Software Technology Research Laboratory

Developing software systems for IT businesses worldwide

Software Technology Research Laboratory (STRL) is dedicated to delivering research that has a positive impact on the real world. Work undertaken by STRL aims to study, analyse and advance formal approaches to the specification, design and the evolution of computing systems with emphasis being placed on those that are used in critical applications. The Laboratory consists of five key research themes:

— Theory and computational paradigms
— Requirement and knowledge engineering
— Software evolution
— Semantic web and service-orientated computing
— Computer security and trust
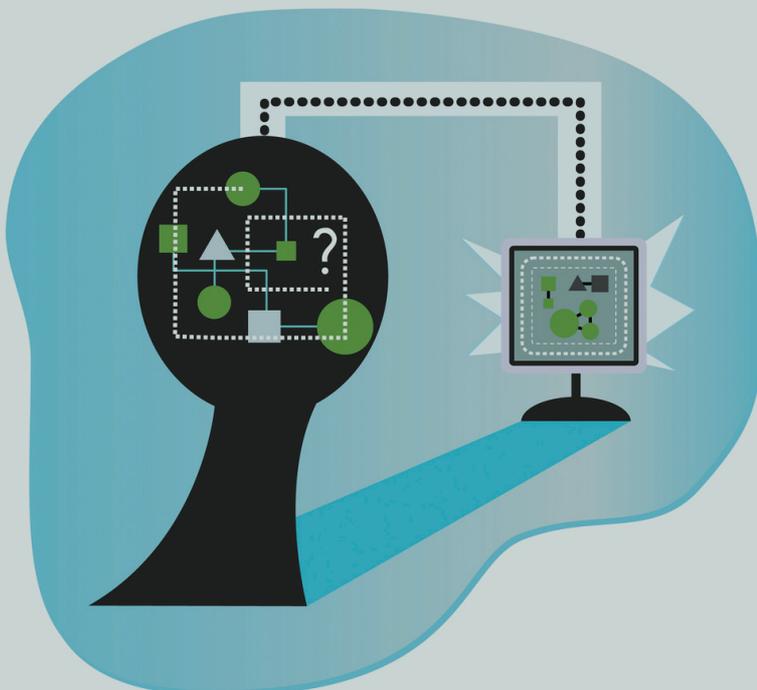
Mission

The principal aim of the laboratory is to study, analyse and advance formal approaches for the specification, design and (re-) engineering of computing systems with emphasis being placed on those which are used in (distributed) real time, safety critical and high integrity applications.

Background

STRL was set up in March 1996 as part of the University's Science and Engineering Research Centre (SERC), under the direction of Prof. Hussein Zedan. The Laboratory seeks to become one of the leading national and international sources of expertise on the development of provably correct computer systems methods and tools.

Expertise

STRL is building an international reputation for developing robust computer systems. It works with the MoD, NATO, and other major institutions including IT businesses worldwide. Areas of expertise include:
— Theoretical foundation
— Software evolution
— Service-based computing and semantic web
— Critical systems
  · Computer security
  · Hardware-software co-design
  · Aerospace systems: flight clearance
— Software architecture and design patterns

DE MONTFORT UNIVERSITY LEICESTER

The Software Technology Research Laboratory can offer:

— Developing and designing bespoke software systems
— Creating industry-strength techniques for software evolution
— Requirement Engineering – developing techniques to capture requirements and realistic usage patterns
— Computer security

Key Collaborations

Academic

— Stanford University
— Cambridge University
— Nottingham University
— Yale University (USA)
— Oxford University

Industrial

— IIST (Macau)
— BAe Systems
— SRI International
— Golden Wonder
— BT
— Abbey National
— KISS
— Volkswagen Gedas

Research Centres

The STRL is a member of the first MoD-funded Defence Technology Centre in Data and Information Fusion (DTC-DIF). Members of the centre, which is led by General Dynamics UK, are BT, QinetiQ, Imperial College and the Universities of Bristol, Cardiff, Cambridge, Southampton, De Montfort, Surrey and Cranfield.

The STRL has the first UK University Technology Centre (UTC-SE) in Software Evolution. The Centre is funded by Software Migrations Limited (SML) and aims to develop industry-strength techniques for software evolution. The UTC plays a fundamental role in Technology Transfer within the STRL.

Research Grants and Projects

Since 1998 the group has won many projects totalling over £1.8million supported by a mixture of industrial, research council and HEFCE funding. Projects include:
— Royal Society Industrial Fellowship
— Re-Engineering large programs with program transformations (EPSRC)
— Compositional methods for hardware/software co-design (EPSRC)
— Mechanisms for information systems (EPSRC)
— Safe and dependable IT (EPSRC)
— Rockwell-Collins (UK) Ltd
— High performance computing (HEFCE/SRIF)
— Data and information fusion (MoD:Defence)
— University technology centre (SML)
— Centre for creative technology (HEFCE/SRIF2)
— Flight clearance simulation software (QinetQ)
— Research on non-Linear bifyrcation analysis tools (QinetiQ)

Contact details

Professor Hussein Zedan
Software Technology Research Laboratory
De Montfort University
Bede Island Building
The Gateway
Leicester LE1 9BH, UK

T: +44 (0)116 250 6152
E: zedan@dmu.ac.uk
W: tech.dmu.ac.uk/STRL

ADD DMU. PROFIT FROM OUR EXPERTISE