



**Herberger College of the Arts  
Fulton School of Engineering**  
Arts, Media and Engineering Program  
PO Box 878709, Tempe, AZ 85287-8709  
ame.asu.edu

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# AME

## Arts, Media and Engineering Program

*Transdisciplinary research and graduate education in experiential media*

➔ **Research assistantship and NSF IGERT traineeship opportunities**



Cover photos: Left: Graduate students Rebecca Stern and Lisa Tolentino with Reflective Living's sensor squid project – a wireless communication tool that allows groups to make collaborative decisions. Top right: A student exploring an immersive audiovisual environment for mediating a complex population-resource model. Bottom right: Research associate Shawn Cook working on a collaborative project in AME's Mediating Complexity course.

## VISION, MISSION AND GOALS

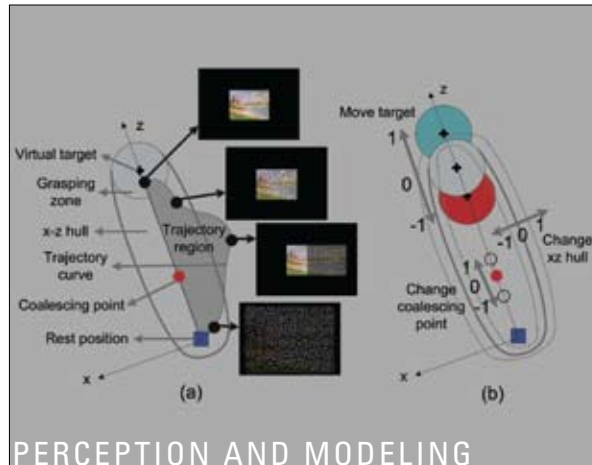
What: **Research and Graduate Education in Experiential Media**

- Researching the integration of the human physical experience with computation and digital media through:



### SENSING

- Integrated sensing of physical and digital human activity



### PERCEPTION AND MODELING

- Extracting meaning from hybrid physical-digital human activity



### INTERACTION AND FEEDBACK

- Sensitization through meaningful digital feedback



### EXPERIENTIAL CONSTRUCTION

- Emergence of new knowledge

Why: **To Improve the Human Condition**

- Producing experiential media systems and models that evolve human ability, facilitate learning, enhance scientific discovery, empower creativity, assist the disadvantaged and improve quality of life.

How: **Through Collaborative Discovery**

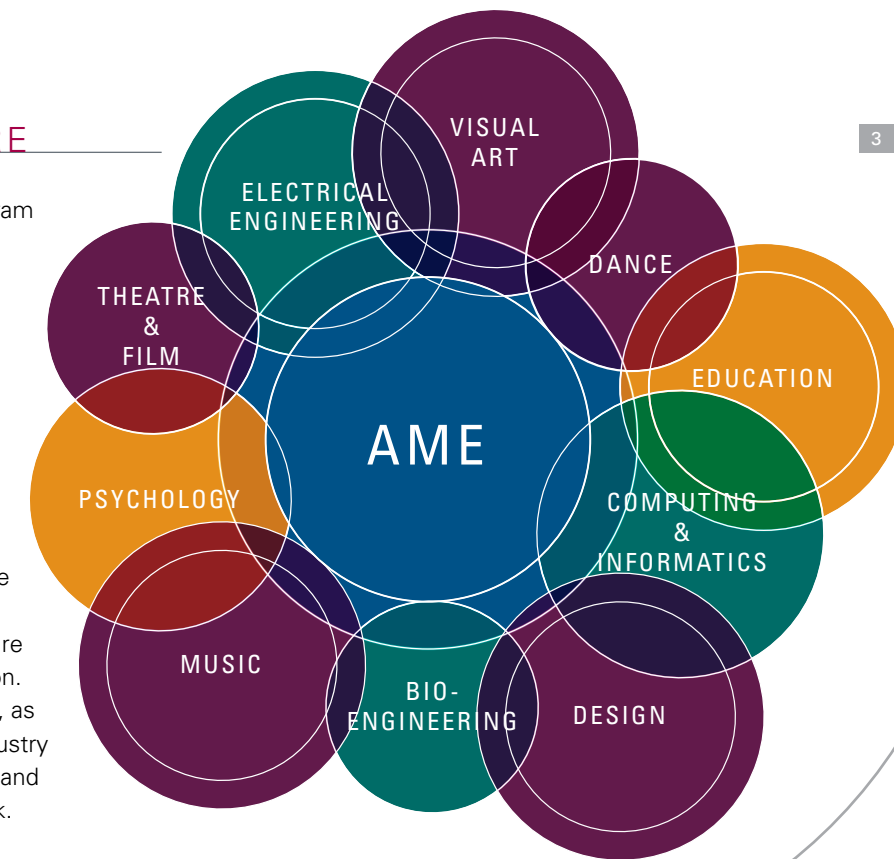
- Team-based research
- Diverse expertise covering the full scope of the human experience
- Interdisciplinary, multi-instructor courses
- Emphasis on collective excellence

## PROGRAM STRUCTURE

The Arts, Media and Engineering Program (AME) is an interdisciplinary network of faculty and students with a transdisciplinary core working under a common, use-inspired research and education agenda.

**Interdisciplinary Network:** AME participants include faculty from ASU's Herberger College of the Arts, Fulton School of Engineering, Fulton College of Education, College of Design and the Department of Psychology. More than 20 faculty members from these units are involved in AME research and education. Participants from other academic units, as well as external collaborators (e.g., industry partners, K-12 educators, guest artists and medical doctors) complete the network.

**Transdisciplinary Core:** AME appoints its own faculty and welcomes faculty members with joint appointments in collaborating units. AME faculty members from multiple disciplines specialize in integrative media development. The transdisciplinary nature of AME is also integrated into its laboratories, which are dedicated to experiential media development and include administrative and technical support staff specialists.



## GRADUATE EDUCATION

**Preparing Experiential Media Specialists across the Arts, Sciences and Engineering**

Fifteen degree paths are available to students interested in graduate education at AME:

- Ph.D. in Media, Arts and Sciences (MAS)
- Doctoral and master's degrees with digital media concentrations in 10 disciplines:
  - Computer Science and Engineering (M.S., Ph.D.)
  - Electrical Engineering (M.S., Ph.D.)
  - Bioengineering (Ph.D. specialization)
  - Psychology (Ph.D.)
  - Educational Technology (Ph.D.)
  - Design (M.S.D., Ph.D.)
  - Dance (M.F.A.)
  - Music (M.M., D.M.A.)
  - Theatre and Film (M.F.A.)
  - Visual Art (M.F.A.)



Students demonstrate their class work during one of AME's collaborative classes.

See page 10 for more information.



**David Birchfield**

[ame.asu.edu/people/birchfield](http://ame.asu.edu/people/birchfield)

Dr. Birchfield has a background in digital media and performance. His research focuses on real-time interactivity and experiential media system design as applied to creative and educational spaces. This work includes K-12 learning, algorithmic composition, games, interface design and generative mechanisms for media.



**Winslow Burlison**

[ame.asu.edu/people/burlison](http://ame.asu.edu/people/burlison)

Winslow Burlison, an assistant professor of Human-Computer Interaction in AME and in the School of Computing and Informatics, is advancing affective computing, creative computing, design engineering and media arts research. He worked at IBM Research, SETI, Space Telescope Science Institute and UNICEF, and holds a Ph.D. from MIT's Media Lab, an M.S.E. from Stanford's Product Design Program and a B.A. in Bio-Physics from Rice University.



**Ellen Campana**

[ame.asu.edu/people/campana](http://ame.asu.edu/people/campana)

Ellen Campana joined the AME faculty in 2006. She holds a joint Ph.D. in Brain and Cognitive Science and Computer Science from the University of Rochester. Her research focuses on the cognitive mechanisms underlying human experience in experiential media, including how people see, hear, act, learn and communicate.



**K. Selcuk Candan**

[ame.asu.edu/people/candan](http://ame.asu.edu/people/candan)

K. Selcuk Candan has been an associate professor at the School of Computing and Informatics since 1997 and an associate director for AME since 2007. He earned his Ph.D. from the Computer Science Department at the University of Maryland, College Park. His primary research interests include tackling fundamental information management challenges that underlie multimedia systems, with the goal of enabling new information-rich media applications.



**Grisha Coleman**

[ame.asu.edu/people/coleman](http://ame.asu.edu/people/coleman)

Grisha Coleman is a New York City native and has worked as a composer, performer and choreographer. She holds an M.F.A. in Composition and Integrated Media from the California Institute of the Arts. She joined AME as an assistant professor of Movement, Computation and Digital Media in fall 2008 after completing a research fellowship at the STUDIO for Creative Inquiry at Carnegie Mellon University.



**Todd Ingalls**

[ame.asu.edu/people/ingalls](http://ame.asu.edu/people/ingalls)

Todd Ingalls is a media composer who works with interactive performance and installations. His research focuses on gestural communication and enactive interfaces, as well as biofeedback for rehabilitation. He is lead of the Gestural Communication group and is heavily involved in the Mixed Reality Rehabilitation group.

**Aisling Kelliher**

[ame.asu.edu/people/kelliher](http://ame.asu.edu/people/kelliher)

Aisling Kelliher is an assistant professor in Media Communication Systems and Media Theory at AME, with a joint appointment in the College of Design. Her research interests include reflective practice, rich-media storytelling, media annotation and archiving, social networks and participatory design.



**Gang Qian**

[ame.asu.edu/people/qian](http://ame.asu.edu/people/qian)

Gang Qian earned his Ph.D. from the University of Maryland, College Park in 2002. He joined the ASU faculty in 2003 jointly with AME and the Department of Electrical Engineering. His research interests include multimodal sensing and analysis of human activities for gestural communication, embodied learning and rehabilitation; computer vision and machine learning for motion capture, gesture and activity recognition; robust visual tracking; and structure from motion.



**Thanassis Rikakis**

[ame.asu.edu/people/rikakis](http://ame.asu.edu/people/rikakis)

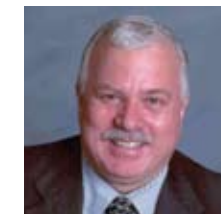
Thanassis Rikakis' research and creation focuses on mixed-reality rehabilitation; computer-mediated arts and complex experiences; and interdisciplinary education. His educational background is in music composition, computer music and psychoacoustics. He is the founding director of AME and principal investigator of the NSF IGERT grant awarded to AME in 2005.



**Andreas Spanias**

[ame.asu.edu/people/spanias](http://ame.asu.edu/people/spanias)

Andreas Spanias is a founding associate director of the AME program. He is an electrical engineering professor and director of the SenSIP Industry Consortium. He works with AME in the areas of DSP, speech/audio processing, and multimodal sensing. He has authored two textbooks, designed the award-winning J-DSP software tool and published several archival papers. He is a fellow of the Institute of Electrical and Electronic Engineers (IEEE) and has served as vice president of the IEEE Signal Processing Society.



**Hari Sundaram**

[ame.asu.edu/people/sundaram](http://ame.asu.edu/people/sundaram)

Hari Sundaram is an assistant professor with a joint appointment in the Department of Computer Science and AME. He earned his Ph.D. from the Department of Electrical Engineering at Columbia University in 2002. He works on computational problems related to experiential media systems, as well as problems related to social networks.



**Harvey Thornburg**

[ame.asu.edu/people/thornburg](http://ame.asu.edu/people/thornburg)

Dr. Thornburg is assistant professor in AME and Electrical Engineering. He obtained his Ph.D. in electrical engineering from Stanford University in 2005, working with Julius Smith and Jonathan Berger at the Center for Computer Research in Music and Acoustics. His research encompasses audio analysis and synthesis, Bayesian statistical pattern recognition, embodied human-computer interaction frameworks and user-adaptive strategies for experiential design.



AME faculty and students are dynamically organized into research modules that are built around issues of societal significance. Most faculty and technical staff participate in two modules, forming connections between both. Students from different modules also interact through many formal (i.e., courses) and informal (i.e., student association) program activities. Modules change and adapt based on the interests of faculty and students. The AME research modules include:



A mediated rehabilitation session with a stroke survivor.



**Mixed Reality Rehabilitation**

This module focuses on developing novel mixed reality systems for rehabilitation, which provide purposeful, engaging audiovisual scenes that allow stroke survivors and Parkinson’s patients to practice functional movement tasks. Subjects receive real-time, multimodal feedback that indicates performance results, denotes causality of error, encourages changes in affect and promotes development of improved movement strategies. The digital and physical aspects of the system are algorithmically adapted to ensure optimal therapy for each subject. Partnerships with local hospitals intertwine research with regular patient rehabilitation sessions. To learn more, visit [ame.asu.edu/projects/mrrehab](http://ame.asu.edu/projects/mrrehab) or contact Thanassis Rikakis at [t.rikakis@asu.edu](mailto:t.rikakis@asu.edu).



**K-12 Embodied and Mediated Learning**

Through this module, researchers are developing a physical-digital infrastructure that targets the needs of underserved students and those with diverse learning styles. Faculty and graduate students have developed SMALLab, a mixed-reality environment for learning. Within SMALLab, K-12 students interact in real time with each other and with dynamic visual, textual and sonic media through full-body 3-D movements and gestures. In collaboration with partner teachers, researchers have developed curricula across the arts, language arts and sciences, and have documented significant learning gains among participating students. To learn more, visit [ame.asu.edu/projects/emlearning](http://ame.asu.edu/projects/emlearning) or contact David Birchfield at [david.birchfield@asu.edu](mailto:david.birchfield@asu.edu).



Eleven-year-old Thaddeus Wiktor explores AME's SMALLab environment.



AME students working to develop a gesture-based interface.



**Gestural Communication**

Gestural Communication is focused on understanding how people communicate in mediated environments that use gesture to interact with sound, objects, visual fields or musical processes. In addition to implementing a system for working with these relationships, the team continues to develop theories for better understanding mediated communication. Researchers also want to learn how gestural communication can be used in participatory installations and performances, and how mediation changes communication overall. To learn more, visit [ame.asu.edu/projects/gc](http://ame.asu.edu/projects/gc) or contact Todd Ingalls at [testcase@asu.edu](mailto:testcase@asu.edu).

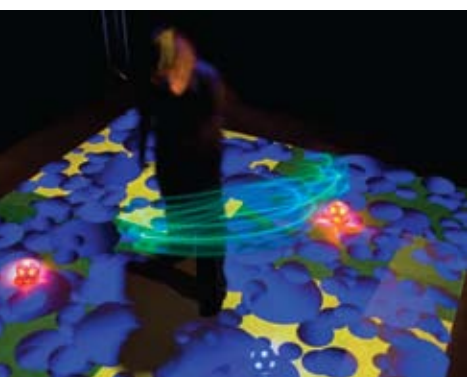


**Reflective Living**

Researchers in the Reflective Living module are interested in understanding, designing and developing dynamic media computation systems that increase community awareness, support creative collaboration and facilitate purposeful communication between individuals and groups. Research problems of interest include participatory design, behavior-based interaction architectures, media-sharing frameworks, analysis of large-scale social networks and narrative computation. To learn more, visit [ame.asu.edu/projects/rl](http://ame.asu.edu/projects/rl) or contact Aisling Kelliher at [aisling.kelliher@asu.edu](mailto:aisling.kelliher@asu.edu).



Reflective Living's mediatr system reveals the story behind the dynamic collaborative activity of distributed groups.



A student exploring an immersive audiovisual environment for mediating a complex population-resource model.



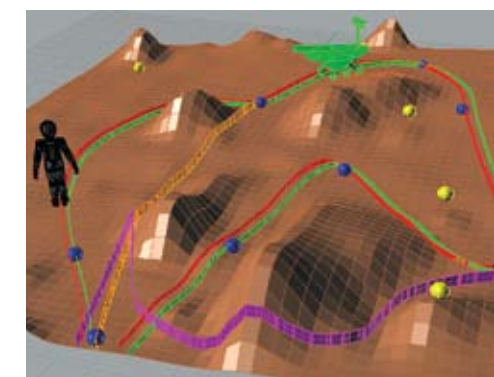
**Mediating Complex Systems for Sustainability**

Sustainability concerns generally involve complex, dynamic systems with many interdependent factors: economic, political, social and cultural. Successful decision strategies must adapt to changing conditions and are often distributed among various roles (producers, consumers, regulators). To enable citizens and policymakers to thrive in real-world situations, we are creating a new breed of decision simulator using a hybrid physical-digital environment. Multiple human actors, representing various roles, are able to interact with each other and with immersive audio/visual/tangible media in ways governed by computational models of the complex system. To learn more, visit [ame.asu.edu/projects/mcs](http://ame.asu.edu/projects/mcs) or contact Harvey Thornburg at [harvey.thornburg@asu.edu](mailto:harvey.thornburg@asu.edu).



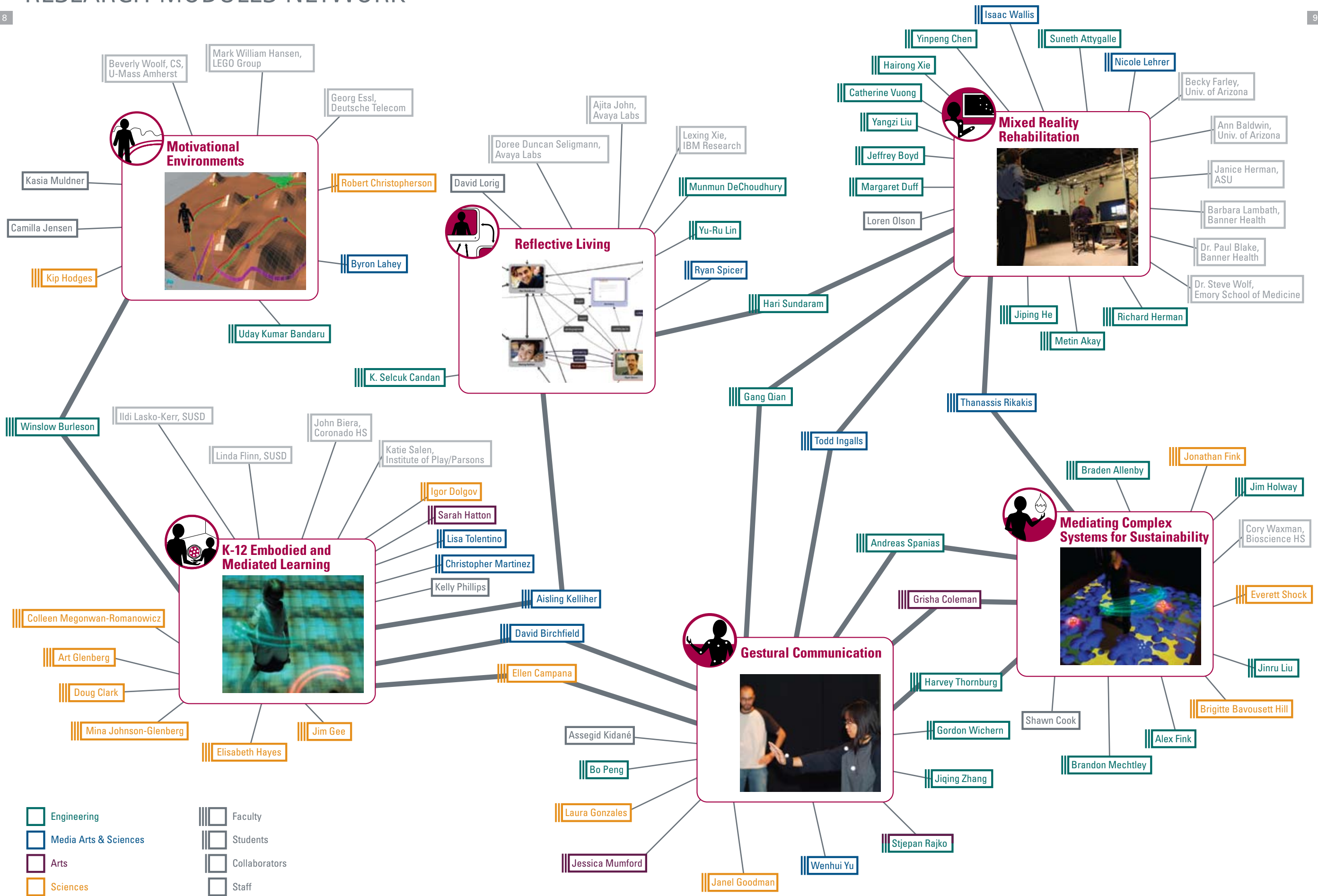
**Motivational Environments**

This module advances human-computer interaction methods, theories, technologies and environments that incorporate wearable and ambient sensors, responsive spaces, robots and relational agents to promote creativity, teamwork, learning and motivation. Affective Learning Companions, real-time multimodal characters, are beginning to sense and respond to learners’ affective cues. Game-As-Life experiences are extending avant-garde “real-life games” and blurring motivations in everyday digital-physical-social environments. Astronaut-Robot Mission Simulator and Pet-Building activities are also promoting project-based teams and education through novel human-robot interactions. For more information, visit [ame.asu.edu/projects/intrinsic](http://ame.asu.edu/projects/intrinsic) or contact Winslow Burlison at [winslow.burlison@asu.edu](mailto:winslow.burlison@asu.edu).



Human-Robot Interaction research in Motivational Environments Module's Astronaut-Robot Mission Simulator.

# RESEARCH MODULES NETWORK



## GRADUATE EDUCATION



Students and faculty in the Gestural Communication module during a collaborative research session.

A total of 15 degree paths are available for students interested in graduate education at AME. Doctoral and master's degrees with digital media concentrations are offered in 10 disciplines, and a Ph.D. in Media Arts and Sciences is offered by AME.

### The MAS Ph.D.: Transdisciplinary Graduate Education in Media Arts and Sciences

AME offers a Ph.D. in Media Arts and Sciences (MAS). MAS Ph.D. students learn to translate, transport and combine knowledge across disciplines as they develop innovative experiential media systems and accompanying theoretical models. The degree structure includes transdisciplinary media courses through AME, elective course credits that complement the student's research interests, and substantial research and dissertation hours devoted to collaborative research within the AME network.

Students with undergraduate training in any related art, science, engineering or humanities field are welcome to apply for admission to this degree. Applicants should have a track record that demonstrates interest and potential in transdisciplinary media training and should be comfortable in a computational environment.

### AME Concentration Areas: Fusing Discipline-Specific Training with Interdisciplinary Media Training

AME, along with collaborating departments and schools, offers formalized digital media concentrations in the graduate degrees of the following disciplines:

- Computer Science and Engineering (M.S., Ph.D.)
- Electrical Engineering (M.S., Ph.D.)
- Bioengineering (Ph.D. specialization)
- Psychology (Ph.D.)
- Educational Technology (Ph.D.)
- Design (M.S.D., Ph.D.)
- Dance (M.F.A.)
- Music (M.M., D.M.A.)
- Theatre and Film (M.F.A.)
- Visual Art (M.F.A.)

Degree requirements vary by department, but all students take courses related to their research specialization in their home department, as well as transdisciplinary courses offered through AME. All programs include substantial credit hours devoted to interdisciplinary research and thesis work within the AME research network. This common educational structure across 10 disciplines provides students with collaborative, strongly committed research teams that possess diverse knowledge and skills. Visit AME and departmental Web sites for detailed requirements for each degree.



AME students are encouraged to present their research at conferences, festivals, workshops, and to community members. Here, a student shares his findings at an AME open house.

### COURSES

AME offers transdisciplinary courses in each of the key research areas of experiential media:

- General/Introductory: Computational Principles for Media Arts, Media Theory, History & Analysis of Media Arts/Arts & Technology, Movement as Language
- Sensing: Motion Capture and Analysis, Sound Sensing and Analysis, Image Understanding
- Perception and Modeling: Multimodal Pattern Analysis, Sensor Fusion, Cognition and Perception for Hybrid Environments, Media Summarization and Resource Adaptation
- Feedback and Interaction: Interactive Design, Physical Computing, Embodied Interaction, Multimodal Environments
- Experiential Construction: Computational Models for Experiences, Mediating Complexity, Active Learning in Mediated Environments

Each course is co-taught by AME faculty members representing the primary specializations associated with the subject. Brief descriptions of AME courses are available online at [ame.asu.edu/education/courses](http://ame.asu.edu/education/courses).

### APPLICATION FOR ADMISSION

Prospective students are encouraged to review application requirements for their programs online. Students interested in an AME concentration should contact their chosen academic department and the AME education coordinator for details regarding application deadlines and required materials. MAS Ph.D. applicants should contact the AME education coordinator with application questions at [ameed@asu.edu](mailto:ameed@asu.edu), or 480.965.2456. Detailed application information is available at [ame.asu.edu/education/prospective](http://ame.asu.edu/education/prospective).

### FINANCIAL SUPPORT (including NSF IGERT Traineeships)

AME encourages students to utilize all available university resources for financial support. Information on financial support opportunities may be found on the ASU Graduate College Web site: [graduate.asu.edu](http://graduate.asu.edu).

When applying to the program, students also may apply for an AME research assistantship or an NSF IGERT traineeship. For both options, students should indicate their research module preference (from those described in pages 6 and 7) when completing their application. Students are strongly encouraged to discuss their research assistantship or NSF IGERT traineeship application with a prospective faculty advisor from the chosen module(s).

AME research assistantships are open to all qualified applicants. For more information, visit [ame.asu.edu/education/prospective](http://ame.asu.edu/education/prospective).

The NSF IGERT program at AME is limited to students who are U.S. citizens or permanent residents, and who are enrolled in an AME science or engineering Ph.D. concentration or the MAS Ph.D. program. For more information on the NSF IGERT, visit [ame.asu.edu/igert](http://ame.asu.edu/igert).



AME student Stjepan Rajko is able to explore his interests in both dance and computer science while studying at AME. Here, he is demonstrating AME's gestural communication engine.

### Application Deadlines

Applicants who wish to be considered for a research assistantship or NSF IGERT traineeship with AME must submit complete application packages by **Feb. 1**. Please observe the chosen academic department application deadline if it precedes the AME application deadline. Visit academic department Web sites for specific deadline information.

Collaboration comes in all forms for AME students – through research modules, class projects, informal afterclass gatherings, and through the student association, AMESA, a community of AME students committed to sharing their work and having fun. Such interconnected experiences expose students to cross-functional teams, multiple disciplines and research approaches they might never have considered.



"I get to analyze human movement in an environment that involves engineering, dance, computer science, psychology, kinesiology and a number of other disciplines," explains



Ph.D. student in computer science and engineering **Stjepan Rajko**, who works closely with **Jessica Mumford** as both also pursue M.F.A.s in Dance (with an AME concentration). Even though Stjepan's background is in the sciences, and Jessica has experience in psychology and dance, the duo connects on many levels. They combine their expertise for "explaining to computers different ways of understanding and analyzing human movement."



Their workspace and lab are next to those of **Suneth Attygalle** and **Yinpeng Chen**, both members of the Rehabilitation module. Suneth, a bioengineering Ph.D. student with a specialization in AME, chose to work with AME to combine his interests in interactive technology, digital music and neuroscience.



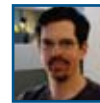
Yinpeng is an electrical engineering Ph.D. student with an AME concentration. Suneth's investigation of mediated rehabilitation and neural plasticity will extend some of the models that Yinpeng developed. Yinpeng has also adapted some of Stjepan's motion analysis code to use in the Rehabilitation module.



Jessica and Stjepan's work is also combined with work by **Brandon Mechtley**, a computer science and engineering Ph.D. student with an AME concentration, to create "a mind-blowing full-body resource negotiation interaction" for the Sustainability module. Brandon's interdisciplinary experiences at AME helped him realize that the "problems that I have previously seen only in the light of dynamical systems very clearly relate to and interact with concepts in composition and choreography, as well as other fields such as the cognitive and social sciences, giving me hope that we are all truly working toward the same goal."



Brandon, **Lisa Tolentino** and **Ryan Spicer** were classmates in Mediating Complexity, where they collaborated on developing a water supply game. Lisa is a Media Arts and Sciences Ph.D. student with a background in computer science, digital music and experimental music performance. Within



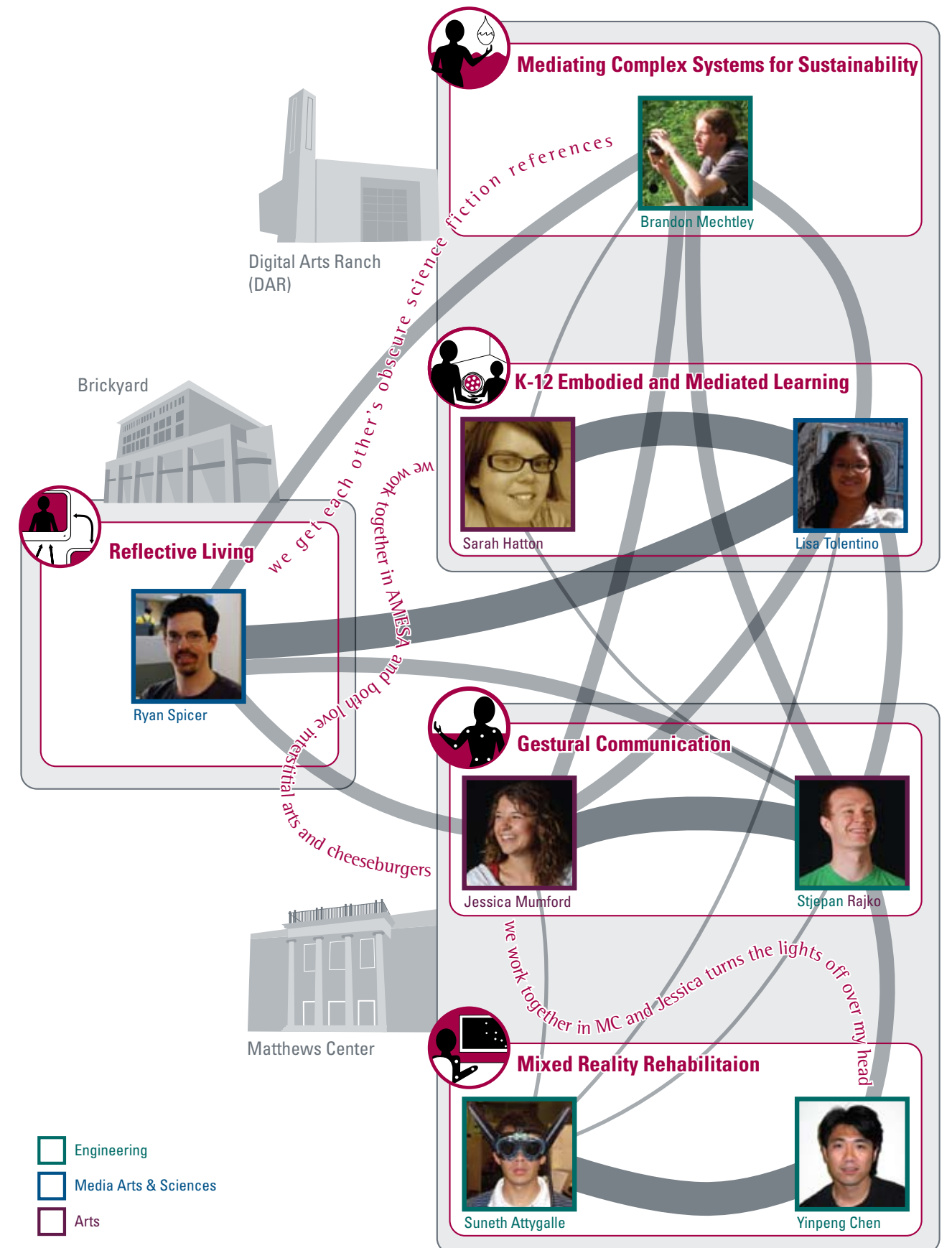
her first year at AME, she built new skill sets, including "developing new ideas through critique, iterative design, and rapid prototyping; performing and exchanging roles within the collaborative design process; presenting these ideas to industry leaders; preparing and making the most of user studies; and maintaining an open and engaging dialogue with community partners as we embed technology."



Lisa and **Sarah Hatton**, who is pursuing her M.F.A. in visual art with an AME concentration, are both members of the K-12 module, where they work together to build mediated learning scenarios for a local high school. Ryan, a media arts and sciences Ph.D. student with a background in film and video production, is "working on a Web-based project to visualize and allow exploration of the narratives implicit in changing patterns of collaboration within teams." He attends Phoenix DIY events with Sarah and Brandon, collaborates with Jessica on dance for camera pieces and shares a mutual passion for open source software with Stjepan. All of these students are also highly active members of AMESA, organizing an annual open house featuring student work and elevating the level of fun at AME.

# CONNECTIONS

lines = research or education connections  
 thickness of line denotes strength of connection  
 text = sample social connections



**Faculty**

**DAVID BIRCHFIELD** / Assistant Professor • AME, Music, Computation and Digital Media

**WINSLOW BURLESON** / Assistant Professor • AME/SCI, Human Computer Interaction

**ELLEN CAMPANA** / Assistant Professor • AME/Psychology, Psychology for Media Arts and Sciences

**GRISHA COLEMAN** / Assistant Professor • AME/Dance, Movement, Computation and Digital Media

**TODD INGALLS** / Assistant Research Professor • AME, Interactive Arts/Motion Capture

**AISLING KELLIHER** / Assistant Professor • Design/AME, Media Communication Systems and Media Theory

**GANG QIAN** / Assistant Professor • AME/EE, Motion Analysis

**THANASSIS RIKAKIS** / Professor • AME, Media Arts and Sciences

**HARI SUNDARAM** / Assistant Professor • AME/CSE, Media Arts and Computing

**HARVEY THORNBURG** / Assistant Professor • AME/EE, Audio Engineering Sound Analysis

**Administration/Staff**

**THANASSIS RIKAKIS** / Director

**ANDREAS SPANIAS** / Associate Director

**K. SELCUK CANDAN** / Associate Director

**CHERYL BRACISZEWSKI** / Business Manager, Sr.

**ASSEGID KIDANÉ** / Engineer

**DAVID LORIG** / Technical Director, Sr.

**COLLEEN MACKAY** / Research Coordinator

**KIRSTIN OLMON** / Administrative Associate

**LOREN OLSON** / Multimedia Technologies Research Associate

**KELLY K. PHILLIPS** / Technical Director, Sr.

**TANYA WATT** / Education Coordinator

**Visiting Scholars and Research Associates**

**SHAWN COOK** / Interactive Visualization Development

**CAMILLA NØRGAARD JENSEN** / Design Research

**AME Affiliated Faculty currently involved in AME projects**

(for a complete list of affiliated faculty, please visit [ame.asu.edu/people/affiliated.php](http://ame.asu.edu/people/affiliated.php))

**METIN AKAY** / Bioengineering

**BRADEN ALLENBY** / Sustainability

**ROBERT ATKINSON** / Psychology in Education

**K. SELCUK CANDAN** / Computing and Informatics

**DOUG CLARK** / Curriculum and Instruction

**SIMON DOVE** / Dance

**LINDA ESSIG** / Theatre and Film

**JONATHAN FINK** / Sustainability

**JAMES GEE** / Curriculum and Instruction

**JACQUES GIARD** / Design

**ARTHUR GLENBERG** / Psychology

**HILARY HARP** / Art

**ELISABETH HAYES** / Curriculum and Instruction

**JIPING HE** / Bioengineering

**RICHARD HERMAN** / Bioengineering

**MARCO JANSSEN** / Human Evolution and Social Change

**MINA JOHNSON-GLENBERG** / Psychology

**PAT LANGLEY** / Computing and Informatics

**MIKE MCBEATH** / Psychology

**COLLEEN MEGOWAN-ROMANOWICZ** / Educational Innovation and Teacher Preparation

**MARY BATES NEUBAUER** / Art

**SETHURAMAN PANCHANATHAN** / Computing and Informatics

**JACOB PINHOLSTER** / Theatre and Film

**WILHELMINA SAVENYE** / Educational Technology

**J.B. SMITH** / Music

**ANDREAS SPANIAS** / Electrical Engineering

**PEGGE VISSICARO** / Dance

**COLLEEN JENNINGS-ROGGENSACK** / ASU Public Events

**MICHAEL REED** / ASU Public Events

**AME Research Assistants & IGERT Trainees & Associates**

**SUNETH ATTYGALLE** / Bioengineering, IGERT Trainee and SFAz Fellow\*\*

**JEFFREY BOYD** / Computer Science and Engineering, IGERT Trainee and SFAz Fellow\*\*

**YINPENG CHEN** / Electrical Engineering, IBM Ph.D. Fellow and Student Excellence Awardee\*

**IGOR DOLGOV** / Psychology, IGERT Trainee

**MARGARET DUFF** / Bioengineering, IGERT Trainee

**ALEX FINK** / Electrical Engineering, IGERT Trainee

**LAURA GONZALES** / Psychology, IGERT Trainee

**JANEL GOODMAN** / Psychology, IGERT Trainee

**SARAH HATTON** / Art, Research Assistant

**BYRON LAHEY** / Media Arts and Sciences, Research Assistant and NASA Space Grant Fellow

**NICOLE LEHRER** / Media Arts and Sciences, IGERT Trainee and SFAz Fellow\*\*

**YU-RU LIN** / Computer Science and Engineering, Research Assistant and Student Excellence Awardee\*

**JINRU LIU** / Electrical Engineering, Research Assistant

**YANGZI LIU** / Electrical Engineering, Research Assistant

**CHRISTOPHER MARTINEZ** / Media Arts and Sciences, Doctoral Enrichment Fellow

**BRANDON MECHTLEY** / Computer Science and Engineering, IGERT Trainee and SFAz Fellow\*\*

**JESSICA MUMFORD** / Dance, Research Assistant and IGERT Associate

**BO PENG** / Electrical Engineering, Research Assistant

**STJEPAN RAJKO** / Computer Science and Engineering and Dance, IGERT Trainee

**RYAN SPICER** / Media Arts and Sciences, IGERT Trainee

**LISA TOLENTINO** / Media Arts and Sciences, IGERT Trainee

**CATHERINE VUONG** / Bioengineering, IGERT Trainee and SFAz Fellow\*\*

**ISAAC WALLIS** / Media Arts and Sciences, Research Assistant

**GORDON WICHERN** / Electrical Engineering, IGERT Trainee

**HAIRONG XIE** / Computer Science and Engineering, Research Assistant

**WENHUI YU** / Media Arts and Sciences, Research Assistant

**JIQING ZHANG** / Electrical Engineering, Research Assistant

\* Student Excellence Awards are supported by the Ewing Marion Kauffman Foundation of Kansas City, Missouri through the Kauffman Campuses SM Initiative.

\*\* SFAz Fellows are supported by Science Foundation Arizona.

**BROCHURE CREDITS**

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**Digital Arts Ranch (DAR)**

DAR is a black box performance space with a flexible infrastructure for multiple types of sensing, audio and visual playback and presentation. Features include 5.1 surround audio, multiple projection surfaces and reconfigurable audience arrangements. As AME's principal presentation venue, the Ranch also is used daily for research realization and class work.

**Technology Development Laboratory (TDL)**

Dedicated to the development and creation of software and hardware, the TDL studio offers hardware-development platforms for embedded control systems, FPGA design, DAQ based I/O analysis and prototype PCB design. TDL features a variety of electronic test equipment and software for analysis and user-interface design.

**Fabrication Facilities**

DAR and the TDL share shop facilities for design and fabrication in a variety of scales and materials, with a standard suite of tools ranging from woodworking to light-machining, along with CAD and other 3-D design capabilities.

**Sound Research Lab**

This lab offers computer musicians, composers and audio designers 24-bit, multi-track digital audio; software- and hardware-based audio control systems; CD mastering equipment; 5.1 surround sound mixing; audio-for-video packages; notation software and MIDI sequencing systems.

**Digital Imaging Lab**

This production studio supports digital video production with Final Cut Pro Studio, including HD video, 3-D animation, 2-D graphics, interactive media development, and programming for CD-ROM and DVD. The lab also supports Web development for telematics, databases and other Internet research.

**Motion Analysis Lab/Intelligent Stage**

This research lab is dedicated to motion analysis and interactive, multimodal feedback development. It is part of the Interdisciplinary Research Environment for Motion Analysis (IREMA) initiative and funded by an NSF infrastructure grant, which seeks new ways to address research questions in motion capture and analysis. The lab has a 16-camera Motion Analysis Corporation motion-capture system and various media display and control capabilities.



**AME students have access to all labs and studios 24 hours a day, seven days a week.**

AME is a program of the Katherine K. Herberger College of the Arts and the Ira A. Fulton School of Engineering at Arizona State University.



Top to bottom: MAS Ph.D. student Bryon Lahey working in AME's physical computing course; inside AME's pressure sensitive floor; technology development laboratory.