DRIVERLESS





Student-led high-speed **autonomous racing team**, developing full scale vehicles and autonomous software to compete in driverless racing competitions.

Bridging industry and academia | Mens et Manus









OUR MISSION

- To be the center for applying autonomous vehicle technology at MIT.
- To create and implement cutting edge technology to compete against and learn from our peers around the world.
- To build relationships across campus and beyond, while developing leaders in the AV, robotics, and tech industries.

Our own legacy is built on a foundation of exceptional ability and proven success





And we are proud of our alumni who carry on this tradition



driverless.mit.edu

Founders establish MIT Driverless, the 1st US Formula Student Driverless Team 2018 2019 2020 Partnership with TU Delft TU Delft TU Delft Team achieves top score in Competitions 2nd Place In Italy

> 3rd Place In Germany

OUR NEXT CHALLENGE

Indy Autonomous Challenge



Autonomously drive an IndyLights racecar head-to-head at the world famous Indianapolis Motor Speedway.

Speeds up to **180 MPH** against **31** of the top universities from around the world.



"If everything seems under control, you're just not going fast enough." – Mario Andretti



OUR NEXT CHALLENGE

RoboRace

A seasonal 6 event race against 6 top universities and corporate teams in a proven and tested circuit style competition with custom made autonomous vehicles showing the full dexterity and agility of AV technology.











Subsystem Breakdown











Subsystem Breakdown









Subsystem Breakdown







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Learn More

- <u>MIT Driverless Website</u>
- <u>Summer Showcase Recording</u>
- <u>Application</u>
- Contact info -

driverless-business@mit.edu

• Follow us on social media!





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Additional Slides

Autonomous vehicle challenges are leaving a legacy on this world.

DARPA Grand Challenges 2004-05



DARPA Urban Challenge 2007



Leading AV companies founded by alumni of these races









MIT Founder



What does YOLO do?

*YOLO is our 2D image detection system







Why Yolo?

2D Localization - YOLOv3

Two Stage Networks



Single Shot Detection Networks







Architecture of YOLOv3



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Perception



Appendix

Formula Student Competition Disciplines





SkidPad



Autocross and Endurance

MITeamDelft 2018-2019



Kieran

Our Technology



Computer Vision: Hardware Layout





Path Planning & Controls: System Design



Mechanical Engineering: Coffee Table



