Intelligent Autonomous Cyber-Physical Systems: Design, Verification, and Certification

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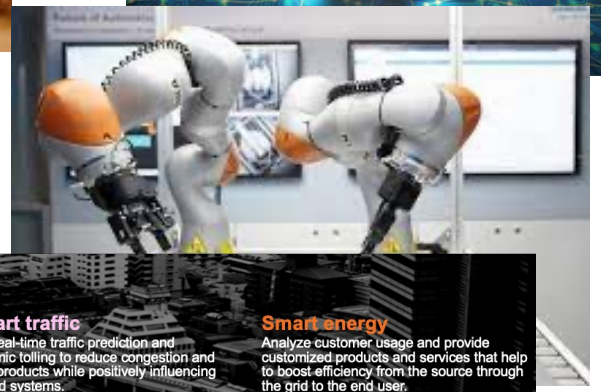
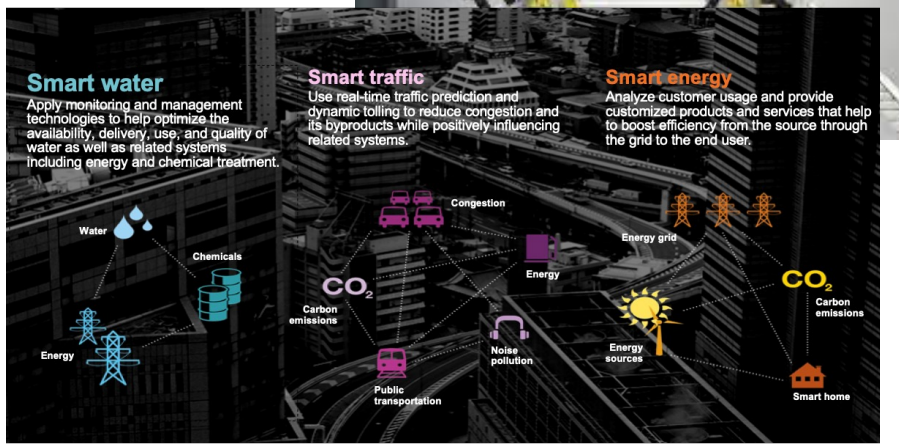
Sophisticated Software Functions and AI Are at the Core of Autonomy…

IoT Times

skydio.com



Wired



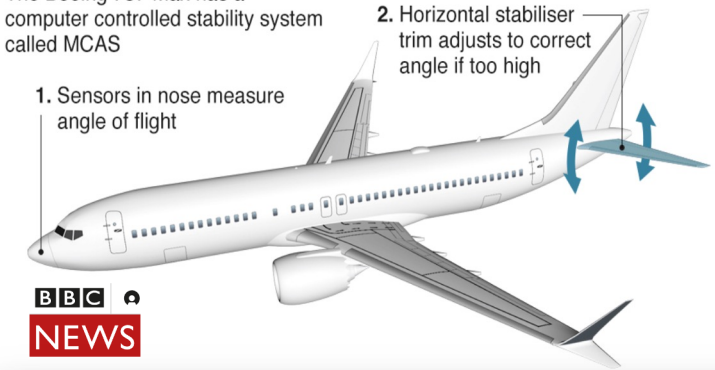
…But They Can Be Unreliable and Erratic

How the MCAS system works

The Boeing 737 Max has a computer controlled stability system called MCAS

1. Sensors in nose measure angle of flight

2. Horizontal stabiliser trim adjusts to correct angle if too high



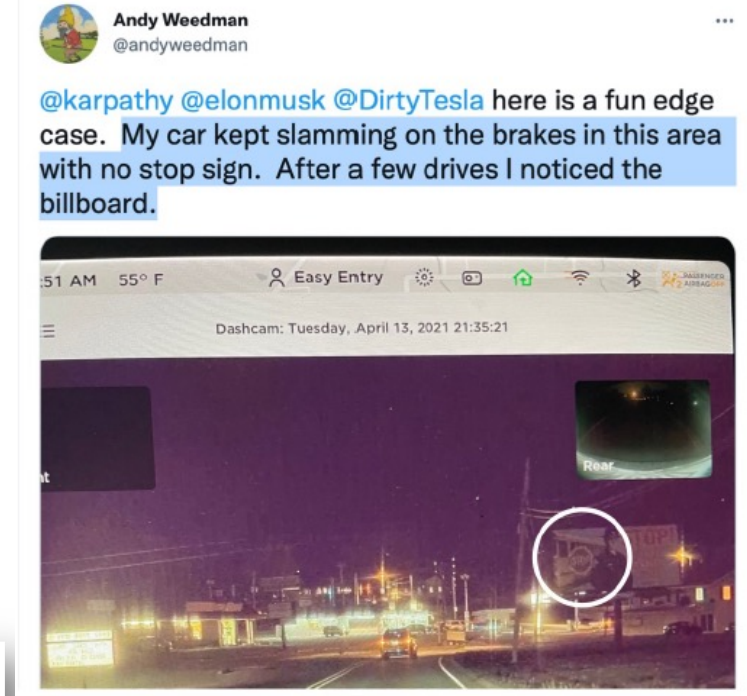
BBC NEWS

Pilots of the crashed Ethiopian Airlines Boeing 737 Max were unable to prevent the plane repeatedly nosediving despite following procedures, an initial report has found.

The captain and first officer followed safety procedures recommended by Boeing. But **they couldn't stop the aircraft going into a fatal dive** shortly after take off from Addis Ababa on 10 March, the report by Ethiopian investigators said. All 157 people on board were killed.

Aviation authorities grounded the entire global fleet of 737 Max aircraft in March after two fatal crashes in five months.

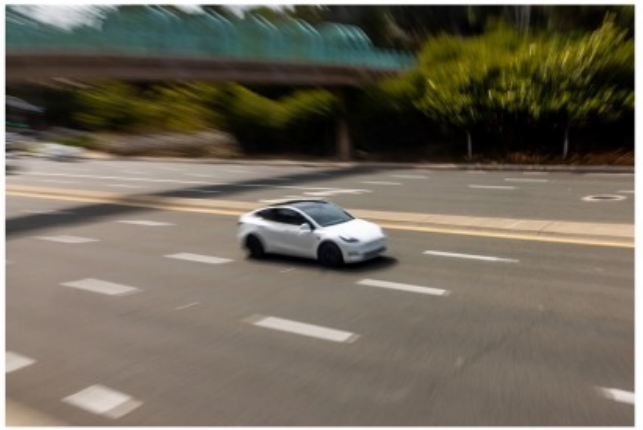
The Ethiopian Airlines crash followed a Lion Air crash in Indonesia in October, which left 189 dead.



The New York Times

Regulators open an investigation into 'phantom braking' by Teslas.

Some drivers have complained that cars using the company's Autopilot system have been slowing down suddenly even when there are no hazards ahead.



The investigation focuses on Tesla Model 3 compact sedans and Model Y hatchbacks that were made in 2021 and 2022 and sold in the United States. Roger Kisby for The New York Times

Assurance of Intelligent Autonomous Cyber-Physical Systems

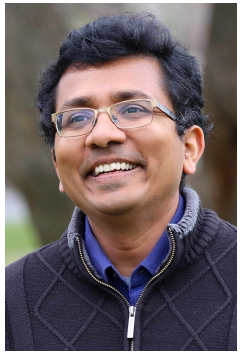
What could be a viable path toward accelerating the deployment of autonomy and AI in mission-critical systems while ensuring their exemplary safety and dependability records?

What are the science and technology enablers that would accelerate certification of AI-enabled mission-critical systems?

Speakers and Panelists

Safe Learning in Autonomous Systems
Francesco Borrelli, Professor, Mechanical Engineering, UC Berkeley

Fast Reachability As a Building Block for Verified Autonomy
Samuel Coogan, Associate Professor, Electrical and Computer Engineering, Georgia Tech



Predictive Runtime Assurance for Autonomous Systems
Sriram Sankaranarayanan, Professor, Computer Science, University of Colorado, Boulder

Speakers and Panelists

Learning Monitorable Operational Design Domains for Assured Autonomy

Hazem Torfah, Postdoctoral Researcher, UC Berkeley

Design and Assurance of Autonomy

Tim E. Wang, Principal Research Engineer,
Autonomous and Intelligent Systems,
Raytheon Technologies Research Center