Pravni fakultet u Rijeci

Who Do We Trust When No One Is Driving? Rethinking Trustworthiness in Automated Vehicles

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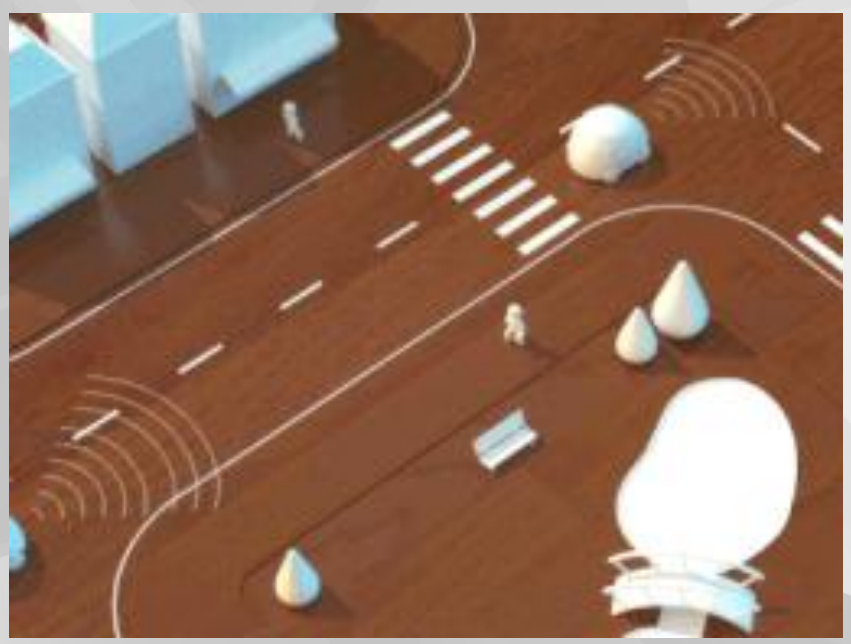
Trustworthiness

- **being** trusted – **deserving** trust – **earning** trust

Domain	Definition	Sources
Governance	"Lawful, Ethical, Robust"; fairness, accountability, transparency	EU HLEG (2019); Jobin et al. (2019)
Technical	Robustness, calibration, differential privacy, fairness metrics	Szegedy et al. (2014); Guo et al. (2017)
HCI	Predictability, competence, understandability, trust calibration	Lee & See (2004)
Philosophy / STS	Moral trustworthiness, institutional legitimacy, autonomy	O'Neill (2018); Coeckelbergh (2020)

Trustworthiness in the AV – 101



- safety validations
- sensor reliability
- failover modes
- explainability of models
- regulatory compliance

Relations, not just statistics

Trustworthiness depends on:

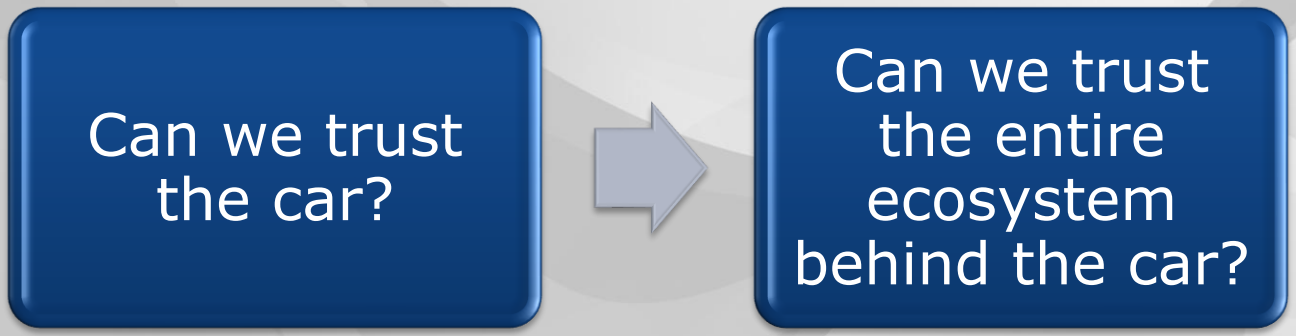
- how humans **interact** with the AV
- how predictable and understandable the AV **feels** to people
- how the AV communicates **intentions**
- how **responsibility** is allocated

People may mistrust AVs even when statistically safer than human drivers because **trust is experiential**, not merely probabilistic.

Distributed responsibility, not just technical improvments

Trustworthiness increases with:

- explicit responsibilities for failures and updates
- transparent lines of accountability
- users know who is responsible for element designs, maintenance, updates, decision logs



Delivering the promise, not just piles of paperwork

- how AV behaves in everyday traffic, not just technical documentation
- user experience (smooth braking, understandable handovers) matters more than abstract certifications
- public road trials, transparency reports, and near-miss disclosure

Communication, not just fixing code

AVs should communicate intentions clearly to:

- passengers
- pedestrians
- other drivers

Examples:

- external displays that signal yielding
- predictable driving patterns that “feel” human-friendly
- interfaces that explain what the car is perceiving

Social legitimacy, not just technical assurance

Because AVs reshape public space, we need:

- public participation
- democratic governance
- inclusive decision-making

Trustworthiness involves:

- community engagement in deployment
- transparency in safety demonstrations
- consideration of vulnerable groups (impaired, elderly, children, consumers, migrants)

Conclusions

Not only

- accurate perception
- reliable control algorithms
- robust safety validations

Trustworthy AV system is embedded in trustworthy human, organizational and societal **relationships**

But also

- meaningful and predictable **interactions** with humans
- trustworthy **institutions** behind development, testing, and deployment
- socially embedded **communication** and transparency practices
- distributed **accountability** and responsible governance
- cultural acceptance and public **legitimacy**

Your questions or comments are also welcome at:

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Thank you for the attention!

Legal disclamer:

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