RedUsa

Visual Data Analysis of Production Quality Data for Aluminium Casting

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MOTIVATION & GOALS

- Demand for high-quality material in aluminum products
- Manufacturing industry is shaped by the vision of Industry 4.0 which is to increase the number of individual goods while keeping the cost and the production time at a minimum
- Increasing the production quality comes at the cost of continuous monitoring and adjustments of the entire process
- The development of new methods and tools to support domain experts in production data exploration and identify meaningful relationships and patterns, which could help to better understand such complex processes and define methods to improve the quality of the production process
- Advanced Visual Analytics for quality and yield improvement

Project FactBox

Project Name RedUsa
Project ID MFP_3.1
Duration 36+3 Months

Area 3
Cognitive Decision Support

Project Lead
Dr. Belgin Mutlu

APPROACH

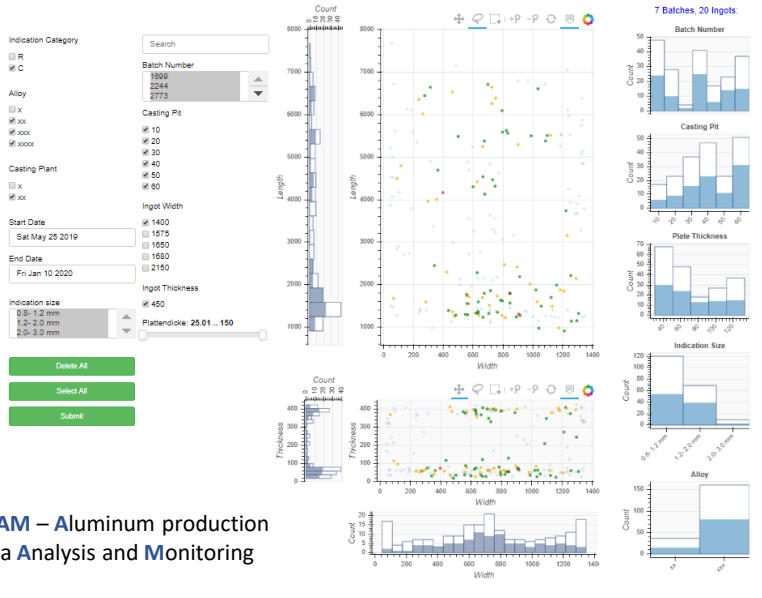
- Development of visual data analysis tools to support exploration and detection of patterns in large data, enabling e.g., production engineers to identify opportunities for process improvements
- Supporting data production analysis in an interactive way, supporting the search for dependencies and patterns in data with different analytics approaches

CONTRIBUTION

Scientific contribution
Visual data analysis approaches promise innovative and valuable insights into a complex and long-running production process. Identifying methods and models in real production datasets and gaining reliable knowledge from data leads to process improvement.

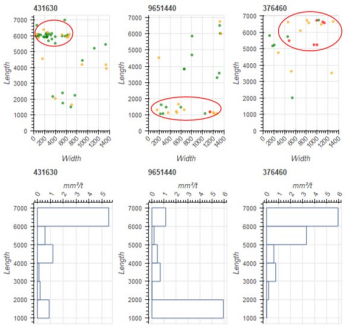
Economic contribution
Identifying the production parameters which influence the production quality and recognition of specific patterns that may indicate critical process deviations in the early stage of aluminum casting will increase product quality and production yield.

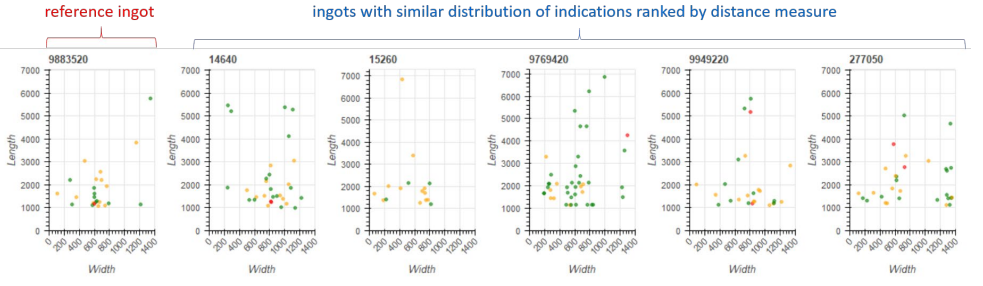
PROTOTYPE



ADAM – **A**luminum production **D**ata **A**nalysis and **M**onitoring

The purpose of ADAM is to help monitor, analyze and determine influence parameters in the production process with interactive cross-filtering, followed by multiple views of production data. The tool supports data exploration and visual comparison, enabling users to gather information concerning detecting special patterns, distribution of indication and correlation with process data.





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