



# FAB LEARN AUSTRALIA



DESIGN · BUILD · MAKE · LEARN



## LEARNING TO MAKE MAKING TO LEARN

Friday 20 & Saturday 21 May 2016

**Workshop Summaries**





# WORKSHOP SUMMARIES

## FABLEAN AUSTRALIA 2016

This guide has been created to help you decide which workshop you would like to take part in during our three sessions across this two day conference.

Each workshop is contained to one session; **where a workshop is listed under multiple sessions, this is a repetition, not a continuation.**

Once you have selected your preferred workshops you can complete the preferences form **here**. Please note that, as spaces for each workshop are limited, we ask that you rank your preferences in ascending order (1 being your most preferred workshop).

Please complete and submit the form by 5.00pm Friday 13 May; participants who do not complete this form on time will automatically be allocated to a workshop.

### Key

1

Session One (Friday Afternoon)



Theoretical Focus

2

Session Two (Saturday Morning)



Practical Focus

3

Session Three (Saturday Afternoon)

# SESSION 1

## FRIDAY AFTERNOON



### Sound Craft

Make your own audio speakers

**Jaymes Dec** [jdec@marymountnyc.org](mailto:jdec@marymountnyc.org)

FabLab Integrator, Marymount School Of New York

#### WORKSHOP SUMMARY

In this workshop, participants will explore the relationship between electricity and magnetism as they use familiar materials to make real working audio speakers. Armed with only paper, wire, magnets, and some glue, participants will discover how speakers work to make sound.

1

3



### Maker Portfolios

Capturing the rich learning of making

**Anna Keune** [akeune@indiana.edu](mailto:akeune@indiana.edu)

Graduate Research Assistant & PhD Student, Indiana University

#### WORKSHOP SUMMARY

The Maker Portfolios workshop invites educators – as active participants and as future facilitators of similar experiences – to engage in a designed opportunity that prompts the creation of a simple project portfolio. Participants will have the opportunity to make a paper circuit project using high- and low-tech craft materials while also capturing the creation of that project.

1

2

3



## The age of the creative class

Design inspired curriculum for design led courses

**Samantha Langatuki** slangatuki@diocesan.school.nz

**Shannon Nelson** snelson@diocesan.school.nz

Diocesan School for Girls Auckland, New Zealand

### WORKSHOP SUMMARY

This workshop will explore the age of creativity, where maker culture and collaborative design are intrinsic to our student's success in and beyond the classroom. Sam Langatuki and Shannon Nelson, of Diocesan School for Girls – Auckland, New Zealand, come from architecture and media backgrounds respectively. In the past 3 years they have worked together through Digital Design to establish an Imagination Station (FabLab and Film Studio) and, in 2016, the newly formed Creative Industry Faculty. The workshop will share their journey and current articulation of curriculum through student stories and project based work.

1

3



## Maker Motes and Chart-a-Path

Surfacing learner intuitions about local environments and electrical circuit design

**Kenneth Lim** voyager@mac.com

Research Scientist, National Institute of Education Singapore

### WORKSHOP SUMMARY

This workshop describes a multi-disciplinary approach to a curriculum designed to help learners develop their graphicacy and data literacy in authentic ways (the 'M' in 'STEM'). Local environments and micro-climates are complex systems which novice learners may initially find challenging to understand. Using datasets derived in real-time from their own school campus, learners are potentially able to interrogate the data in ways which would be contextualised to their own local knowledge of their school (the 'S' in 'STEM').

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## Paper circuitry

STEAM based making for Primary School

**Selena Nemorin** [selena.nemorin@monash.edu](mailto:selena.nemorin@monash.edu)

Research Fellow, Monash University

### WORKSHOP SUMMARY

Paper circuitry is a simple way to add lights to paper crafts and drawings. It is a synthesis of art and technology, offering a hands-on approach for primary school students to engage with STEAM. Using paper circuits and conductive copper tape to connect a battery to surface-mount LEDs, this workshop introduces the beginner to Making with art and electronics.

1

2



## Understanding design led innovation in an educational setting

Basic principles for teachers to use and explore

**Kurt Seemann** [kseemann@swin.edu.au](mailto:kseemann@swin.edu.au)

Director, Centre for Design Innovation Research, Swinburne University of Technology

### WORKSHOP SUMMARY

Participants in this workshop will learn the basics of the Innovation Agenda, including ideas for teachers and hopes for students. They will be able to frame the made-world of Designed Innovations (the play, learn, fly method of Technacy Education) for the classroom and understand design led STEAM; in innovation, user purpose and context of use is everything and integrates the 'whole student'.

1



## E-Textiles and Sew Electronics

**Dannie Wei** dannieplan@gmail.com  
Science Teacher & Education Innovator

### WORKSHOP SUMMARY

In this workshop participants will learn more about sew electronics and the emerging field of e-textiles.

1

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# SESSION 2

## SATURDAY MORNING



### Magic Nightlights

A soldering and fabrication workshop

**Jaymes Dec** [jdec@marymountnyc.org](mailto:jdec@marymountnyc.org)

FabLab Integrator, Marymount School Of New York

#### WORKSHOP SUMMARY

During this workshop, participants will make their own “magic” lanterns that are activated by a hidden magnet in the base of the lantern. As participants build their lanterns, the facilitator will tell the story about how this project worked for over 50 Class VIII students and show many examples of creative student work.

2



### The Applied STEM Course

Teaching Year 9 and 10 students coding, Arduinos and biomechanics

**Andrew Draper** [adraper@wenona.nsw.edu.au](mailto:adraper@wenona.nsw.edu.au)

Director of STEM, Wenona School

#### WORKSHOP SUMMARY

Participants in this workshop will be introduced to the Applied STEM elective course currently being implemented at Wenona School in North Sydney for students in Years 9 and 10. Students complete a module each semester; the current model for these modules is first biomechanics, then watercraft and then flight, with the final semester culminating in students undertaking their own independent project.

In this workshop participants will undertake a range of activities which are used in the Applied STEM Year 9 course, ranging from the construction of a simple mechanical hand to a demonstration of a Year 9 project- the construction of a full artificial hand that can mimic the movements of the wearer.

2

3



## Showcase of digital design and manufacturing in aerospace

**Michael Edwards**

General Manager, Boeing Research & Technology - Australia

### WORKSHOP SUMMARY

This workshop will be led by the General Manager of Boeing Research & Technology-Australia, Michael Edwards, together with engineers from both the research and manufacturing teams at Boeing in Port Melbourne. This workshop will showcase for delegates how digital design and manufacturing is impacting the future of aerospace design, including through the use of 3D printers and next generation automation techniques. This will be an interactive hands-on session with the opportunity to understand more about some aspects of Boeing's exciting research and engineering work in Australia.

2



## Maker Portfolios

Capturing the rich learning of making

**Anna Keune**   akeune@indiana.edu

Graduate Research Assistant & PhD Student, Indiana University

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## Increasing student engagement in STEM through problem based learning

**Genevieve Lazzari**

Schools Engagement - Collaboration & Partnerships, Swinburne University of Technology

### WORKSHOP SUMMARY

In this workshop participants learn about and discuss the barriers to student engagement in STEM and how to overcome them using maker spaces in schools and communities. Participants will work toward developing their own STEAM problem based learning (PBL) unit using real industry examples

2



## Maker Motes and Chart-a-Path

Surfacing learner intuitions about local environments and electrical circuit design

**Kenneth Lim** [voyager@mac.com](mailto:voyager@mac.com)

Research Scientist, National Institute of Education Singapore

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## Understanding the design thinking process

Prototyping and designing for practical use

**Kristofer Nagy** [kristofer.nagy@monash.edu](mailto:kristofer.nagy@monash.edu)

Faculty of Education, Monash University

### WORKSHOP SUMMARY

As 3D printers become more affordable, a growing number of schools are integrating these machines into their classrooms. Participants in this workshop will learn how they can encourage the understanding of this technology to enable students to create and prototype their own design, rather than simply find something pre-rendered on the internet.

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## Paper circuitry

STEAM based making for Primary School

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## Sustainable house design

A Year 10 STEAM project

**Dr Michael Street** [streetmi@lauriston.vic.edu.au](mailto:streetmi@lauriston.vic.edu.au)  
FabLab@School Co-ordinator, Lauriston Girls' School

### WORKSHOP SUMMARY

The study of sustainable house design is a great opportunity to introduce students to a real world STEAM project. In this workshop participants will be presented with the history of this project at Lauriston Girls' School and the key elements of this project in its current form, including delivery time lines. Participants will also have the opportunity to trial some of the equipment Lauriston students use in the development and manufacture of their designs.

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# SESSION 3

## SATURDAY AFTERNOON



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