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Ethical Implications of Artificial Intelligence for Road Safety

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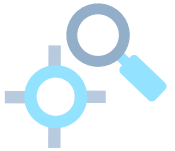
Why critical reflection on technologies developed for road safety?

Safety as the ultimate goal…



Delays critical reflection

Allows **justifications**

Safety in the road transport context…

Widely **Shared** concern

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AI Applications for Road Safety

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Ethical Implications

- Responsibility
- Explainability
- Autonomy
- Jstice
- Privacy

03

Implications for Design and Policy

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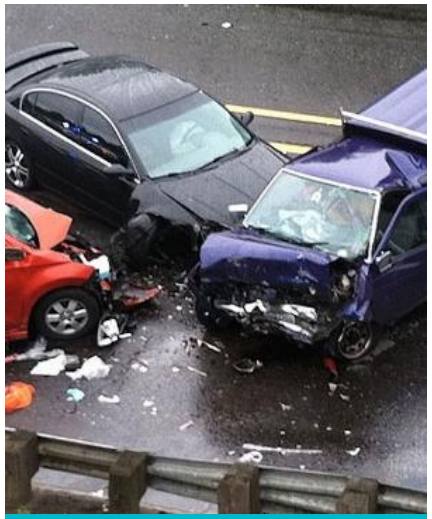
AI Applications for Road Safety

Infrastructure

Risk mapping

Road surface monitoring

Road infrastructure design



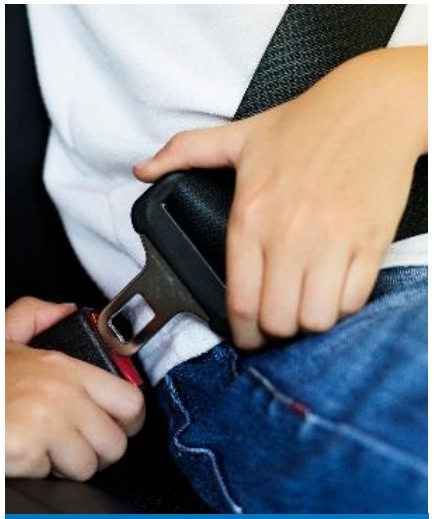
Vehicles

Emergency braking

Speed adaptation

Lane keeping assistance

CAVs



Road users

Driver drowsiness warning

Driving behavior profiling

Safety-based route planning

Road safety management

Crash detection

Safety investment planning

Traffic flow prediction

Post-crash response

Emergency responder placement

Automated emergency call

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Responsibility

- Knowing respective obligations to fulfill them
- Being held culpable for undesirable outcomes

Road Transport Systems:

Sensitive context where harm and damage can occur

Demand collective action of a large group of actors

AI Systems:

Developed by a complex network of actors

Lack of user awareness and training

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Explainability

- Causal chain of the process from input to output
- Why an input-output relationship exists

Road Transport Systems:

Safety critical context where reliability matters

Safety critical context where some decisions need epistemic reasoning

AI Systems:

Complex and opaque internal operations

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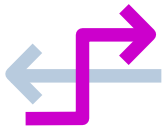
Autonomy

- Authenticity of values and norms that humans act on
- Maintaining competencies that grant humans self-rule

Road Transport Systems:

Comprised of human users and affected by their behavior and action



Require making morally sensitive decisions

AI Systems:

High predictive accuracy and detection capabilities

Surrounded by marketing hypes and hopes

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Justice

- Same worth and dignity, same considerations
- Sufficient level for all

Road Transport Systems:

Enabler of life-fulfilling activities in a shared space

Disparities in investments and outcomes

Multi-variable context with a vast variety of combinations

AI Systems:

Restricted to system limitations

Accessibility barriers

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Privacy

- Control over accessibility and visibility to others
- Control over information about oneself

Road Transport Systems:

Embrace where people's everyday movement takes place in public space

AI Systems:

Massive data collection and strong inference capabilities

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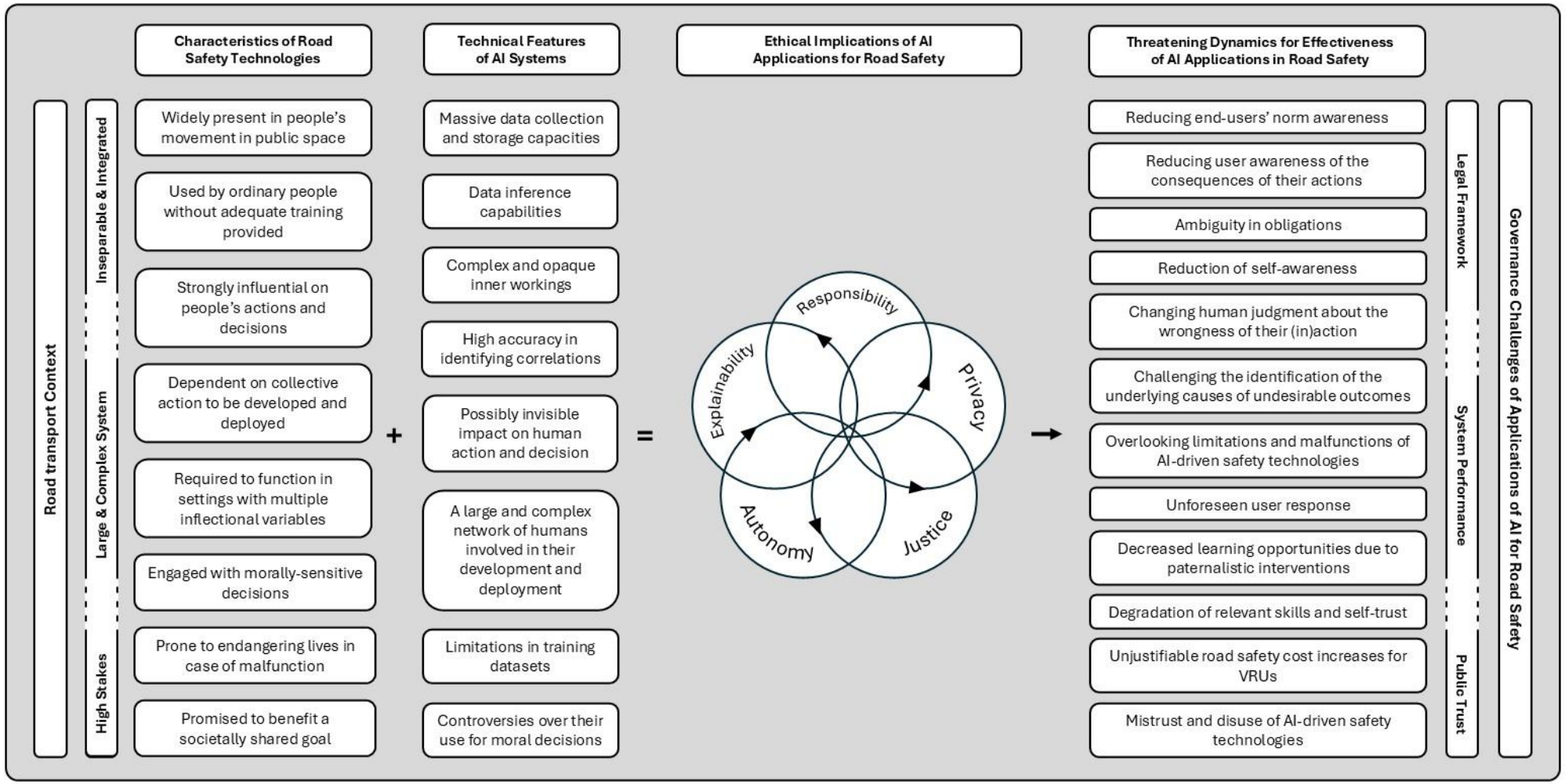

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Thank you for your attention!

Do you have any questions?

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