

# Beyond Safety: The Case for Normative Legal Intervention in Ethical Decision-Making of Autonomous Vehicles

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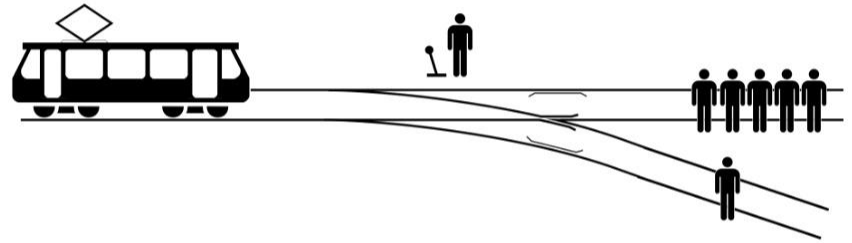
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# The Trolley Problem

- A RUNAWAY TROLLEY IS HEADING TOWARD FIVE PEOPLE ON THE TRACK
- YOU CAN PULL A LEVER TO DIVERT IT ONTO ANOTHER TRACK, WHERE ONE PERSON STANDS
- THE DILEMMA: SHOULD YOU ACT TO SACRIFICE ONE LIFE TO SAVE FIVE, OR DO NOTHING AND LET FIVE DIE?



AUTHORS: ORIGINAL BY MCGEDDON VECTOR BY ZAPYON

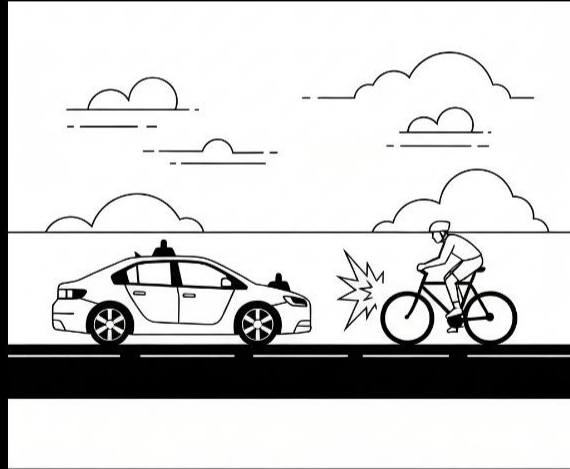
# The Trolley Problem in Autonomous Vehicles

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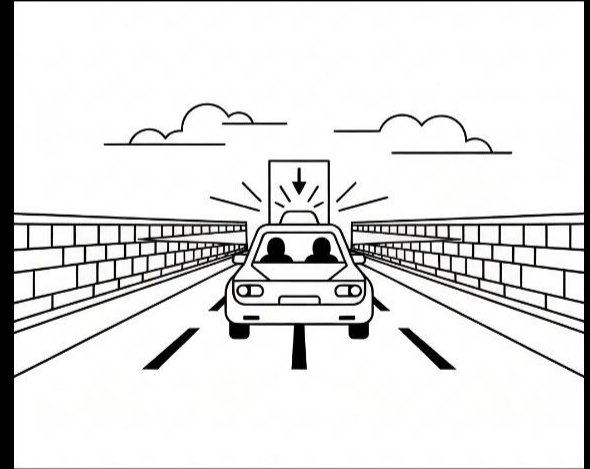
In rare but possible scenarios where a crash cannot be avoided, an autonomous vehicle may be forced to decide between several courses of action, each causing harm in a different way:



**HARMING A GROUP OF PEDESTRIANS**



**ENDANGERING A NEARBY CYCLIST**



**RISKING THE SAFETY OF ITS OWN PASSENGERS**

# Dividing Lines in the Legal Literature

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## MINIMALIST APPROACH

- Law **leaves ethics** to existing safety and liability rules
- Legal force is **indirect** – responsibility lies in negligence and product law
- **Focus on safety standards**, not moral decision-making
- **Goal:** technical optimization and accident prevention.

## HARD-CODING APPROACH

- Law **prescribes** concrete ethical outcomes for AV decisions
- Legal force is **hard** – binding rules define how systems must act
- **Moderate strand:** state principles verified through testing and certification
- **Radical strand:** fixed moral rules in design
- **Goal:** enforce uniform, predictable moral results.

## INTEGRATIVE / ADAPTIVE APPROACH

- Law **recognizes** guiding values, not fixed outcomes
- Legal force is **soft** – values guide, not dictate, decisions
- Governance **interprets** and updates through ethical deliberation
- **Goal:** continuous dialogue between law, ethics, and technology

# Proposal: A Principle-Based and Adaptive Legal Model

Law **prescribes** binding ethical principles but **allows** contextual application.

Legal force: **hard in substance, soft in form** – duties defined, applied adaptively.

Governance applies and **updates principles** as technology evolves.

**Oversight ensures accountability** – ethical law that adapts without rigidity.



# Why Legal Boundaries Are Needed

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## MARKET PRESSURE DISTORTS MORAL CHOICES

Without legal limits, companies will build cars that save their own passengers first, turning ethics into marketing.

## MORAL AUTHORITY MUST REMAIN PUBLIC

Profit should not decide who lives and who dies. Law, not branding, must set those boundaries.

## LAW GROUNDS ETHICS IN DEMOCRACY

Legal rules keep ethical choices aligned with shared public values, not corporate interests.

## THE STATE'S DUTY EXTENDS TO MACHINES

The state's obligation to protect life under the ECHR applies even when decisions are made by autonomous systems.

# What the Law Should Say

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**HUMAN LIFE ALWAYS COMES BEFORE PROPERTY**

**ALGORITHMS MUST NEVER DISCRIMINATE BASED ON PERSONAL TRAITS**

**THE SYSTEM SHOULD TRY TO MINIMIZE  
UNAVOIDABLE HARM WITHOUT CALCULATING WHOSE  
LIFE IS WORTH MORE**

# How It Should Work in Practice

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## INDEPENDENT REGULATORY OVERSIGHT

A body of legal, ethical, and technical experts turns principles into standards, reviews systems before launch, and monitors them continuously

## ETHICAL CERTIFICATION UNDER THE AI ACT

Driving-control systems are already high-risk AI. Certification should confirm not only safety, but ethical conformity – respect for life, fairness, and equality.

## ONGOING AUDIT AND UPDATING

After deployment, regular audits keep systems compliant and ethical standards evolving with technology and society.

# Keeping Oversight Adaptive

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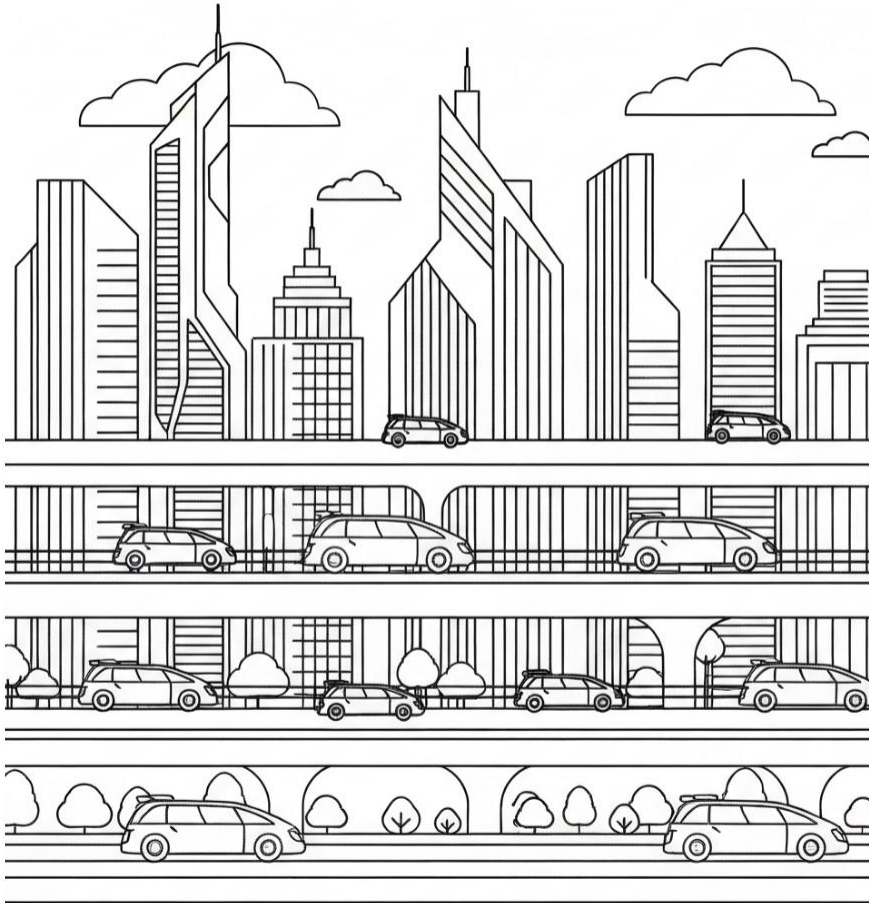
## **LAW MUST EVOLVE WITH TECHNOLOGY**

through codes of practice and  
harmonized standards that  
keep ethics and engineering in  
sync.



## **ETHICS BECOMES PART OF THE LIFE CYCLE**

rooted in law, but flexible  
enough to grow with  
innovation



## Moving Beyond Safety

From philosophy to law, and from law to code, autonomous vehicles turn moral questions into regulatory ones.

Decisions must rest **within a democratically accountable legal framework**, not corporate discretion or engineering optimization.

A **balanced legal model** grounded in dignity, equality, and adaptive oversight would provide that foundation

Such a framework would **protect people, build trust, and enable innovation.**

When a car must decide, it must decide **within moral boundaries society itself has chosen.**

# Thank you!

## Legal disclaimer:

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