



TASTE OF RESEARCH SUMMER SCHOLAR PROJECTS – 2011-12

Title	Supervisor	Research_Area
Crew scheduling and vehicle routing	Andrew Verden	Optimization Techniques
Dispatch scheduling for real-time blood distribution	Andrew Verden	Optimization Techniques
Enhancing models of a Wireless Sensor Network Simulator (large open-source project)	Athanasios Boulis	Networks, Sensor Networks, etc
Enhancing models of a Wireless Sensor Network Simulator	Athanasios Boulis	Networks, Sensor Networks, etc
Testing communication protocols in a real sensor network deployment	Athanasios Boulis	Networks, Sensor Networks, etc
Loaded gestures: Automating analysis of Manual Gesture for Cognitive Load Detection	Dr Fang Chen	Human Computer Interaction
It's all in the wrist: Automating Analysis of Pen Gesture for Cognitive Load Detection	Dr Natalie Ruiz	Human Computer Interaction
Galvanic Skin Response and Cognitive Load: Exploring things that make us break out in a sweat.	Dr Natalie Ruiz	Human Computer Interaction
Harder than the eye can see - Pupil and point-of-gaze patterns under High Cognitive Load	Dr Natalie Ruiz	Human Computer Interaction
Giving each a helping hand - Gesture and Interactive Multi-touch in Collaborative Teams	Dr Natalie Ruiz	Human Computer Interaction
Cognitive Computing for Brain Computer Interface (BCI)	Dr. Yang Wang	Human Computer Interaction
Emotive computing for BCI	Fang Chen	Human Computer Interaction
Preempt or not preempt, that is the question	Gernot Heiser	Embedded, Real Time & Operating Systems
Evolvable Trustworthy System	Gernot Heiser	Embedded, Real Time & Operating Systems
Secure Browser OS	Gernot Heiser	Embedded, Real Time & Operating Systems
Global scheduling in virtualized systems via semantic patches	Gernot Heiser	Embedded, Real Time & Operating Systems
Mini weather stations for the 2011 Global Green Challenge	Gernot Heiser	Embedded, Real Time & Operating Systems
Testing vs Formal Verification, a Comparison	Gerwin Klein	Formal Methods
A verified kernel with immune system	Gerwin Klein	Formal Methods
Secure Software-Based Rootkit Detection	Ihor Kuz	Embedded, Real Time & Operating Systems
Linux as a Component	Ihor Kuz	Embedded, Real Time & Operating Systems
Hardware Devices as Operating System Components	Ihor Kuz	Embedded, Real Time & Operating Systems
More Efficient Componentised Operating Systems	Ihor Kuz	Embedded, Real Time & Operating Systems
Beyond functional correctness: high-level test cases by proof	June Andronick	Formal Methods
A 64-bit seL4 microkernel	Kevin Elphinstone	Embedded, Real Time & Operating Systems
A small multiserver operating system for seL4	Kevin Elphinstone	Embedded, Real Time & Operating Systems
Device discovery in a microkernel-based system	Kevin Elphinstone	Embedded, Real Time & Operating Systems
Microkernel-based virtualisation	Kevin Elphinstone	Embedded, Real Time & Operating Systems
Modelling of I/O devices for automatic device-driver synthesis	Leonid Ryzhyk	Embedded, Real Time & Operating Systems
Reliable Device Driver Framework for Linux	Leonid Ryzhyk	Embedded, Real Time & Operating Systems

Title	Supervisor	Research_Area
Architecture for Ultra-Large-Scale (ULS) Systems	Liming Zhu	Software Engineering
Methodologies for Engineering Real-time Embedded Systems	Liming Zhu	Software Engineering
AJAX-based Process and Service Mashup	Liming Zhu	Web Services, E-Commerce, and other Web Technologies
CREST and Process Mashup in the Cloud	Liming Zhu	Web Services, E-Commerce, and other Web Technologies
Model Checking of Mesh Network Routing Protocols	Peter Hoefner	Formal Methods
Linear Algebra of Routing Protocols	Peter Hoefner	Formal Methods
XPath Optimization Heuristics	Ralf Huuck	Algorithms
Security Analysis of the Linux Kernel	Ralf Huuck	Formal Methods
Visualisation of Software Bugs	Ralf Huuck	Formal Methods
Finding Multi-Threated Bugs in Linux	Ralf Huuck	Formal Methods
Building Software Quality Assurance Metrics	Ralf Huuck	Software Engineering
C/C++ Source Code Visualisation	Ralf Huuck	Multimedia & Visual Communication
Modelling Mesh Network Routing Protocols	Rob van Glabbeek	Formal Methods
Measuring mental capacity from sheer muscle strength	Ronnie Taib	Human Computer Interaction
How well do you think you move? An analysis of gesture perception under high cognitive load	Ronnie Taib	Human Computer Interaction
Automatic fact generalisation for Isabelle/HOL	Thomas Sewell	Formal Methods
Automatic Information Flow Analyses for seL4-based Systems	Toby Murray	Formal Methods
Covert timing channel analysis of seL4.	Toby Murray	Formal Methods
Information Flow Security Proof for a Domain Scheduler	Toby Murray	Formal Methods
Web Systems and Services for Advanced Patent Search and Analysis	Vladimir Tosic	Web Services, E-Commerce, and other Web Technologies
Autonomic Business-Driven Management of Cloud Computing Systems	Vladimir Tosic	Web Services, E-Commerce, and other Web Technologies
Providing directions in a GPS poor road network	William Uther	Autonomous Systems & Sensing Technologies
Object detection using stereo camera	Yang Wang	Image Processing
Vehicle detection with low-level image features	Yang Wang	Image Processing
Cognitive computing for BCI	Yang Wang	Human Computer Interaction
Measuring Cognitive Load Using Eye Movement Features	Dr. Fang Chen	Signal Processing
Cognitive Load Measurement via Speech for Teams	Dr. Fang Chen	Signal Processing
Improving Energy-Efficiency of Internet Routers	Dr. Vijay Sivaraman	Data and Mobile Networks
Monitoring Air Pollution using Mobile Phones	Dr. Vijay Sivaraman	Data and Mobile Networks
Video streaming on the Internet: What is the impact of YouTube?	Anirban Mahanti	Data and Mobile Networks
Modeling Topic Diffusion on Twitter	Sebastien Ardon	Data and Mobile Networks
Enabling an active online community with innovative web services	Athanassios Boulis	Data and Mobile Networks
Privacy in on-line social networks	Dr. Vijay Sivaraman and Dr. Roksana Boreli	Data and Mobile Networks

More information and application forms: <http://www.eng.unsw.edu.au/information-for/current-students/undergraduates/scholarships/undergraduates/scholarships>
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