

# CONFERENCE PROGRAM

# SMARTSAT CRC CONFERENCE 2023

THURSDAY, 12 OCTOBER – FRIDAY, 13 OCTOBER

## PHD SESSION

9.00am - 12.30pm

### PhD Professional Development session

**Session Chair:** Professor Wei Xiang, Higher Degree Research Program Coordinator, SmartSat CRC

This professional development session aims to provide SmartSat PhD Students with valuable tools, information and connections to assist them as they progress their research. It will also provide an overview of career pathways and opportunities in the space sector.

*While this session is open to all delegates, please note it is primarily aimed at SmartSat PhD students*

THE NATIONAL WINE CENTRE  
CNR HACKNEY RD & BOTANIC RD, ADELAIDE

## CONFERENCE DAY ONE

1.15pm - 1.45pm

### CONFERENCE REGISTRATION OPENS

1.45pm - 2.00pm

### Conference Day One Welcome

**Opening Address:** Professor Andy Koronios, Chief Executive Officer, SmartSat CRC

Join us as we welcome partners, PhD students, staff, researchers and industry to the SmartSat CRC Conference 2023.

2.00pm - 2.30pm

### Conference Day One Keynote

**Keynote Address:** Aude Vignelles, General Manager of National Space Capability, Technology & Programs, Australian Space Agency

Day One of the conference kicks off with an overview of the state of space across the country now and into the future from the Australian Space Agency.

2.30pm - 3.20pm

### Project Session 1 | On the Launch Pad: Industry & Project Development (early stage)

**Session Chair:** Dr Sarah Cannard, Industry Director, SmartSat CRC

This session provides an overview of SmartSat's industry partners and their involvement in our research programs, and how those research programs are benefiting them in return.

- P2.52 SCARLET- $\alpha$   
Professor Ryszard Kowalczyk, SmartSat Professorial Chair of Artificial Intelligence
- P1.30 Integrated Tactical Communications  
Professor Stephen Hanly, Macquarie University
- P5.01 (Vic Node) Advanced Cooperative Tasking and Intelligent Visualisation Environment for Space Domain Awareness  
Dr Sholto Forbes-Spyratos, CGI Space Defence and Intelligence Australia

3.20pm - 3.50pm

### AFTERNOON TEA

3.50pm - 4.00pm

### Professorial Chair Spotlight Session

**Session Chair:** Professor Craig Smith, SmartSat Mike Miller Chair in Telecommunications

In this session, Professor Craig Smith will provide an overview of his research portfolio, focused on optical and hybrid RF communications.

4.00pm - 4.25pm

### PhD Presentations

**Session Chair:** Andrew Beveridge, Chief Operating Officer, SmartSat CRC

Hear from some of our brightest PhD students as they deliver a project overview as part of the SmartSat PhD Oral Poster Presentation competition.

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4.25pm - 5.05pm

### SmartSat Nodes | Projects & Initiatives

**Session Chair:** Andrew Beveridge, Chief Operating Officer, SmartSat CRC

This session explores the projects funded through the SmartSat New South Wales Node, Victoria Node and Queensland Earth Observation Hub in partnership with their state governments.

- P7.12 (NSW Node) Enabling Resilient Space Computing with Advanced Thermal Management  
Matt Ryall, Mawson Rovers
- P7.01 & P7.08 (NSW Node) Extraterrestrial Radiation Tolerant Silicon Solar Cells  
Peter Toth, Extraterrestrial Power
- P6.02 (QLD EO Hub) COASTS: Coastal Change Observation and Analytics (multi-) Scale (multi-) Technology System  
Dr Javier Leon, University of the Sunshine Coast
- Living and Playing Together: an interactive information and visualisation interface for the sustainability of multiple uses and values of Moreton Bay (QLD EO Hub)  
Dr Aiden Price, Queensland University of Technology

5.05pm - 5.10pm

### Conference Day One Close

**Session Chair:** Andrew Beveridge, Chief Operating Officer, SmartSat CRC

A brief wrap up of the first day of the conference, including important details on the Conference Dinner and the second day of the program.

## CONFERENCE DINNER

ADELAIDE FESTIVAL CENTRE  
KING WILLIAM RD, ADELAIDE

6.30pm - 10.00pm

*Networking drinks from 6.30pm, Dinner from 7.00pm*

**Opening Address:** The Honourable Susan Close MP, Deputy Premier of South Australia

**Guest Speaker:** Professor Emily Hilder, Interim Head of the Advanced Strategic Capabilities Accelerator, Defence Science and Technology Group

Join us in the Banquet Room at the Adelaide Festival Centre for our SmartSat CRC Conference Dinner 2023 as we celebrate coming together to reflect on our research and its impact, all while looking out over Elder Park and the River Torrens.

## CONFERENCE SPEAKERS

SmartSat CRC is proud to host these esteemed guest speakers throughout the conference.



**PROF TANYA MONRO AC**  
CHIEF DEFENCE SCIENTIST,  
DEPARTMENT OF DEFENCE



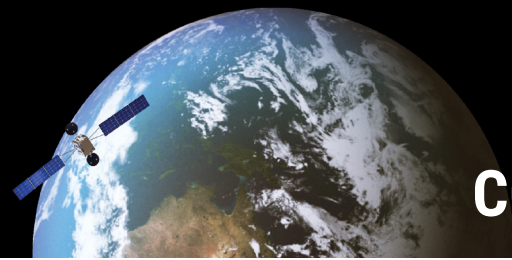
**THE HON SUSAN CLOSE MP**  
DEPUTY PREMIER OF  
SOUTH AUSTRALIA



**PROF EMILY HILDER**  
INTERIM HEAD, ADVANCED  
STRATEGIC CAPABILITIES  
ACCELERATOR, DSTG



**AUDE VIGNELLES**  
GENERAL MANAGER,  
NATIONAL SPACE  
CAPABILITY, TECH &  
PROGRAMS, AUSTRALIAN  
SPACE AGENCY



# CONFERENCE PROGRAM

# SMARTSAT CRC CONFERENCE 2023

THURSDAY, 12 OCTOBER – FRIDAY, 13 OCTOBER

## CONFERENCE DAY TWO

THE NATIONAL WINE CENTRE  
CNR HACKNEY RD & BOTANIC RD, ADELAIDE

8.00am - 8.30am

### CONFERENCE REGISTRATION OPENS

8.30am - 8.40am

#### Conference Day Two Welcome

**Opening Address:** Professor Andy Koronios, Chief Executive Officer, SmartSat CRC

Join us as we welcome delegates for the second day of the SmartSat CRC Conference 2023.

8.40am - 9.15am

#### Conference Day Two Keynote

**Keynote Address:** Professor Tanya Monro AC, Chief Defence Scientist, Department of Defence

Join us for an overview of the Defence context of space research from Chief Defence Scientist, Professor Tanya Monro AC.

9.15am - 10.10am

#### Project Session 2 | On the Launch Pad: Innovation & Technology - Advancing Autonomy

**Session Chair:** Dr Carl Seubert, Chief Research Officer, SmartSat CRC

This session highlights how our research and innovative technology is building the foundation for a strong, successful industry as we enter a new space future with autonomous systems and artificial intelligence.

- **P2.54 SCARLET-β**  
Dr Nathan Wallace, University of Sydney  
Natalie Stevens, Defence Science and Technology Group
- **P1.27 Cognitive Satellite Radios**  
Associate Professor Akram Al-Hourani, RMIT University
- **P2.31 Compact Clock for Small Satellite Applications – Engineering Model**  
Dr Jordan Scarabel, QuantX Labs

10.10am - 10.20am

#### Professorial Chair Spotlight Session

**Session Chair:** Professor Hanna Kurniawati, SmartSat CRC Professorial Chair for System Autonomy, Intelligence and Decision Making

Professor Hanna Kurniawati provides insight into her research portfolio, focused on robotics, robot motion planning, integrated planning and learning, and computational geometry applications.

10.20am - 10.50am

### MORNING TEA

10.50am - 11.45am

#### Project Session 3 | Lifting Off: End-users, Earth Observation and the Environment

**Session Chair:** Dr Andrew Barton, Research Program Manager, SmartSat CRC

How is SmartSat tailoring its research projects to meet the needs of everyday Australians? This session looks at our Earth Observation projects and their real world applications.

- **P3.04 Real Time Fire Analytics**  
Professor Simon Jones, RMIT University
- **P4.17 Kanyini: SA Space Services Mission**  
Dr Catherine Grace, South Australia Space Industry Centre (SASIC)
- **P5.03 (Vic Node) HYMS Hyperspectral Microwave Sounder**  
John LeMarshall, ESS Earth Sciences Pty Ltd  
Fiona Smith, Bureau of Meteorology

11.45pm - 12.30pm

#### PhD Presentations

**Session Chair:** Elizabeth Weeks, Research Portfolio Manager, SmartSat CRC

Hear from some of our brightest PhD students as they deliver a project overview as part of the SmartSat PhD Oral Poster Presentation competition.

12.30pm - 12.50pm

#### Poster Session

View the Technical Posters on display and meet the PhD students and project teams behind them.

12.50pm - 1.50pm

### LUNCH

1.50pm - 3.00pm

#### Project Session 4 | In Orbit: Phase 2 and beyond – achieving impact

**Session Chair:** Peter Kerr, Defence & National Security Coordinator, SmartSat CRC

How are SmartSat projects delivering real-world impact to Australia's Defence & National Security? This session will highlight projects that are transitioning from the research phase to implementation with high potential for rapid translation into capability to support National Defence.

- **P1.18 Coherent Free Space Optical (FSO) Phase 2 for Talisman Saber/Australian Space Agency Demonstrator Grant**  
Dr Sascha Schediwy, The University of Western Australia
- **P1.26 Emergency Comms for LunaSAR (RESARC Phase 2) for ASCEND2LEO**  
Dr Mark Rice, Safety From Space  
Dr Feng Rice, Safety From Space
- **P1.24 Spectrum Sensing from Space**  
Dr Jody McKerral, Flinders University
- **P1.19 Compact Hybrid Optical RF (CHORUS) Phase 2 for Space Segment Demonstration**  
Dr Gerald Bolding, Defence Science and Technology Group

3.00pm - 3.20pm

#### Impacts for Australia from Collaborative Space Research

**Session Chair:** Shena Howell, Senior Systems Engineer - Space Systems, Shoal Group

This session looks at the impact and value SmartSat and its partners are delivering to industry through collaborative space research.

3.20pm - 3.50pm

### AFTERNOON TEA

3.50pm - 4.40pm

#### Applications for space tech in agricultural sector: challenges and opportunities

**Session Chair:** Dr Jasmine Muir, Principal Scientist in Earth Observation, SmartSat CRC

**Panel:**

- Tim Neale, Managing Director, DataFarming
- Darren Plett, Manager AgTech (National), Grains Research & Development Corporation (GRDC)
- Peter Hayman, Principal Scientist Climate Applications, South Australian Research & Development Institute (PIRSA-SARDI)

How can space technologies help Australian farmers to reduce risk and boost agricultural productivity? Find out how SmartSat's research project Maya Nula will create agricultural intelligence capability from space.

4.40pm - 5.00pm

#### Conference Day Two Close

**Session Chair:** Professor Andy Koronios, Chief Executive Officer, SmartSat CRC

Join us as we announce the winners of the SmartSat PhD Presentation Competition and Poster Awards, wrap up the findings from the Conference and preview SmartSat's future strategic direction.

5.00pm - 6.00pm

### NETWORKING DRINKS

6.00pm

### CONFERENCE CLOSE