



Achieving Technical Excellence with Data Analytics in Materials, Structural Engineering and Construction

The Sixth Australasia and South-East Asia Structural Engineering and Construction Conference (ASEA-SEC-6), Sydney, Australia, 28 November – 02 December 2022



MACQUARIE
University

ASEA-SEC-6 Program

Monday – November 28, 2022

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| 17:00 - 19:00 | Welcome Reception | Ubar, Central Courtyard Macquarie University |
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Tuesday – November 29, 2022

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| Registration and Coffee | | |
| 08:00 - 17:00 | Registration (<i>The registration desk will be open during conference hours</i>) | 18 Wally's Walk, Room 184 Macquarie University, |
| 08:30 - 09:00 | Registration – Tea and Coffee | |
| Opening Session | | |
| 09:00 - 09:25 | Conference Briefings <i>Housekeeping, Health & Safety</i> | 18 Wally's Walk, Room 186 Macquarie University |
| | Welcome, Acknowledgement of Country video <i>Sorn Vimonsatit, Conference Chair</i> | |
| | Opening Address <i>Lucy Marshall, Executive Dean, Faculty of Science and Engineering</i> | |
| | Welcoming Remarks <i>Hossein Askarinejad, ASEA SEC President</i> | |
| | Announcements, Macquarie University video <i>Sorn Vimonsatit, Conference Chair</i> | |
| 09:25 - 09:30 | 5-Minute Break | Online participants: V-Room A Zoom link https://us02web.zoom.us/j/3365082496?pwd=MWh4WjhPbFZoS2RTdElQMWV0cUUVSQT09 PMI: 336 508 2496 Passcode: 395011 |
| 09:30 - 10:00 | Keynote 1: Mark Smith, Director Advanced Technical Services, Transport for New South Wales <i>Title: Delivering Australia's largest Transport infrastructure pipeline</i> | |
| 10:00 - 10:30 | Keynote 2: Professor Simon Clark, School of Engineering, Faculty of Science and Engineering, Macquarie University <i>Title: Formation and migration of an iron rich layer during acidic corrosion of concrete with no steel reinforcement</i> | |
| Tea & Coffee Break 10:30 - 11:00 | | |



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Technical Session I – Tuesday – November 29, 2022, 11:00 - 13:00

Location: 18 Wally's Walk, Macquarie University

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| | <p>Moderators: Isamu Yoshitake, Hossein Askarinejad IT Staff: TBA 18 Wally's Walk, Room 186 V-Room A Zoom link (for online participants) https://us02web.zoom.us/j/3365082496?pwd=MWVh4WJhPbFZoS2RTdEIQMWVOCUJSQT09 PMI: 336 508 2496, Passcode: 395011, BREAKOUT Rm 1</p> <p>I-A: Structural Engineering</p> | <p>Moderators: Sai On Cheung, Rouzbeh Abbassi IT Staff: TBA 18 Wally's Walk, Room 184 V-Room A Zoom link (for online participants) https://us02web.zoom.us/j/3365082496?pwd=MWVh4WJhPbFZoS2RTdEIQMWVOCUJSQT09 PMI: 336 508 2496, Passcode: 395011, BREAKOUT Rm 2</p> <p>I-B: Construction and Project Management</p> |
| 1 | <p>STR-03: AN EXPERIMENTAL STUDY ON HORIZONTAL RESISTANT MECHANISM OF SANDWICHED PANEL STRUCTURE OF INSERTED METHOD <i>Akihiro MORI, Haruka KATAOKA, Ryouga YAMASHITA, Akihiko UOZUMI, Takumi ITO, Kenjiro MORI</i></p> | <p>CON-02: RELATIONSHIP BETWEEN FUTURE CONSTRUCTION CAPACITY AND COMPANY WORKLOAD <i>Arun Kumar Manickavasagam, Daniel van der Walt, Eric Scheepbouwer</i></p> |
| 2 | <p>STR-04: LOAD CAPACITY OF TUNNEL LINING CONCRETE STRENGTHENED WITH CARBON-FIBER COMPOSITE CABLE (CFCC) <i>Isamu Yoshitake, Shingo Morimoto, Takashi Onishi, Taiga Yanagi</i></p> | <p>CON-03: RESOURCE ALLOCATION FOR TRANSPORTATION PHYSICAL WORKS CONTRACTS <i>Nicola West, Eric Scheepbouwer, Jacobus Daniel van der Walt</i> ONLINE</p> |
| 3 | <p>STR-06: SIMPLIFIED METHOD FOR PREDICTION OF VIBRATION BEHAVIOR OF STEEL-CONCRETE COMPOSITE FLOOR SUBJECTED TO GENERAL LOADING <i>Chaitanya Barbade, S. R. Satish Kumar</i></p> | <p>CPM-02: THE ANTECEDENTS OF INTENTION TO SETTLE IN CONSTRUCTION DISPUTE NEGOTIATION <i>Sen LIN, Sai On CHEUNG</i> ONLINE</p> |
| 4 | <p>STR-07: STUDY ON DETECTION OF THIN WATER FILM ON STEEL SURFACE USING A HYPERSPECTRAL CAMERA <i>Ryuichi Inoue, Rina Hasuike, Hirokazu Furuki, Toshihiko Aso</i></p> | <p>CPM-04: OPTIMIZING COMMUNICATION FLOWS USING A STANDARD BIM ORIENTED RACI MATRIX <i>Bianca Farnetti, Marco Lorenzo Trani, Natale Massimo Minotti</i> ONLINE</p> |
| 5 | <p>STR-08: A STUDY ON DETERIORATION OF THERMAL SPRAYED ALUMINUM COATING BY BRIDGE SURVEY <i>Hiroaki Kuwana, Kazuo Takagi, Rina Hasuike, Toshihiko Aso</i></p> | <p>CPM-08: WHAT WE NEED TO KNOW ABOUT CONSTRUCTION INCENTIVIZATION? <i>Sai On CHEUNG, Liuying ZHU</i></p> |
| 6 | <p>STR-09: EVALUATION OF WATER RETENTION OF RUST LAYER BASED ON ELECTRICAL RESISTANCE MEASUREMENT <i>Rina Hasuike, Ryotaro Yoneyama, Toshihiko Aso</i></p> | <p>CSA-02: CONSTRUCTION WORKERS MENTAL HEALTH: AN ISSUE OF CONCERN <i>Olatoyese Zaccheus Oni, Abdullateef Ashola Olanrewaju, Soo Cheen Khor, Bolatito Folasade Akinbile</i> ONLINE</p> |
| 7 | <p>STR-10: EXPERIMENTAL STUDY OF RC BEAM-COLUMN JOINT RETROFITTED BY BFRP GRID WITH HIGH STRENGTH MORTAR <i>Chhoung Lim, Yeongseok Jeong, Minho Kwon</i></p> | <p>CSA-03: CONSTRUCTION SITE ACCIDENT AND NEAR-MISS : A CONSTANT PROBLEM <i>Olatoyese Zaccheus Oni, Abdullateef Ashola Olanrewaju, Soo Cheen Khor</i> ONLINE</p> |
| 8 | <p>STR-11: EXPERIMENTAL STUDY OF RC BEAM REINFORCED BY EXTERNALLY BONDED FRP GRID <i>Yeongseok Jeong, Chhoung Lim, Minho Kwon</i></p> | <p>CON-12: USING KEY PERFORMANCE INDICATORS IN CONSTRUCTION PROJECT LITERATURE <i>Handan Kunkcu, Kerim Koc, Houllakbe Houltourbe Dagou, Asli Pelin Gurgun</i> ONLINE</p> |



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| 9 | | CON-01: ENVIRONMENTALLY SUSTAINABLE CONSTRUCTION IMPLEMENTATION: PERSPECTIVE OF PROFESSIONALS IN CONSULTANCY FIRMS <i>Mark Pim-Wusu, Clinton Ohis Aigbavboa, Wellington Didibhuku Thwala</i> |
| Lunch Break: 13:00 - 14:00 | | |

| Technical Session II – Tuesday – November 29, 2022, 14:00 - 16:00 Location: 18 Wally's Walk, Macquarie University | | |
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| | Moderators: Andrew Whyte, Sorn Vimonsatit IT Staff: TBA 18 Wally's Walk, Room 186 V-Room A Zoom link (for online participants) https://us02web.zoom.us/j/3365082496?pwd=MWh4WjhPbFZoS2RTdElQMWVVOcUUVSQT09 PMI: 336 508 2496, Passcode: 395011, BREAKOUT Rm 1 II-A: Engineering Infrastructure | Moderators: Simon Clark, Eric Scheepbouwer IT Staff: TBA 18 Wally's Walk, Room 184 V-Room A Zoom link (for online participants) https://us02web.zoom.us/j/3365082496?pwd=MWh4WjhPbFZoS2RTdElQMWVVOcUUVSQT09 PMI: 336 508 2496, Passcode: 395011, BREAKOUT Rm 2 II-B: Architecture and Housing |
| 1 | INF-01: AN IOT PROTOTYPE TO COLLECT TRANSVERSE VEHICLE POSITION DATA FOR LOCAL ROADS <i>Y. Li, E. Adams-Cook, J. Aspin, J.D. van der Walt, E. Scheepbouwer, T. Patel</i> ONLINE | AAE-02: THERMAL INERTIA AND TRANSMITTANCE OF THE ECO-EARTH SANDWICH SYSTEM COMPARISON WITH MASONRY, RAMMED EARTH, AND DRYWALL <i>Enrique Vinicio Villacis, Matilda Salazar, Cynthia Catalina Ayarza</i> |
| 2 | GFE-02: IMPORTANCE INDEX THEORY APPLIED TO ALLIANCE PROJECT GEOTECHNICAL RISK STRATEGY <i>Douglas D. Gransberg, Nicola West, Bora Cetin</i> ONLINE | AAE-03: ECO EARTH SANDWICH CONSTRUCTION SYSTEM COST COMPARISON WITH CONFINED MASONRY, RAMMED EARTH, AND DRYWALL <i>Enrique Vinicio Villacis, Alejandro Salazar, Cynthia Catalina Ayarza, Anahi Oviedo</i> |
| 3 | GFE-03: NONLINEAR FIELD RESPONSE OF PILES UNDER HORIZONTAL HARMONIC EXCITATIONS <i>Shiva Shankar Choudhary, Sanjit Biswas</i> | AAE-06: BUILDING INFORMATION MODELLING (BIM) UPTAKE BY SMALL AND MEDIUM SIZE CONTRACTORS (SMCS) IN AUSTRALIA: A CHANGE MANAGEMENT PERSPECTIVE <i>Benjamin Murphy, Behzad Abbasnejad, Peter SP Wong, Alireza Ahankoob</i> |
| 4 | FAM-02: IMPLEMENTATION OF CONNECTED AUTONOMOUS VEHICLES ON ROAD NETWORKS: ALIGNED INFRASTRUCTURE LEGISLATION <i>Andrew Whyte, Philip Colic</i> | AAE-07: BASE ISOLATION: MIND THE GAP <i>Ronwyn Anne Coulson, Eric Scheepbouwer, Jacobus Daniel Van Der Walt</i> |
| 5 | EPE-06: An International Multi-Site Course for Construction and Engineering Students <i>Mehmet E. Ozbek, Asli Pelin Gurgun, and Kerim Koc</i> | AAE-10: BAMBOO COMPOSITE BEAMS TO SUBSTITUTE LUMBER IN RESIDENTIAL CONSTRUCTION <i>Supreedee Rittironk</i> |
| 6 | EPE-04: THE ECOLOGICAL FOOTPRINT OF THE ECO-EARTH SANDWICH SYSTEM COMPARED TO MASONRY, RAMMED EARTH, AND DRYWALL <i>Enrique Vinicio Villacis, Matilda Salazar, Cynthia Catalina Ayarza, Johanna Velastegui</i> | LDR-01: THE ASYMMETRY OF DISPUTANTS IN CONSTRUCTION MEDIATION <i>Nan Cao, Sai On Cheung</i> ONLINE |
| 7 | GFE-04: HOW TO MODEL GRANULAR SOILS UNDER HIGH PRESSURE <i>Amirali Alipour Eskandani, Golnaz Alipour Esgandani, Mohammad Vahab</i> | LDR-02: A Review of a Subordinate Fire Safety Law: Is it Legal? <i>Christian van der Pump, Eric Scheepbouwer</i> |



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| 8 | RAD:06 A NOVEL APPROACH TO ENVIRONMENTAL RISK MITIGATION DURING CONSTRUCTION AND INSTALLATION OF A WIND FARM <i>Nima Golestani, Ehsan Arzaghi, Rouzbeh Abbassi, Vikram Garaniya</i> | CSA-04: IMPROVING H&S PERFORMANCE IN AN INTERNATIONAL GENERAL CONTRACTOR <i>John Smallwood</i> |
| 9 | | CSA-06: CONSTRUCTION ERGONOMICS: CONSTRUCTION HEALTH AND SAFETY AGENT'S PERCEPTIONS AND PRACTICES <i>John Smallwood, Claire Deacon</i> |
| Tea & Coffee Break 16:00 - 16:30 | | |

Tuesday – November 29, 2022

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| 18:00 – 21:00 | Dinner Banquet | MGSM Lachlan's Restaurant 1 Executive Road, Macquarie Park <i>meet at ground floor of 18 WW at 17:45</i> |
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Wednesday – November 30, 2022

Registration and Coffee

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| 09:00 - 12:00 | Registration (<i>The registration desk will be open during conference hours</i>) | 18 Wally's Walk, Room 184 |
| 09:00 - 09:30 | Registration – Tea and Coffee | |



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Technical Session III – Wednesday – November 30, 2022, 09:30 - 11:30

Location: 18 Wally's Walk, Macquarie University

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| | <p>Moderators: Isamu Yoshitake, Golnaz Alipour Esgandani IT Staff: TBA 18 Wally's Walk, Room 186 V-Room A Zoom link (for online participants) https://us02web.zoom.us/j/3365082496?pwd=MWh4WjhPbFZoS2RTdEIQMWV0cUJSQT09 PMI: 336 508 2496, Passcode: 395011, BREAKOUT Rm 1</p> <p>III-A: Engineering Materials</p> | <p>Moderators: Sorn Vimonsatit, Bandita Mainali IT Staff: TBA 18 Wally's Walk, Room 184 V-Room A Zoom link (for online participants) https://us02web.zoom.us/j/3365082496?pwd=MWh4WjhPbFZoS2RTdEIQMWV0cUJSQT09 PMI: 336 508 2496, Passcode: 395011, BREAKOUT Rm 2</p> <p>III-B: Structures and Risk Assessment</p> |
| 1 | <p>MAT-04: WATER-REPELLANT EFFECT OF REINFORCED CONCRETE (RC) BEAM COATED WITH A SURFACE-PENETRANT Shoichi Sayama, Masayuki Sayama, Koji Mitani, Tensuke Utsumi, Isamu Yoshitake</p> | <p>STR-20: STRUCTURAL HEALTH MONITORING METHODS OF BRIDGE STRUCTURES: A REVIEW OF EXISTING METHODS WITH RECOMMENDATIONS <i>Saman Karimi, Olivia Mirza</i></p> |
| 2 | <p>MAT-07: POST-FIRE MECHANICAL PROPERTIES OF SM570 HIGH-STRENGTH STEEL Cheng-Chih Chen, Xin-Ye Huang, Ker-Chun Lin, Po-Tuan Chen</p> | <p>STR-24: NUMERICAL MODELLING OF MACRO SYNTHETIC FIBRE REINFORCED CONCRETE SLEEPERS UNDER STATIC AND IMPACT LOADING <i>Dayani Kahagala Hewage, Christophe Camille, Olivia Mirza, Todd Clarke</i></p> |
| 3 | <p>MAT-16: POST-PEAK FLEXURAL BEHAVIOR OF MACRO SYNTHETIC FIBER REINFORCED CONCRETE Christophe Camille, Dayani Kahagala Hewage, Olivia Mirza, Todd Clarke</p> | <p>RAD-01: DAMAGE EVALUATION ON STEEL MEMBERS SUBJECTED TO SEISMIC RESPONSE USING THERMOELECTRIC DEVICES WITH FREQUENCY DEPENDENCY Natsuhiko Sakiyama, Riku Fujie, Seine Kono, Kenjiro Mori, Takumi Ito ONLINE</p> |
| 4 | <p>MAT-20: STUDY ON PERVIOUS CONCRETE PAVING BLOCK CONTAINING PLASTIC WASTE TYPE PET AS A SAND REPLACEMENT Steve Wilben Macquarie Supit, Priyono Priyono, Artian Sirun, Mireikel Astanto ONLINE</p> | <p>RAD-02: DAMAGE EVALUATION METHOD OF STEEL DAMPERS SUBJECTED TO SEISMIC RESPONSE BEHAVIOR BY USING THERMOELECTRIC DEVICES AND THE MICROCOMPUTER <i>Riku Fujie, Natsuhiko Sakiyama, Seine Kono, Takumi Ito, Kenjiro Mori</i> ONLINE</p> |
| 5 | <p>MAT-21: EFFECTS OF BAMBOO CELLULOSE MICRO-FIBERS ON MECHANICAL PROPERTIES AND POROSITY OF CEMENT MORTAR Steve Supit, Ridho Peropah, Steenie Wallah, Tinneke Saroinsong ONLINE</p> | <p>RAD-05: RISK ASSESSMENT FOR STRUCTURAL STEEL CORROSION IN OIL & GAS FACILITIES <i>Saiful Imran Mohamed Yusuf, Muhammad Fakhur Razi Ahmad Faizul, Pedram Hatami Abdullah, Mohd Hafiz Mohd Fauzi, Ned Azraai M Noor, Sofia Ahamad Kamal, Ting Kang Lung</i></p> |
| 6 | <p>MAT-17: Exploring crushed concrete waste as recycled fine aggregate in concrete production <i>Franco Muleya, Chipozya Kosta Tembo, Chanda Kaunda, Gilson Ngoma</i> ONLINE</p> | <p>STR-05: NUMERICAL GENERATION OF LOCAL CORROSION SURFACE USING CORROSION PROGRESS MODEL FOR PREDICTING STRENGTH REDUCTION WITH TIME <i>Kenshin Maruhashi, Tatsumasa Kaita, Shuhei Kawami</i> ONLINE</p> |
| 7 | <p>MAT-11: STUDY ON EVALUATION OF BOND CHARACTERISTIC FOR SPRAYING MATERIAL WITH BAMBOO <i>Takuto Kanezawa, Atsushi Shimabukuro</i> ONLINE</p> | <p>STR-21: SEISMIC PERFORMANCE OF REINFORCED CONCRETE FRAME WITH CONCRETE JACKETED COLUMNS <i>Ajay Kumar Sinha, Praveen Anand</i></p> |
| 8 | <p>MAT-12: EXPERIMENTAL STUDY ON MECHANICAL PROPERTIES OF CORRUGATED CEMENT SLATE BOARD USED FOR OVER 30 YEARS IN PLANT BUILDINGS <i>Mai Sadamoto, Tatsumasa Kaita, Yuji Katsui, Mao Liu</i> ONLINE</p> | <p>STR-28: SEISMIC EVALUATION OF FLEXIBLE STEEL WATER STORAGE TANKS <i>Jundong Park, Hossein Askarinejad and Mohammad S. Pourbehi</i></p> |



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| 9 | MAT-05: EFFECTS OF CHEMICAL ADMIXTURES FOR CEMENT CONCRETE ON MORTAR FLOW AND COMPRESSIVE STRENGTH OF GEOPOLYMER <i>Yoichi Mimura And Itaru Horiguchi</i> ONLINE | CSA-05: ASSESSMENT OF PREVENTIVE MEASURES ON FIRE SAFETY: CASE STUDY, ACCRA TECHNICAL UNIVERSITY <i>Mark Pim-Wusu, Bernard Martin Arthur-Aidoo, Oscar Norbert Odoi Odotei</i> |
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Closing Session and Awards

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| 11:30 - 12:00 | Address of Conference Chair <i>Sorn Vimonsatit (2 mins)</i> | 18 Wally's Walk, Room 186 V-Room A (for online participants) https://us02web.zoom.us/j/3365082496?pwd=MWh4WjhPbFZoS2RTdElQMWVVOcUjVSQT09 PMI: 336 508 2496, Passcode: 395011 |
| | Best ASEA-SEC-6 Presentation Awards <i>Announcement of Best Presentations awards (10 mins)</i> | |
| | Remarks by ASEA-SEC President <i>Hossein Askarinejad (2 mins)</i> | |
| | Closing Remarks by ISEC President <i>Amarjit Singh</i> | |

Lunch Break: 12:00 - 13:00

Wednesday – November 30, 2022

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| 14:00 - 16:00 | Complimentary Campus Walking Tour <i>Macquarie University Campus Tour, see many unique designs of Macquarie University campus buildings</i> | 18 Wally's Walk, Ground Floor |
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Thursday – December 1, 2022

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| 09:00 - 12:00 | FREE Technical Tour: Parramatta Light Rail Project <i>Sponsored by School of Engineering, Macquarie University</i> <i>Please sign up by selecting 'Technical Tour' at https://isec-society.org/store/ASEA-SEC-6-registration?product_id=310 ; Limited seats available</i> | 18 Wally's Walk, at the entrance; then walk to take a bus to go to Parramatta. PPE: long sleeves, long pants, and enclosed shoes are mandatory |
| 17:00 - 19:00 | Cultural Tour <i>Captain Cook Sunset Dinner Cruise</i> | Darling Harbour King St. Wharf No. 1 <i>(separate registration required)</i> |

WIFI access at Macquarie University, valid from 27 November – 2 December 2022

Network Name: **Macquarie Events**

Passcode: **sec2022**



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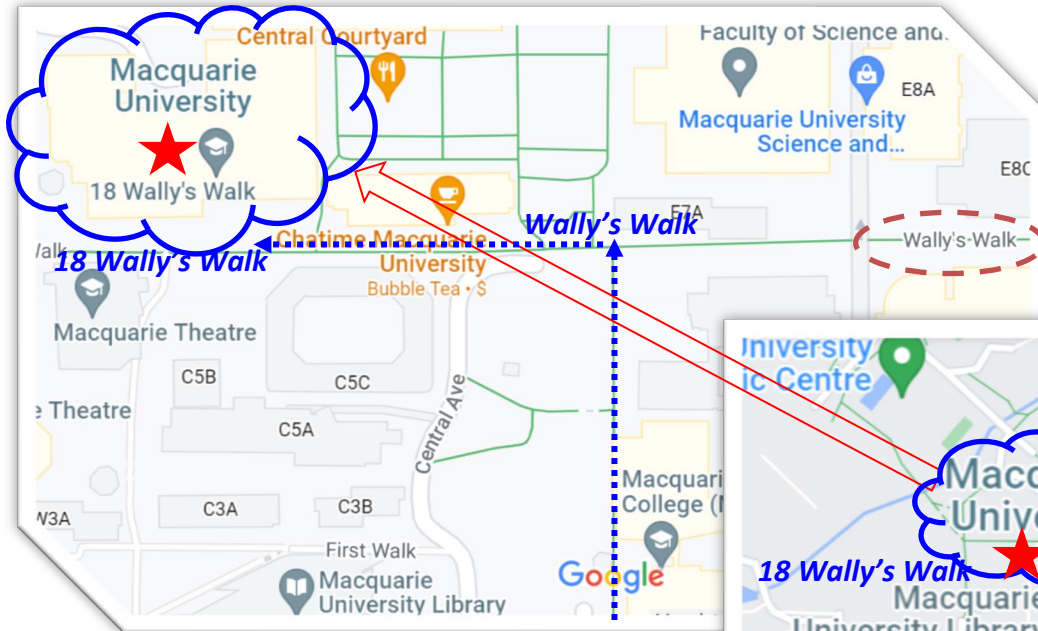


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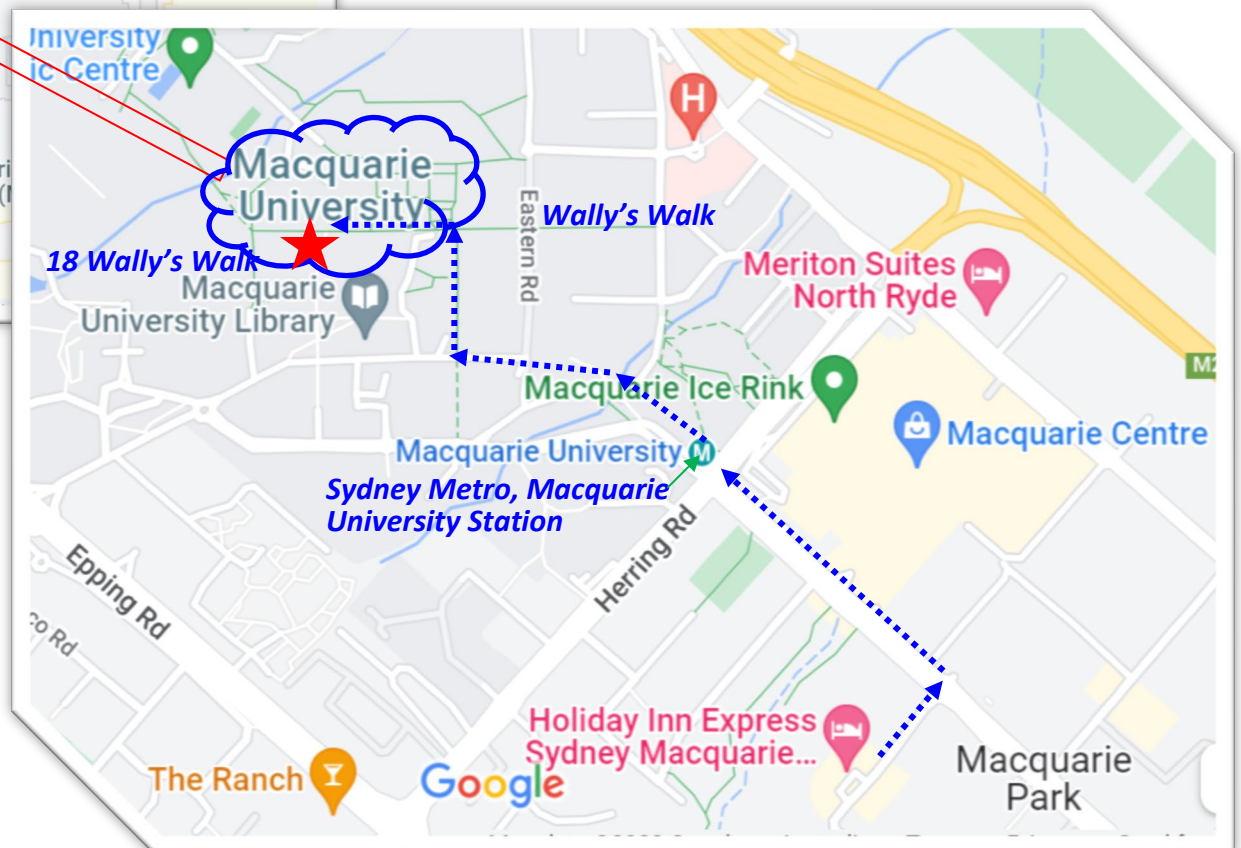
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The Venue: 18 Wally's Walk is about 10 mins walk from Sydney Metro, Macquarie University Station, or 20 mins walk from Holiday Inn Express Sydney Macquarie Park Hotel.





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