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Propositions

accompanying the dissertation

MODELLING, CONTROL, AND COORDINATION FOR AUTONOMOUS DRIVING ON A REPRODUCIBLE ROBOTIC PLATFORM

by

Lorenzo LYONS

1. Cybersecurity measures serve as deterrents, not guarantees. [Chapter 3]
2. Even for highly flexible data-driven models such as Gaussian Processes, modeling actuator and system dynamics separately is faster and more reliable than building a unified model. [Chapter 5]
3. Testing on real robots is indispensable for the advancement of autonomous driving research. [Chapter 2]
4. The EU's conservative stance on autonomous driving is unjustified.
5. Traffic rules only work because humans bend them just enough to keep traffic flowing. Since robots cannot interpret the rules themselves, they should have their own pre-loosened set of rules.
6. For society to invest in a new technology such as autonomous driving, clear societal value alone is insufficient; the technology must also be profitable.
7. In the face of inevitable armed conflict, it is our moral responsibility as roboticists to develop military systems that reduce the likelihood of unintentionally involving civilians and lower the exposure of military personnel.
8. PhD programs in robotics would benefit from allocating a greater share of graduate training to clean software engineering and sound coding practices.
9. Using LLMs as default problem solvers in education weakens future engineers' ability to think critically.
10. After completing a PhD, an academic career often entails multiple short-term postdoctoral positions and repeated international relocations, driving many researchers toward industry.

These propositions are regarded as opposable and defensible, and have been approved as such by the promotor prof. dr. R. Babuška and by the copromotor dr.

L. Ferranti.