

A Workshop on Self-Driving Cars and Reliability

Cosener's House - Rutherford Appleton Laboratory



Images: Dreamstime.com

Day 1 – 30th March 2022

13:00 Registration and Buffet Lunch

13:50 Welcome to Rutherford Appleton Lab - Christopher Frost (RAL)

Talks Session 1

14:00 Can we Rely on Self-Driving Cars? Evaluation and Mitigation of Neutron-Induced Errors in Convolutional Neural Networks for Autonomous Vehicles

Paolo Rech, University of Trento and Universidade Federal do Rio Grande do Sul

14:45 Characterizing the effects of radiation-induced errors on Deep Neural Networks for GPUs

Fernando Fernandes dos Santos, French Institute for Research in Computer Science and Automation (INRIA)

15:15 Break – Tea and Coffee

Talks Session 2

15:45 Mitigating radiation effects in CPUs

Pete Harrod, Director of Functional Safety, CPU Group, Arm, Cambridge, UK

16:30 Single-Event Upset Mitigation Techniques for FPGAs operating in high reliability environments

Mike Wirthlin, Professor, Brigham Young University, USA

17:15 End of Day 1

18:45 Dinner at Cosener's House

A Workshop on Self-Driving Cars and Reliability

Cosener's House - Rutherford Appleton Laboratory



Images: Dreamstime.com

Day 2 – 31st March 2022

- 09:30** Visit to ISIS – ChipIr & NILE – Taxis At Front Door
- 13:00** Lunch at Cosener's House, Abingdon
- 13:50** Introduction to Day 2 – Christopher Frost (RAL)

Talks Session 3

- 14:00** The NEW Compact Neutron Source Facility at ISIS – NILE: Neutron Irradiation Laboratory for Electronics
Carlo Cazzaniga, ISIS Neutron and Muon Source, STFC Rutherford Appleton Laboratory, UK
- 14:45** Resilient hardware and software for robotic systems in extreme environments
Klaus McDonald-Maier, Professor at the University of Essex and EPSRC National Centre for Nuclear Robotics
- 15:15** Break – Tea and Coffee

Talks Session 4

- 15:45** Watch out for the risky actors: Assessing risk in dynamic environments for safe driving
Saurabh Jha, Research Staff Member, IBM Research
- 16:30** Analysing the Impact of Atmospheric Neutrons on Zynq UltraScale+ MPSoC Accelerated Application
Mihalis Psarakis, Associate Professor, Piraeus University, Greece
- 17:15** End of Day 2



A Workshop on Self-Driving Cars and Reliability

18:45 Dinner at Cosener's House Abingdon