

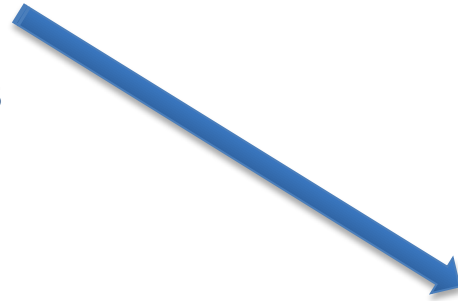
# What are people doing and what have we learned?



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# BRL Research Themes

- Aerial Robots
- **Assisted Living**
- Bioenergy and Self sustainable Systems
- Biomimetic and Neuro-robotics
- Medical Robotics
- Non-Linear Control
- Robot Vision
- **Safe Human-Robot Interaction**
- Soft Robotics
- **Swarm Robotics**
- Unconventional Computation for Robots
- **Verification and Validation for Safety**





## Connected Autonomous Vehicles



Bristol Robotics Laboratory (BRL) brings together electronics, mechanical and material science engineers, computer scientists, psychologists, surgeons, occupational therapists, chemists, biologists and micro-biologists in applied research and industry collaborations to address market opportunities and global challenges.

# CAV Projects at Bristol

Started in July 2015 and June 2016 respectively:

-  User acceptance and impact on insurability and legality
-  The needs of older adults as users, system deployment and data security

Started in late 2017 or early 2018:

- **CAPRI** A market ready, mobility service using trusted secure PODs and systems supported with legal, regulatory, insurance recommendations.
- **ROBOPILOT** Autonomous driving for electric Light Commercial Vehicles (LCV). Integrated vehicle, fleet and depot delivery management system. Full assessment of vehicle safety, evaluation and hardening of cyber-physical security
- **MultiCAV** Transport system implications and passenger experiences of a multimodal autonomous mobility system. Electric, fully-autonomous on-demand shuttle vehicles, electric buses and taxis, alongside conventional vehicles in a 'Mobility as a Service' (MaaS) platform

Starts Spring 2019:

- **CAV-Forth** Automomise the UK's most popular full size single deck bus. Create a high capacity AV Bus Pilot Service. Utilise a route across the Forth Bridge UNESCO World Heritage location. Optimise the safety and quality of the service with respect to consumer needs

# Vehicles type examples tested in the UK



# What has been done and learned?

- Emphasis has shifted from individual CAVs to CAV systems
- Investigations into human acceptance, legal and insurance issues
- Control handover testing
- Testing of interactions with other road users
- Various vehicle demonstrations around the UK
- Verification & Validation of Safety is paramount
- Very robust and accurate multi-modal sensing is a big challenge
- Low-speed POD/PRTs, PSVs and motorway commercial vehicle may be first
- Mobility as a Service (MaaS) and new service access models may be key

<https://www.venturer-cars.com/>  
<http://www.flourishmobility.com/>

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