# iSAM 20 16 International Symposium on Academic Makerspaces

## Sunday, November 13, 2016

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| 8:15 AM | 6:30 PM | Registration [8.15am-1.30pm in MIT Building 56, Room 154 - or - 2.00pm-6.30pm Ting Foyer MIT Building E51] |
| 9:00 AM | 12:00 PM | **Short Course: SC1 - Makerspaces 100 - MIT Building 56, Room 154** |
| 1:00 PM | 4:00 PM | **Short Course: SC2 - Layout, Machines, Staffing and Safety - MIT Building 56, Room 154** |
| 4:05 PM | 5:30 PM | **Tour A: MIT Makerspaces [Meet at Ting Foyer, Building E51]** |
| 5:30 PM | 7:30 PM | **Networking reception [Ting Foyer, MIT Building E51]** |

## Monday, November 14, 2016

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| 7:45 AM | 4:30 PM | Registration [Ting Foyer, MIT Building E51] |
| 8:30 AM | 8:45 AM | **Welcome and opening remarks** |
| | | Prof. Martin Culpepper, MIT Maker Czar |
| | | Prof. Ian Waitz, Dean MIT School of Engineering |
| 8:45 AM | 9:15 AM | **Keynote speech** |
| | | **Dale Dougherty [Make Magazine]** |
| | | *Innovation at the crossroads: the expanding role of universities in the maker movement* |
| 9:15 AM | 10:15 AM | **Session 01: Technical - Critical role of culture and community** |
| | | Prof. Martin Culpepper [MIT] |
| | | 01 *Types of academic makerspaces, their import to the education mission, and the characteristics of their culture and community* |
| | | 02 *Sustaining a diverse and inclusive culture in a student run makerspace* |
| | | 03 *Creating a maker community at the MIT-SUTD International Design Center* |
| 10:15 AM | 10:45 AM | Break |
| 10:45 AM | 11:45 AM | **Session 02: Technical - Setting minimal boundaries and optimizing access** |
| | | Prof. Aaron Hoover [Olin College of Engineering] |
| | | 04 *Fostering student autonomy* |
| | | 05 *Best practices for a newly established academic makerspace in a nascent maker ecosystem* |
| | | 06 *All the cool, perfectly safe things you can do in a bio-makerspace* |
| 11:45 AM | 11:55 AM | **Video 1: Creating a culture of welcome [Claremont Colleges]** |
| 11:55 AM | 1:05 PM | **Lunch** |
| 1:05 PM | 1:15 PM | **Video 2: Outreach to the community [UC Berkeley]** |
| 1:15 PM | 2:30 PM | **Session 03: Technical - Makerspace programming and engaging your makers** |
| | | Mike Maloof [MPM Architecture] |
| | | 07 *The making of a makerspace; an architect's perspective* |
| | | 08 *A research agenda for academic makerspaces* |
| | | 09 *Using makerspaces to develop didactic models for mechanical engineering* |
| | | 10 *Building community around a student-run makerspace - project-based social and educational events* |
| 2:30 PM | 3:30 PM | **Session 04: Panel - Boundaries, culture, community and programming** |
| | | Prof. Aaron Hoover [Olin College of Engineering] |
| | | 11 *A biomanufacturing maker lab: the future of the academic maker lab at the University of Oklahoma, Stephenson School of Engineering* |
| | | 12 *Why to make "almost" anything: a human-centric learning process* |
| | | 13 *Development of an educational program using capabilities of (academic) makerspaces* |
| | | 14 *SNU idea factory with integrative approaches: from physical space, education, to culture* |
| | | 15 *Enabling student projects: orientation to tools and techniques* |
| 3:30 PM | 4:00 PM | Break |
| 4:00 PM | 5:00 PM | **Session 05: Panel - Outreach to Faculty, makers-to-be and URMs** |
| | | Dean Vincent Wilczynski [Yale] and Prof. Martin Culpepper [MIT] |
| | | 16 *The hybrid lab and the open collaboration lab at the CCA: making space for makers at an art and design school* |
| | | 17 *Yale center for biomedical and interventional technology (CBIT)* |
| | | 18 *The growth of making in K12 and the expectations for maker resources at universities* |
| 5:00 PM | 5:30 PM | Break |
| 5:30 PM | 6:30 PM | **Session 06: Poster exhibition and networking** |
| 7:00 PM | 9:30 PM | **Symposium Dinner** [Le Meridian Hotel, 20 Sidney Street, Cambridge (Bus available from poster exhibition, no return bus) |
| | | **Dinner Speaker: Elaine Chen [MIT] -** *From making to mass production: Stories from the field* |

## Tuesday, November 15, 2016

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| 8:00 AM | 4:30 PM | Registration [Ting Foyer, MIT Building E51] |
| 8:30 AM | 8:35 AM | Announcements |
| 8:35 AM | 8:45 AM | **Video 3: Basic training refresher videos [Olin College of Engineering]** |
| 8:45 AM | 9:45 AM | **Session 07: Technical - Safety issues, regulatory issues and legal issues** |
| | | Dean Vincent Wilczynski [Yale] |
| | | 19 *A control banding approach for safety in shops and makerspaces* |
| | | 20 *Having your 'make' and being safe too: maker advocates and EHS working together* |
| | | 21 *Safety in a student-run makerspace via peer-to-peer adaptive training* |
| 9:45 AM | 10:45 AM | **Session 08: Panel - Makerspace safety** |
| | | Vincent Wilczynski [Yale] & Prof. Martin Culpepper [MIT] |
| | | 22 *Emerging health and safety issues in makerspace* |
| | | 23 *Machine safety from a manufacturer's perspective* |
| | | 24 *Building a safety-based culture for a student-run makerspace* |
| 10:45 AM | 11:15 AM | Break |
| 11:15 AM | 12:15 PM | **Session 09: Technical - Staffing models and characteristics of maker staff** |
| | | Prof. Craig Forest [Georgia Tech] |

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| | | *25 The possibilities enabled by student empowerment and ownership* |
| | | *26 EnVision interns: the power of volunteer student teams for a makerspace on a large campus* |
| | | *27 Coaches and their impact: one model for empowering teaching assistants in an academic makerspace* |
| 12:15 PM | 12:25 PM | **Video 4: Hiring student staff [Case Western Reserve University]** |
| 12:25 PM | 1:35 PM | **Lunch    Talk starts at 12:45pm, Bill Aulet [MIT] -** *Import of making to entrepreneurship, and of entrepreneurship to making, in education* |
| 1:35 PM | 1:45 PM | **Video 5: Best practices driven by empowering student staff [MIT]** |
| 1:45 PM | 2:45 PM | **Session 10: Panel - Makerspace staffing** |
| | | Prof. Craig Forest [Georgia Tech] |
| | | *28 Maintaining the ethos of MIT's original makerspace - the MIT hobby shop and one-on-one mentorship* |
| | | *29 The librarian's role in academic makerspaces* |
| | | *30 MITERS: Lessons from 40 years of student-run shop space and community* |
| | | *31 Increasing staff effectiveness in a volunteer-run student makerspace* |
| 2:45 PM | 3:45 PM | **Session 11: Technical - Makerspace management, budgeting, funding, tools and resources** |
| | | Marlo Kohn [Stanford] |
| | | *32 Alumni as allies and inspiration for your makerpaces* |
| | | *33 Safety in a student-run makerspace via peer-to-peer adaptive training* |
| | | *34 Digi-net: creating, assessing and improving a state-wide 3D printing network* |
| 3:45 PM | 4:15 PM | Break |
| 4:15 PM | 5:00 PM | **Session 12: Panel - Makerspace management** |
| | | Marlo Kohn [Stanford] |
| | | *35 Machine refresher guides: promoting trained user autonomy in a student-run makerspace* |
| | | *41 Makers managing money, machines and their mastery: the Mobius makersystem management app* |
| | | *36 A hierarchical system for purchase management in a student-run makerspace* |
| 5:00 PM | 5:30 PM | Break |
| 5:30 PM | 6:30 PM | **Session 13: Poster exhibition and networking** |
| 6:30 PM | 8:00 PM | **Tour B: MIT Makerspaces [meet in Building E51, Ting Foyer]** |

## Wednesday, November 16, 2016

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|---|---|---|
| 8:00 AM | 3:15 PM | Registration [Ting Foyer, MIT Building E51] |
| 8:40 AM | 8:45 AM | Announcements |
| 8:45 AM | 9:45 AM | **Session 14: Technical - Metrics, data and measuring impact** |
| | | Prof. Malcolm Cooke [CWRU] |
| | | *37 The value of data, metrics and impact for higher education makerspaces* |
| | | *38 The role of a design studio in a mechanical engineering department* |
| | | *39 Understanding the impact of university makerspaces* |
| 9:45 AM | 10:45 AM | **Session 15: Panel - Makerspace metrics, data, impact, information and good decisions** |
| | | Prof. Malcolm Cooke [CWRU] |
| | | *40 Failure modes of academic makerspaces* |
| | | *42 Don't GUESS, it's easy to get the information that lets you KNOW how to create and run your makerspace and makersystem* |
| | | *43 Evolving maker and entrepreneurial resources to support the growing aspirations of student innovators* |
| 10:45 AM | 11:15 AM | Break |
| 11:15 AM | 12:15 PM | **Session 16: Technical - Campus collaboration and politics** |
| | | Zach Ali [Carnegie Mellon University] |
| | | *44 The power of investing in building relationships, collaboration and ownership* |
| | | *45 Overcoming barriers to establishing academic makerspaces and "tinkering" culture* |
| | | *46 Poison pills, how basic analogies and data can inoculate you against the nay-sayers* |
| 12:15 PM | 12:25 PM | **Video 6: Campus-wide impact of makerspaces [Yale University]** |
| 12:25 PM | 1:35 PM | **Lunch** |
| 1:35 PM | 1:45 PM | **Video 7: Startup support and student IP rights [KTH Royal Institute of Technology]** |
| 1:45 PM | 2:30 PM | **Session 17: Panel - Campus collaboration** |
| | | Zach Ali [Carnegie Mellon University] |
| | | *47 Creating a network of community colleges with makerspaces: California's innovation maker³ model* |
| | | *48 The value of campus collaboration for higher education makerspaces* |
| 2:30 PM | 3:45 PM | **Session 18: Panel - Makerspace import to entrepreneurship and innovation** |
| | | Prof. Bruce Berger [Clark Atlanta University] |
| | | *49 High school makers: what they mean for colleges* |
| | | *50 A brief introduction of China's maker movement and makerspaces* |
| | | *51 Making is thinking – how doing transforms our thinking centric paradigm of innovation and education* |
| | | *52 Building a makerspace to nurture the innovation culture at the NYU Tandon School of Engineering* |
| 3:45 PM | 3:55 PM | **Video 8: Enabling STEM innovation for future high school makers [Old Lyme High School]** |
| 3:55 PM | 4:15 PM | Break |
| 4:15 PM | 4:45 PM | **Session 19: Panel - What's over the horizon - the future of Higher Ed making** |
| | | Session moderator: Prof. Martin Culpepper [MIT] |
| 4:45 PM | 6:15 PM | **Tour C: MIT Makerspaces [meet in Building E51, Ting Foyer]** |
| 6:15 PM | | Symposium ends |