Self-Driving Car

Research Studio

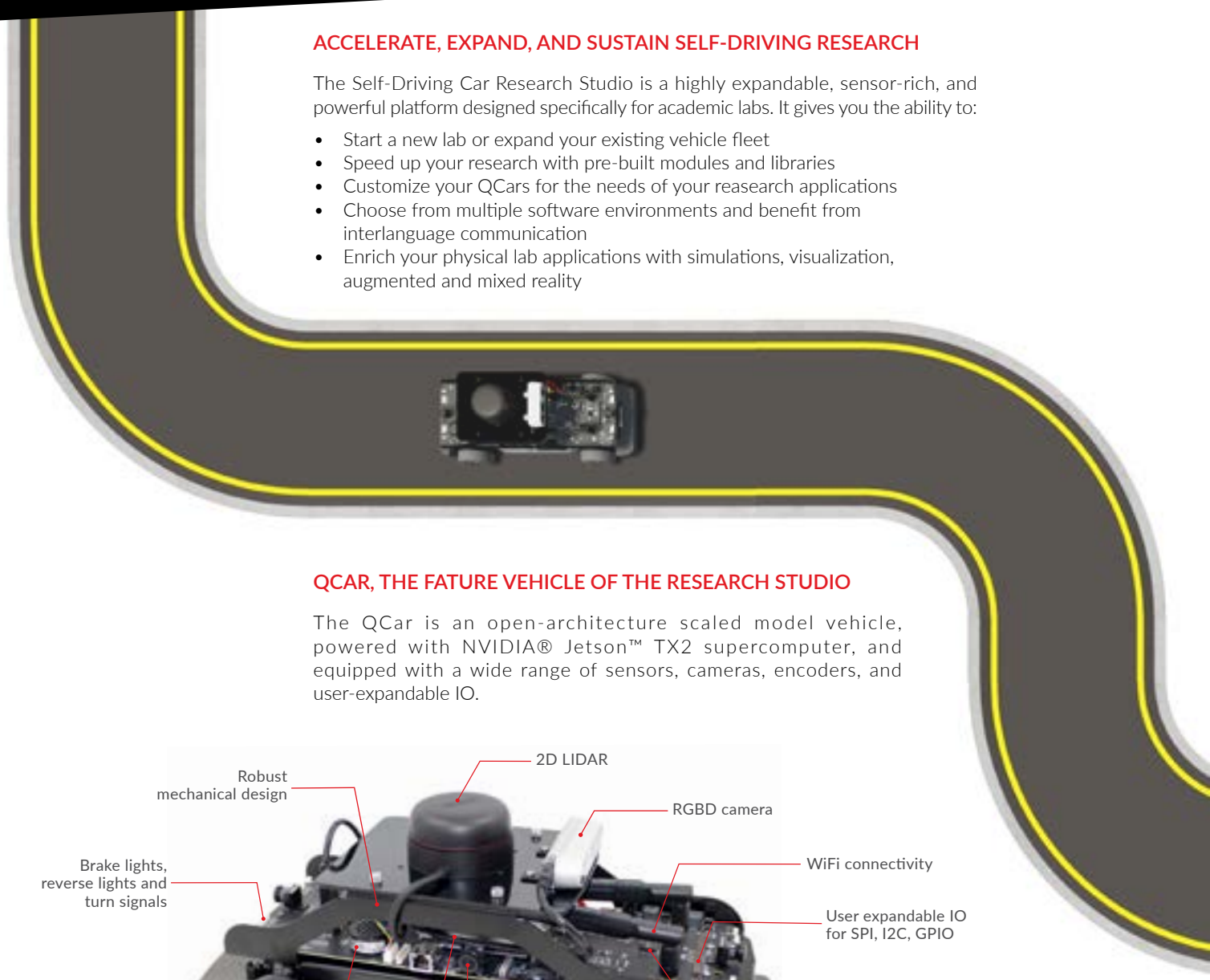
QUANSER
INNOVATE·EDUCATE

Advancements in sensor and software technologies are enabling cutting edge autonomous vehicle research and development. From accurate sensing of the environment to implementing intelligent algorithms for safe and efficient autonomous driving, these complex and diverse applications pose significant challenges to researchers. The Quanser Self-Driving Car Research Studio is the ideal platform designed specifically for academic research. Use it to jump-start your research, scale your existing vehicle fleet, while leveraging multiple software environments. The studio brings you the tools and components you need to test and validate dataset generation, mapping, navigation, machine learning, artificial intelligence, and other advanced self-driving concepts.

ACCELERATE, EXPAND, AND SUSTAIN SELF-DRIVING RESEARCH

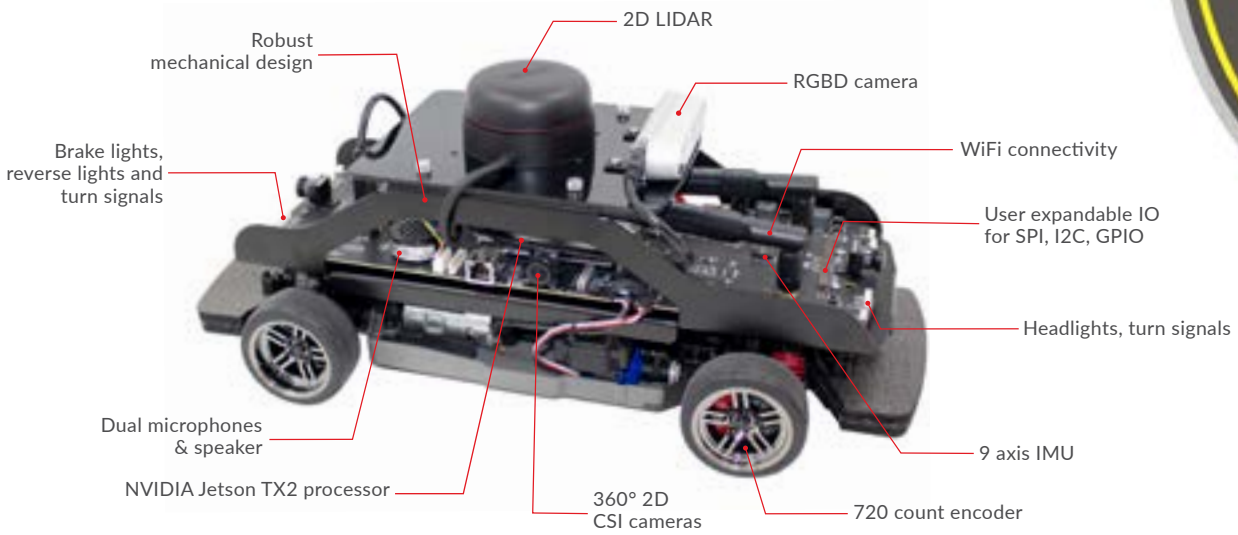
The Self-Driving Car Research Studio is a highly expandable, sensor-rich, and powerful platform designed specifically for academic labs. It gives you the ability to:

- Start a new lab or expand your existing vehicle fleet
- Speed up your research with pre-built modules and libraries
- Customize your QCars for the needs of your reasearch applications
- Choose from multiple software environments and benefit from interlanguage communication
- Enrich your physical lab applications with simulations, visualization, augmented and mixed reality



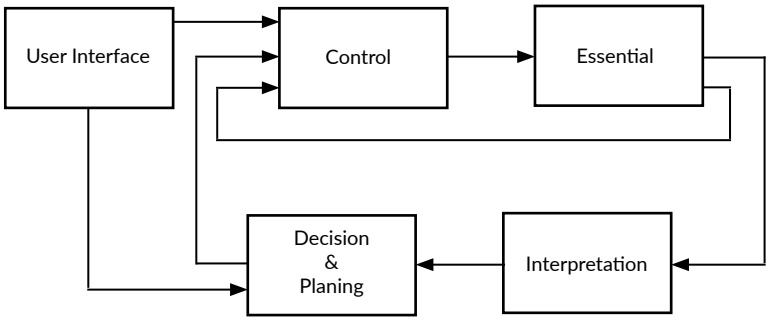
QCAR, THE FATURE VEHICLE OF THE RESEARCH STUDIO

The QCar is an open-architecture scaled model vehicle, powered with NVIDIA® Jetson™ TX2 supercomputer, and equipped with a wide range of sensors, cameras, encoders, and user-expandable IO.



OPEN ARCHITECTURE

The Self-Driving Car Research Studio's open software architecture is designed to provide key functionalities required for multi-vehicle research through a variety of customizable modules. Relying on a set of software tools, including Simulink®, Python™, TensorFlow, and ROS, the studio enables researchers to build high-level applications and reconfigure low-level processes that are supported by pre-built modules and libraries. Using these building blocks, you can explore topics such as machine learning and artificial intelligence training, augmented/mixed reality, smart transportation, multi-vehicle scenarios and traffic management, cooperative autonomy, navigation mapping and control, and more.



Software architecture framework

With the Self-driving Car Research Studio, you can focus on your research on the first day, rather than spending time and resources on building DYI platforms or implementing hobby-level vehicles.

RESEARCH STUDIO CONFIGURATION

Vehicles

- QCar
  (single vehicle or vehicle fleet)

Ground Control Station

- High-performance computer with RTX graphics card with Tensor AI cores
- Three monitors
- High-performance router
- Wireless gamepad
- QUARC Autonomous license

Studio Space

- Set of reconfigurable floor panels with road patterns
- Set of traffic signs

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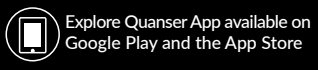

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