AI Opportunities in Mobility & Transport

Andreas Metzger / Rodrigo Castiñeira
(Technical Coordinator) (Project Coordinator)
**About TT**

**EU Horizon 2020 Big Data Value PPP** Large Scale Pilot Action
- Goal: demonstrate transformations big data has on mobility and logistics
- 47 members - 18.7 MEUR budget - 30 months duration

**13 pilots in 7 domains**

Available data

- **160 Data Assets**
- **164 TB Data Volume**

"Data for AI" 2018, Bxl
AI Opportunity (1)
Analytics

Real-time road incident warnings using novel sensor technology

Optical fiber-based sensor (0.88 GB/sec)

Isolating Signals from Noise (classification, adaptive thresholds, clustering etc.)

Filtered data (1-5 GB/day)
AI Opportunity (1)
Analytics

Real-time road incident warnings using novel sensor technology

Individual Mobility Pattern Detection (trucks)

Aggregate Mobility Pattern Detection (traffic jams)
AI Opportunity (2)

Prediction

Deep learning for proactive terminal management

Data streams from terminal equipment
(1.3 mio states / month)

Integrated data of container moves
(10,000 moves / month)
AI Opportunity (2)

Prediction

Deep learning for proactive terminal management

Predicting Delays in Container Transport
(Recurrent Neural Networks)

[Metzger & Neubauer, “Considering non-sequential control flows for process prediction with recurrent neural networks”, SEAA 2018]

Prediction Reliability for Decision Support
(Ensemble Neural Networks / Bagging)

[Metzger & Föcker, “Predictive business process monitoring considering reliability estimates”, CAiSE 2017]
Conclusion

Vision of AI in mobility & transport

• Deep Learning
  (increased accuracy, automatic feature extraction, ...)
• Analytics ✓
  → Prediction ✓
  → (Fully) Autonomic Decision Making

Main challenges and/or barriers

• Data sharing considering protection of commercial data / IPR
  (ca. 70% of TT data sources, vs. 1% of personal data)
• Integrating AI capabilities into software systems (devops, testing, UX, ...)
• “Understandable” AI (decision support for transport operators/end-users)
Thank You!

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www.transformingtransport.eu

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"Data for AI" 2018, Bxl