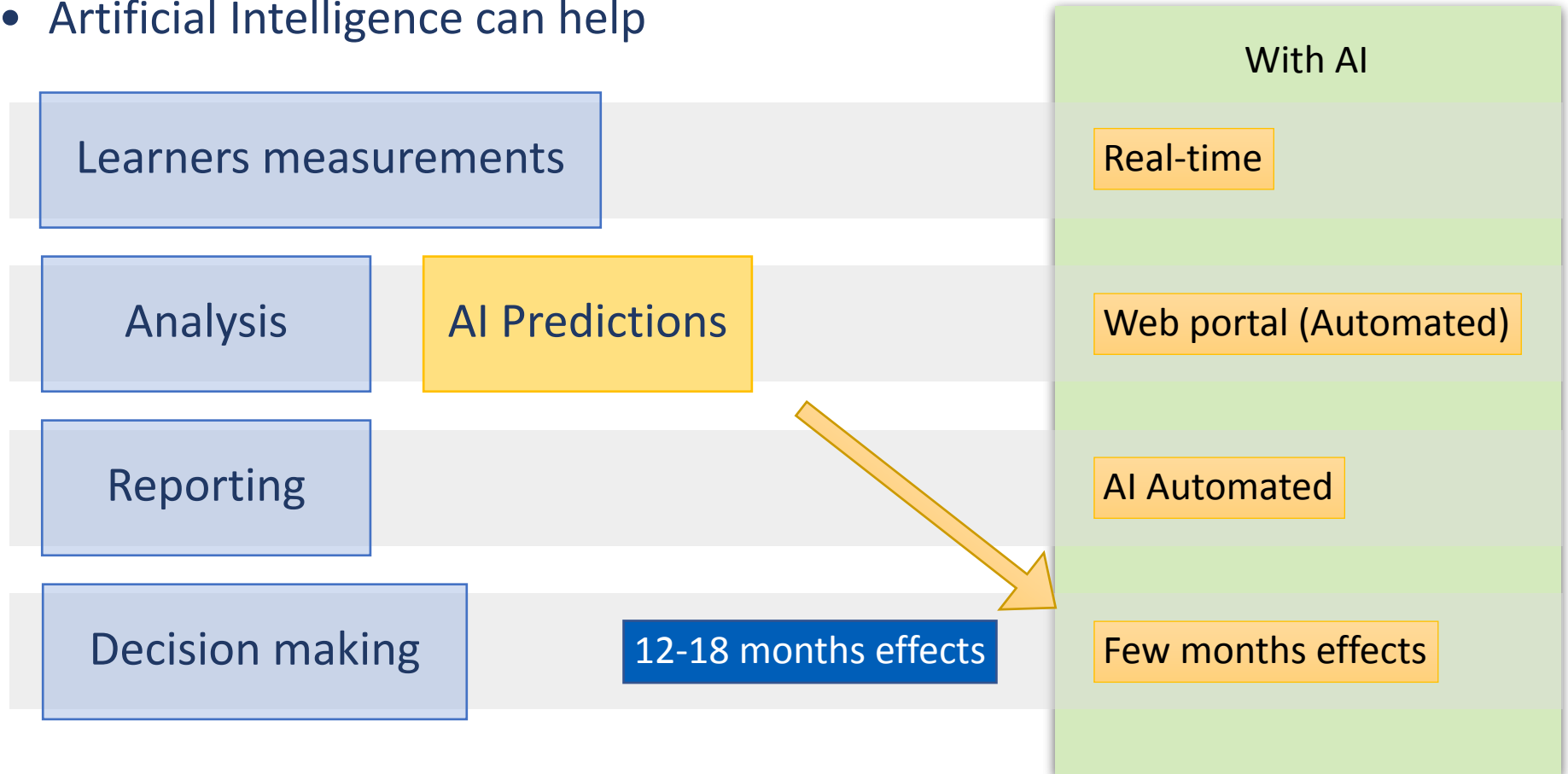
Learning analytics in academia

- Artificial Intelligence can help

	Common	With AI
Learners measurements	Every 6-12 months	Real-time
Analysis	By hand	Web portal (Automated)
Reporting	By hand	AI Automated
Decision making	12-18 months effects	12 months effects

Learning analytics in academia

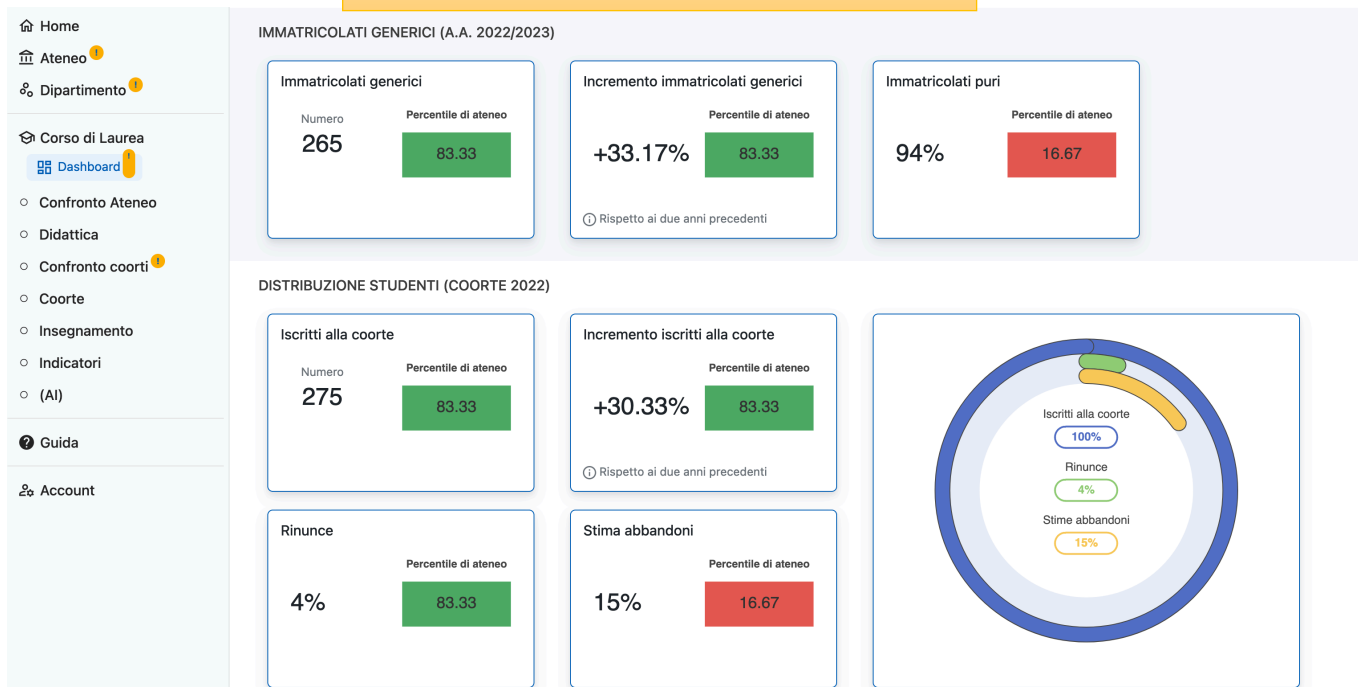
- Artificial Intelligence can help



Web portal

- Started in 2019 at Parma University, currently in production
- Fine level analysis: from single exam to university
- Role-Based Access Control

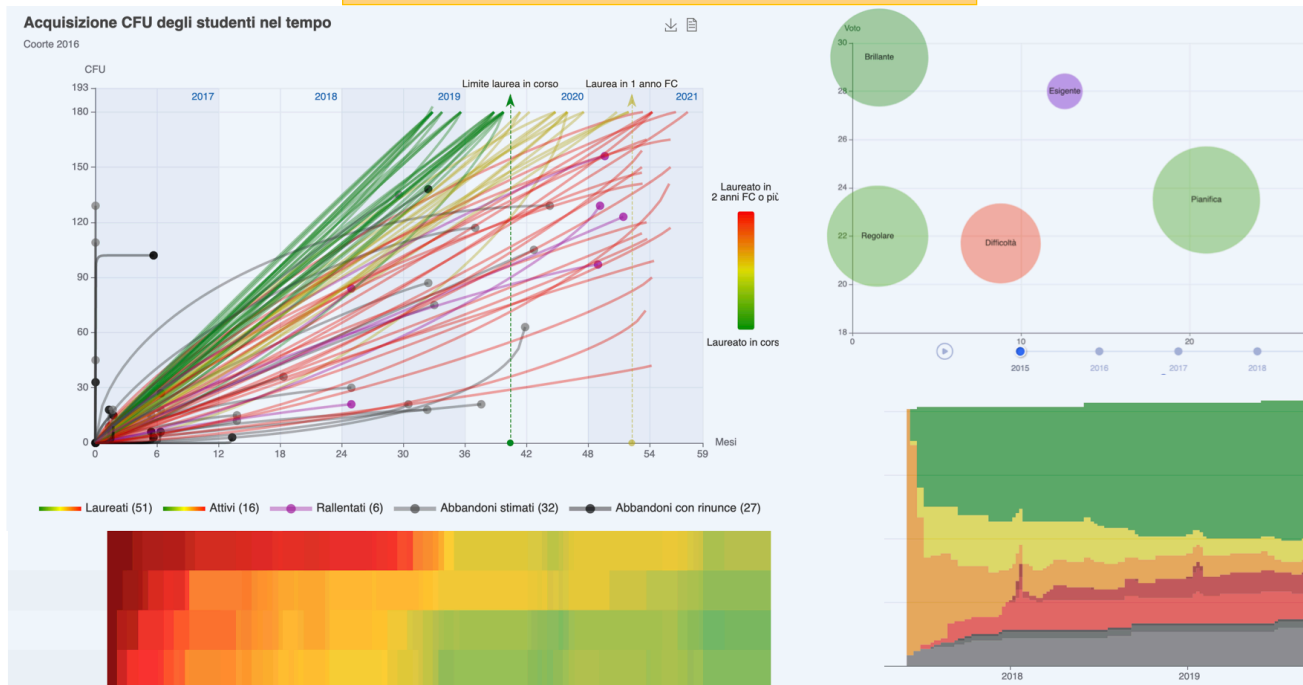
<https://carrierestudenti.unipr.it>



Web portal

- Data processed and aggregated with privacy compliance
- Rich set of metrics from Student Management System Esse3
- 40+ types of analyses (when/how exam attempted/passed)

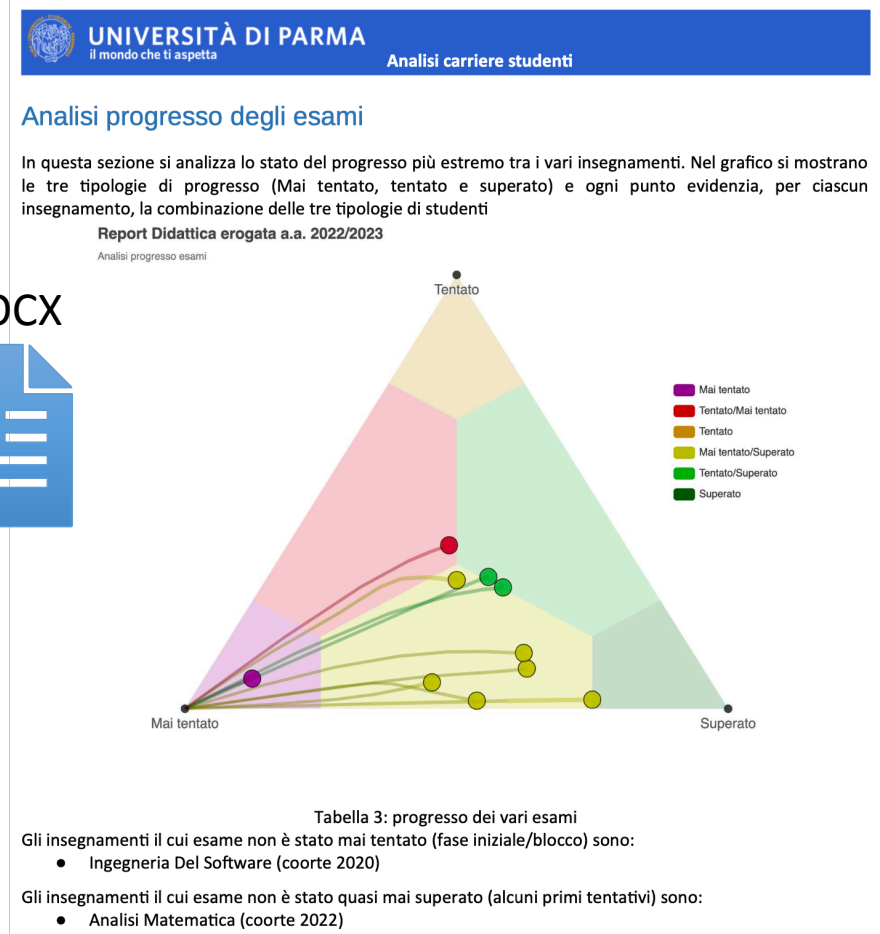
<https://carrierestudenti.unipr.it>



Reports: from creation to explanation

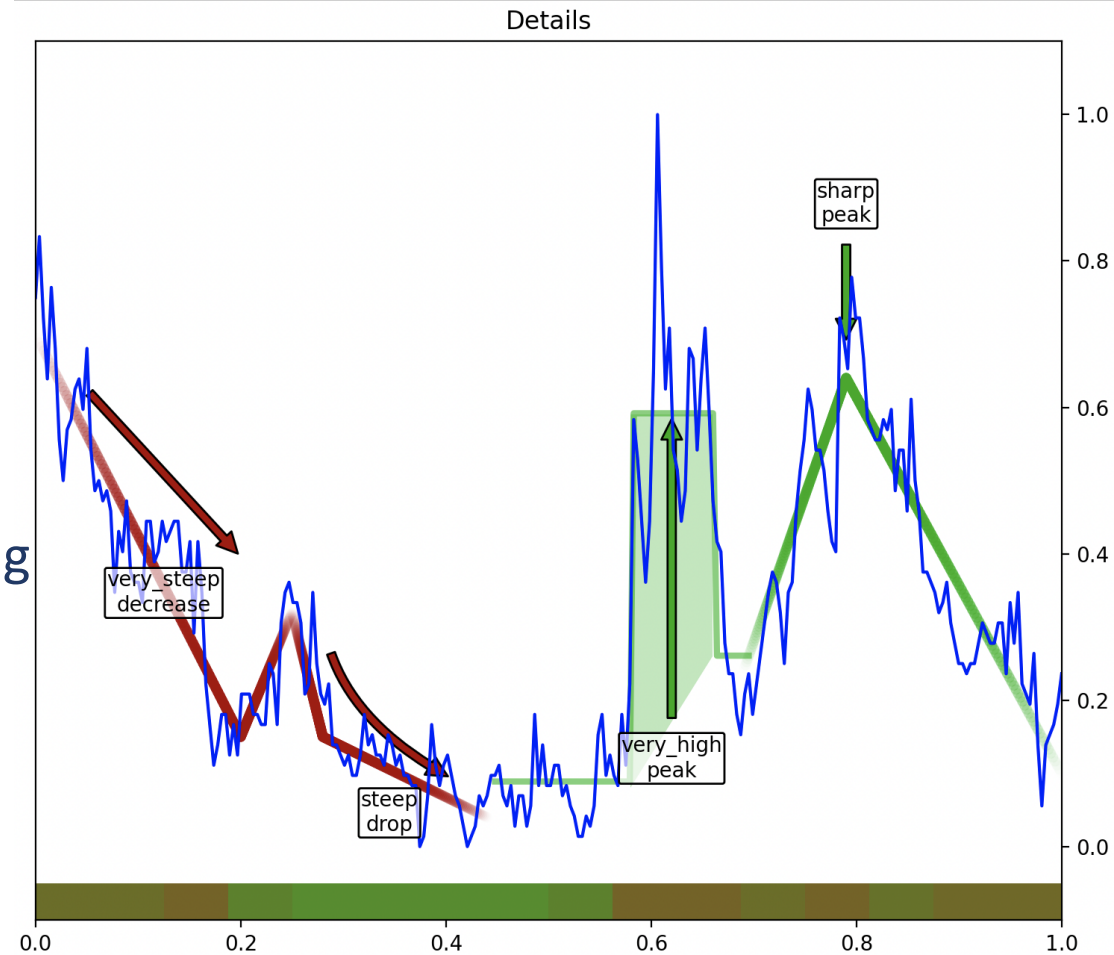
- Data overload -> Automation
- Analysis of attention points
- Natural language generation
- Automatic *creation*
- Focus to *explain* the outliers

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Reports: from creation to explanation

- Explainable AI
 - trust the output
 - can be understood
 - can be used for decisions
- Symbolic AI, Logic programming
- Data-to-text



AI predictions

- Under development (Datalake)
- **Students exams + online services logs**
- Coarse + fine grain approach
- **Unsupervised learning:** clustering patterns of disengagement
- **Supervised learning:** prediction of exam success / graduation
- Early detection of disengagement
- Actions while issues appear

Thank you for your attention