

PROGRAM DRAFT 04.02.16

Sunday, March 13th - University of Sydney - Faculty of Architecture Computing Room 262

14:00 - 17:00 PRE-WORKSHOP
Grasshopper Introductory Course

Monday, March 14th - All at Pier 2 & 3 except Delcam at University of Sydney - Faculty of Architecture DMAF LAB

10:00 - 17:00 INDUSTRY WORKSHOP
KUKA|PRC, ABB, KUKA LBR iiwa & Delcam

Tuesday, March 15th - Pier 2 & 3

10:00 - 17:00 WORKSHOPS

18:00 - 22:00 Suggested Meeting Point: Opera Bar

Wednesday, March 16th Pier 2 & 3

10:00 - 17:00 WORKSHOPS

18:00 - 22:00 Suggested Meeting Point: Hugos in Manly

Thursday, March 17th Pier 2 & 3

10:00 - 17:00 WORKSHOPS

18:00 - 22:00 USYD BBQ / Optional Special Event : Huang Yi and KUKA Performance at Seymour Center Sydney To book for Huang Yi see Special Event listing under Schedule Page on this website.

Friday, March 18th Pier 2 & 3

08:30 - 09:10 REGISTRATION / COFFEE

09:10 - 9:25 WELCOME DAY 1 FROM CHAIRS
Dagmar Reinhardt, Rob Saunders, Jane Burry and Marjo Niemelä University of Sydney and RMIT

9.25-10.55 FULL PAPERS

Michael Jeffers Carnegie Mellon University Autonomous Robotic Assembly with Variable Material Properties

Paul Nicholas, David Stasiuk, Esben Nørgaard, Christopher Hutchinson and Mette Ramsgaard Thomsen Royal Danish Academy of Fine Arts, Monash University and Royal Danish Academy of Fine Arts An Integrated Modelling and Toolpathing Approach for a Frameless Stressed Skin Structure

Ammar Mirjan, Federico Augugliaro, Raffaello D'Andrea, Fabio Gramazio and Matthias Kohler ETH Zürich Building a Bridge with Flying Robots

10.55-11.15 COFFEE

11.15 - 11.45 INDUSTRY KEYNOTE

Frank-Peter Kirgis, Peter Katsos and Martin Kohlmaier (intro RIA) ABB Switzerland Collaborative Robotics

11.45 - 13.00 SESSION 2: PROJECT PAPERS

Nicholas Williams and John Cherrey RMIT University Crafting Robustness: Rapidly Fabricating Ruled Surface Acoustic Panels

Simon Weir, Dion Moulton and Shayani Fernando University of Sydney Stereotomy of Wave Jointed Blocks : Toward a Wave-Jointed Stone Construction using Wire Cutter Toolpath Generation

Christopher Robeller and Yves Weinand. EPFL Lausanne Fabrication-Aware Design of Timber Folded Plate Shells with Double-Through Tenon Joints

Alexander Jung, Dagmar Reinhardt and Rod Watt University of Sydney RBDM_Robodome: Complex Curved Geometries with Robotically Fabricated Joints

13.00 - 13:45 LUNCH Lunch provided & Cafes close vicinity

13.45 - 14:15 INDUSTRY KEYNOTE

Matt Jezyk and Charles Jones Autodesk, Delcam Design Computation, Optimization and Fabrication

14:15 - 15:45 SESSION 3: FULL PAPERS

Andrew Saunders and Greg Epps University of Pennsylvania and RoboFold Ltd Robotic Lattice Smock: A Method for Transposing Pliable Textile Smocking Techniques through Robotic Curved Folding and Bending of Sheet Metal

Philip F. Yuan, Hao Meng, Lei Yu and Liming Zhang Tongji University, Archi-Union Architects and Qing Hua University Robotic Multi-Dimensional Printing Based on Structural Performance

Ron Culver, Joseph Sarafian and Julia Koerner UCLA Fabric Forms: Robotic Positioning of Fabric Formwork

15:45 - 16:05 COFFEE BREAK

16.05 - 17:20 SESSION 4: PROJECT PAPERS

Marjo Niemelä, Samantha Horlyck, Susana Alarcon-Licona, Dylan Wozniak-O'Connor, Gabriele Ulacco, Rodney Watt and Rob Saunders University of Sydney BotBar: A Platform for Multi-Disciplinary Design Education

Roland Snooks and Gwyllim Jahn RMIT University, Kokkugia, Studio Roland Snooks and Elseware Collective Closeness: On the Relationship of Multi-Agent Algorithms and Robotic Fabrication

Kaicong Wu and Axel Kilian Princeton University Developing Architectural Geometry through Robotic Assembly and Material Sensing

Asbjørn Søndergaard, Oded Amir, Phillip Eversmann, Luka Piskorec, Florin Stan, Fabio Gramazio and Matthias Kohler Aarhus School of Architecture, Israel Institute of Technology & ETH Zürich Topology Optimization and Robotic Fabrication of Advanced Timber Space-Frame Structures

17:20- 18:15 RIA PRIZE WINNERS

18:15 - 18:25 Closing Day 1 (Reinhardt)
18:30 - 21:00 OPENING OF WORKSHOP EXHIBITION, BOTBAR Food trucks and/or Bar at the End of Wharf

Saturday, March 19th Pier 2 & 3

09:00 - 9:15 **WELCOME DAY 2 FROM CHAIRS**
Dagmar Reinhardt, Rob Saunders, Jane Burry and Marjo Niemelä
University of Sydney and RMIT

09:15 - 9:55 **KEYNOTE**
Francois Roche *Lab M4 (mindmachinemakingmyth)* 'Psychaesthesia Psycho-case Studies by New Territories/M4

9:55 - 11:25 **SESSION 5: FULL PAPERS**

Gregor Steinhagen, Johannes Braumann, Jan Brüninghaus, Matthias Neuhaus, Sigrid Brell-Cokcan and Bernd Kuhlenkötter *TU Dortmund, Association for Robots in Architecture, University for Arts and Design Linz, RWTH Aachen University, Ruhr-Universität Bochum* Path Planning for Robotic Artistic Stone Surface Production

Dagmar Reinhardt, Denis Cabrera, Alexander Jung and Rod Watt. *The University of Sydney* Towards a Micro Design of Acoustic Surfaces

Asbjørn Søndergaard, Jelle Feringa, Toke Nørbjerg, Kasper Steenstrup, David Brander, Jens Gravesen, Steen Markvorsen, Andreas Bærentzen, Kiril Petkov, Jesper Hattel, Kenn Clausen, Kasper Jensen, Lars Knudsen and Jacob Kortbek *Odico Formwork Robotics Aps, Technical University of Denmark, GKN A/S, Danish Technological Institute* Robotic Hot-Blade Cutting: An Industrial Approach to Cost-Effective Production of Double Curved Concrete Structures

11:25 - 11:45 **COFFEE BREAK**

11:45 - 12:15 **INDUSTRY KEYNOTE**
Heinrich Munz *KUKA Roboter GmbH* A New Approach to Simple Software Integration of Robots in Production Machinery, Automation Systems, and New Parametric Environments

12:15 pm - 13:30 **SESSION 6: PROJECT PAPERS**

Kathrin Doerfler, Timothy Sandy, Markus Giftthaler, Fabio Gramazio, Matthias Kohler and Jonas Buchli *ETH Zürich* Mobile Robotic Brickwork : Automation of a Discrete Robotic Fabrication Process Using an Autonomous Mobile Robot

Jose Pedro Sousa, Cristina Gassó Palop, Eduardo Moreira, Andry Maykol Pinto, José Lima, Paulo Costa, Pedro Costa, Germano Veiga and A. Paulo Moreira *University of Porto, CEAU/DF, INESC TEC, Polytechnic Institute of Bragança,* The SPIDERobot: A Cable-Robot System for On-Site Construction in Architecture

Joshua Bard, Richard Tursky and **Michael Jeffers** *Carnegie Mellon University* RECONstruction: A Survey of Surface Scanning Techniques for Architectural Substrates in Robotic Assembly

Nathan King, Nathan Melenbrink, Nick Cote and Gustav Fagerström *Virginia Tech, The United Nathans and Autodesk* BUILD-ing the MASS Lo-Fab Pavilion : Dynamo-Driven Collaborative Robotic Fabrication Workflows for the Construction of Spatial Structures

13:30 - 14:15 **LUNCH**

14:15 - 15:45 **SESSION 7: PROJECT PAPERS**

Felix Amtsberg, Gernot Parmann, Andreas Trummer and Stefan Peters *Graz University of Technology* From Analysis to Production and Back : Attempts and Results of Reusable Adaptive Freeform Production Strategies for Double Curved Concrete Construction Elements

Kate Dunn, Dylan Wozniak O'Connor, Marjo Niemelä and Gabriele Ulacco *University of NSW, The University of Sydney and AR-MA* Free Form Clay Deposition in Custom Generated Molds

Brian Peters *Kent State University and Design Lab Workshop* Solar Bytes Pavilion: 3D Printed Interlocking Modules

Sina Mostafavi and Henriette Bier *TU Delft* Materially Informed Design to Robotic Production : A Robotic 3D Printing System for Informed Material Deposition

Kam-Ming Mark Tam, James R. Coleman, Nicholas W. Fine and Caitlin T. Mueller *Massachusetts Institute of Technology* Robotics-Enabled Stress Line Additive Manufacturing

15:45 - 16:05 **COFFEE BREAK**

16:05 - 17:50 **SESSION 8: WORKSHOP PAPERS**

Thibault Schwartz, Sebastian Andraos, Jonathan Nelson, Chris Knapp and Bertrand Arnold *HAL Robotics, Bond University and Soundisplay* Towards On-site Collaborative Robotics: Voice Control, Co-Speech Gesture & Context-Specific Object Recognition via Ad-Hoc Communication

Curime Batliner, **Michael Jake Newsum** and M. Casey Rehm *Southern California Institute of Architecture (SCI-Arc)* Robot UI: User Interfaces for Robotic Live Control

Roland Snooks and Gwyllim Jahn *RMIT University, Kokkugia, Studio Roland Snooks and Elseware Collective* Stigmatic Accretion

Alex Dubor, **Gabriel Bello Diaz**, **Guillem Camprodon**, Dagmar Reinhardt, Kate Dunn, Rob Saunders, Dylan Wozniak O'Connor, Marjo Niemelä, Susana Alarcon Licona and Samantha Horlyck *Institute for Advanced Architecture of Catalonia (IAAC), Make It Locally, The University of Sydney and University of NSW* Sensors and Workflow Evolutions: Developing A Framework for Instant Robotic Toolpath Revision

Dave Pigram, Iain Maxwell and Wes McGee *University of Technology Sydney and University of Michigan* Towards Real-Time Adaptive Fabrication-Aware Form Finding in Architecture

Tim Schork/ ICD *Monash University* Robotic Sewing of Custom Timber Modules

17:50 - 18:30 **KEYNOTE**

Mark Burry *University of Melbourne* Robots at the Sagrada Familia Basilica

18:30 - 18:55 **CONFERENCE CLOSING WORDS**

Dagmar Reinhardt, Rob Saunders, Marjo Niemelä and Jane Burry *University of Sydney and RMIT*

19:00 **CONFERENCE CLOSING DINNER, HARBOUR CRUISE & AWARD CEREMONY**

Alois Buchstab *KUKA Robot Group* KUKA Young Potential Award Presentation

Frank-Peter Kirgis *ABB* ABB Mobility Award Presentation

Ninotchka Titchkosky *BVN* Best Workshop Award

Plus other Awards Announced

Sunday, March 20th Opera House

10:45 - 12:00 Optional Special Event : Opera House Tour
To Book for the Opera House Tour see Special Event listing under Schedule Page on this website.