



Editorial

Nicholas Sammut

Dear Readers,

Welcome to the Xjenza Online first special issue which focuses on the outcomes of the contributions made to the 6th Workshop in ICT (WICT) organised by the Faculty of ICT at the University of Malta.

With over 50 contributions, WICT reached new heights since its inception 6 years ago. 32 of these contributions were academic focusing on emerging postgraduate research in artificial intelligence, communications and computer engineering, computer information systems, computer science, Microelectronics and Nanoelectronics.

The workshop also had two specialised sessions: one on Entrepreneurship with 12 contributions and the other on microelectromechanical systems (MEMs) with 7 contributions.

6 of the best academic contributions are presented in this special issue. In the first paper, Conrad Attard, Colin Cachia and Matthew Montebello report the development of a tool intended for caregivers which helps them monitor wandering persons with dementia. Such practical systems will undoubtedly increase in use with the ever increasing impact of dementia and similar diseases on society at large.

The second paper by Jonathan Mifsud and Matthew Montebello presents a preliminary study on private social network dynamics to understand related trends. A visualisation method of the connections in the network is presented and used to indicate how skill shortages in the network can be identified. This method can have a number of applications particularly in corporations that use private social networks in their modus operandi.

The third paper by Melanie Zammit and Adrian Francalanza investigates uniqueness typing for a higher-order channel. A type system based on the concept of uniqueness asserts when it is safe to change the object type in a channel.

Adrian Francalanza this time with Mandy Zammit, also investigates formal proofs for broadcast algorithms.

Two broadcast algorithms are studied and an encoding framework using a process descriptive language is presented. This framework is then used to formalise these algorithms.

Ian Cassar, Christian Colombo and Adrian Francalanza also present a paper on monitoring distributed systems with distributed PolyLarva; a language-agnostic runtime verification tool. They present a formal implementation-independent model which proves important properties such as determinism hence enabling ways of re-designing the tool in a more scalable way. Amongst other results, a prototype implementation of the distributed PolyLarva tool implements the new actor-based semantics over a language that can natively handle distribution and concurrency.

Finally Russell Farrugia, Ivan Grech, Owen Casha, Joseph Micallef, Edward Gatt, Roseanne Duca and Conrad Cachia study warpage issues in large area mould embedded technologies. This is a very important problem encountered in most MEMs. They delve into possible causes of asymmetric warpage related to dimensional and material characteristics of moulds by using finite element techniques. These results are validated through measurements which in turn are used to deduce appropriate guidelines for low warpage wafer encapsulation. Such results are very important in packaging applications of MEM devices.

We hope that you enjoy this collection of academic papers as we aspire to use such special issues to create a new channel for authors and editors in scientific fields to publish their work.

Yours Sincerely,

Nicholas Sammut;

Guest Editor Xjenza Online