

TOM IGOE
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Mailing Address: Interactive Telecommunications Program
Tisch School of the Arts, New York University
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EDUCATION

Virginia Tech	Theater Arts	B.A., 1989
New York University	Interactive Telecommunications	M.P.S., 1997

TEACHING APPOINTMENTS

2016-present Arts Professor, ITP, Tisch School of the Arts, New York University
2007-2015 Associate Arts Professor, ITP, Tisch School of the Arts, New York University
2003-2007 Assistant Arts Professor, ITP, Tisch School of the Arts, New York University
2001-2003 Visiting Assistant Professor, ITP, Tisch School of the Arts, New York University

Responsibilities:

- Area head for physical computing classes and contributor to sustainability and networking areas; Duties include oversight of adjunct instructors and staff members in my area, development and maintenance of new and existing courses in the area, and integration with other curricular areas.
- Direction of development of physical computing workshop. In more recent years, I have shared this responsibility with colleagues Daniel Rozin, Rob Ryan, and John Duane, with John and Rob actually managing the shop.
- Producer, in rotation with other faculty, for each semester's show of student works, open to the general public. Duties include scheduling, coordination with instructors and staff, and general oversight of all phases of show production.
- Developed instructional websites on physical computing and networking for the department and for personal work that have been used both at ITP and by instructors at other institutions and by professional interface developers.

Courses Taught:

Current Courses:

Introduction to Physical Computing (2001 - Present)

Core course in physical interface design and development, required for all students.

Understanding Networks (2009 - Present)

A seminar/workshop which provides students with a broad introduction to network infrastructures, from the internet to other telecommunications networks to the

worldwide power grid. The class examines the technical, social, political, and business dynamics of networks, and, where appropriate, gives students a hands-on introduction to networking techniques.

Lighting and Interactivity (2017, 2019, 2020)

A workshop that introduces students to the principles of light production and design, and its use in interactive systems.

Tangible Interaction (2016 - Present)

A workshop that introduces students to the concepts of tangible interface design through a series of short production assignments, producing everyday devices: game controllers, lighting controllers, sound controllers, and similar devices with tangible controls.

Connected Devices and Networked Interaction (2014 - Present)

A workshop that introduces students to the design and technical challenges of developing networked devices and products and services.

Past Courses:

Future Scenarios and Systems Thinking (2018)

A class in scenario development, grounded in research about the present and the past. Co-taught by Despina Papadopoulos, and based partially on a previous ITP class, *Future of the Infrastructure*, taught by Art Kleiner.

Disruption and the Maker Movement (2013)

A seminar to examine the potential size and impact of the maker movement and to consider the unexamined consequences of it.

Wildlife Observation Tools (2010 - 2012)

A workshop in which students learn about technologies and methods primatologists use their field research, and develop new tools to improve the work in the field.

Project Development Studio (Physical Interaction) (2006, 2008)

A studio course in which students develop one project involving physical interaction between people and devices over the course of the semester.

Sustainable Practices (2006 - 2007)

A seminar in which students survey the environmental impact of the practice of interaction design, and develop projects to lessen the negative impacts.

Sensor Workshop (2005 - 2006)

A workshop introducing students to a range of sensor technologies and how they are interfaced with computer systems.

Networked Objects (2002 - 2008)

A workshop covering the basics of computer networking, and the development of

physical interfaces for networked systems.

Sculpting with Data (2001 - 2002)

A workshop in mechanical and sculptural representation of dynamic data.

1997-2001 Adjunct Assistant Professor, ITP, Tisch School of the Arts, New York University

Courses taught:

Physical Computing II (2001)

An advanced course in physical interaction design for computer-human interaction.

Physical Computing (1998 - 2000)

The origin of the current Introduction to Physical Computing course, above, originally taught by Dan O'Sullivan.

Introduction to Computational Media (Fall 1997 - 2000)

An introductory course in basic programming and troubleshooting. The second half focuses on the creation and control of digital media.

1998 Adjunct Faculty Instructor, City College of New York

Courses taught:

Media Integration (co-taught with M.R. Petit) (1998)

An introductory course in multimedia concepts and creation of linear and simple interactive presentations. Incorporation of graphics, video, animation and sound as well as basic concepts in interactivity and basic programming were covered.

UNIVERSITY, SCHOOL, & DEPARTMENTAL SERVICE

2006 - present Tisch Departmental Faculty Review Committees

I have served on several departmental faculty review committees for promotion to various levels of Arts Professor for the Tisch School of the Arts. I have chaired two departmental faculty reviews for promotion to full Arts Professor, one for my own department in 2016, and one for the department of Imaging and Photography in 2017. Since ITP was a small faculty when I started, I have served on reviews for many of the other arts professors in the department as well. These have been informative, as I have noticed that many of my colleagues throughout the school, all world-class working arts professionals, share a sense of impostor syndrome.

2017-2018 Ability Project Hiring Committee Chair

I chaired the committee to hire a new tenured/tenure-track faculty member for the Ability Project, an interdisciplinary research space dedicated to the intersection between disability and technology. The hire was jointly housed between the Steinhardt School of Culture, Education, and Human Development's department of occupational

therapy; The Tisch School for the Performing Arts' ITP (my own department) and The Tandon School of Engineering's Integrated Digital Media department.

2017-2018 ITP Hiring Committee

I served as a member of the departmental committee to hire two new new full time contract faculty members for ITP.

2018-Present ITP Curriculum Subcommittee

In 2018 the ITP faculty formed a curriculum subcommittee on which I served to discuss larger curricular reforms. That work is sporadic but ongoing and will hopefully return in fall of 2020.

2017-2018 Provost's Sustainability Working Group

This committee reviewed the University's efforts in economic, environmental, and social sustainability, with an eye to increasing faculty participation where it can provide the most leverage.

2016 - present Departmental Architectural committees for 370 Jay St.

I participated in the planning for the construction of our new departmental home at 370 Jay St., Brooklyn. My focus was mainly on the Media Commons and performance spaces of the building, along with reviewing the plans for our shops and lighting systems.

2015 Hiring panel for Director of Sustainability

At the request of Assistant Vice President John Bradley, I served on the hiring panel for a new Director of Sustainability at the University.

2013 - 2018 Faculty partner for Leslie eLab

I meet regularly with eLab directors Frank Rimalovsky and Lindsay Marshall Gray to discuss how best to encourage entrepreneurship in University students, and how best to use the entrepreneurship center as a place to catalyze interdisciplinary collaboration between students.

2011 - 2014 Tisch Budget & Policy Committee

Met with faculty members from other departments and with administrative staff to understand the school budget and financial structure, and to make recommendations on improvements. For the 2013-2014 academic year, I also chaired this committee.

2007 - present Green Grants Review Committee

Reviewed student and faculty applications for funds to support projects to improve the University's environmental impact. The committee favors those projects that can lead to longer term initiatives, and those that can produce quantifiable changes.

- 2006 - present University Sustainability Task Force
I have been a member of the University I have served on the University Sustainability Task Force since its inception in 2006. At various times I've served on the planning and energy subcommittees, the data subcommittee, and the Green Grants review committee.
- 2008 - present Tisch All-School Faculty Review Committees
I have served on several all-school faculty review committees for the Tisch School of the Arts since 2008.
- 2007 - 2008 Dean's Executive Committee
Marianne Petit and I served as faculty co-secretaries for the Dean's Executive Committee during the 2007-8 school year. Because the meeting times conflicted with half of our class meeting times, we split the task between the two of us.
- 2001 - present ITP Curricular Area Head for Physical Computing
Responsible for curriculum and lab development for teaching and practice of physical interaction design in at ITP. The area focuses on teaching students to think about computer-human interaction by starting with the physical reality of the person for whom you are designing.
- 2001 - present ITP Curriculum Development
ITP's curriculum is dynamic and changes significantly every year in response to changing social and technological trends, and according to how we perceive the students' needs. With the rest of the core faculty, I have served as part of ITP's curriculum development team since I joined the full-time faculty.
- 2001 - present ITP Admissions Committee
Admissions at ITP is a responsibility of all full-time faculty members. Every year, each faculty member reviews between 20 and 40 applications for admissions. I have also conducted interviews of potential applicants for the department when traveling.
- 2001 - present ITP End-of-semester show
I have been involved with the production of the end-of-semester show at ITP as long as I have been involved with ITP. In addition to serving as show producer for numerous semesters, I also contributed to the development of our production system over the years, and have contributed several innovations to how we produce the show.
- 2001 - present ITP Architectural and space planning
I have been active in helping to plan architectural changes on our floor since 2001. This has involved moving walls, researching and planning new major equipment purchases to keep our technology offerings current, and coordinating with Chair Dan O'Sullivan

and Technical Operations Manager Rob Ryan and shop manager John Duane to implement changes.

2001 - present Academic advising

Each year I serve as academic advisor to approximately 20 ITP students. I advise on course choices based on students' interests and abilities. We also discuss the progress of their their thesis when they are in their second year. For those interested in internships, we talk about possible places they might intern. I maintain an open door policy to my office, and frequently meet with students who are not my advisees as well, both from within and occasionally outside the department. Mentoring students is our core responsibility at the University. Everything else is secondary.

RESEARCH

2013 - 2017 Co-PI of *Ethoinformatics*

Ethoinformatics: Developing Data Services and a Standard "Etho-Grammar" for Behavioral Research is a two-year NSF-funded research project to develop new digital tools and standards for the collection and management of animal behavior research. My collaborators on this grant are Prof. Anthony Di Fiore, University of Texas, Austin, and Kenneth Chiou, Washington University of St Louis.

2008 - 2011 Assistant to Co-PI Marianne Petit on *GreenFab*

GreenFab was a three-year NSF-funded program to introduce high school students to Science, technology, engineering, and math skills through sustainable values. The project was a joint venture between ITP, Vision Education & Media, Sustainable South Bronx, and the Bronx Guild High School.

1999 - 2000 Interval Research Fellow, ITP

Researcher on independent projects; investigated alternate physical interfaces for computing environments, and video tracking and compositing tools for live performance and installation.

1996 - 1997 Graduate Research Assistant, *Neighborhood Web Project*

I served as the research assistant for *Neighborhood Web Project*, investigating geographic indexing of and mobile access to web-based information. Duties included prototype development, hardware experimentation and testing, web-based interface and database development, and maintenance of project website and servers.

EXTERNAL ACADEMIC SERVICE ROLES

2018 Outside program reviewer, Sheridan College Interaction Design program

I was invited to serve as one of two external program reviewers for Sheridan College's Interaction Design Program. The goal of the external reviewers was to see that the program meets contemporary standards for a top-notch academic interaction design program.

2017, 2018 Magic Grants review committee,
Brown Center for Innovation in Media
Columbia University

At the invitation of Brown Center director Mark Hansen, I served as a grants reviewer for the 2017-2018 and 2018-2019 Magic Grants. Established in 2012 as a collaboration between Columbia University's Journalism and Stanford's School of Engineering, Brown Institute Magic Grants seed innovation in the changing media landscape. Magic Grants provide year-long funding awards of up to \$150,000 (\$300,000 for teams with members of both the Columbia and Stanford communities). In addition to funding, grantees have access to a distinguished advisory and mentoring group, an extensive and inspiring alumni network.

2015 Design Challenge chair, 9th ACM International conference on
Tangible, Embedded and Embodied Interaction (TEI)

At the invitation of conference chairs Wendy Ju and Bill Verplank (both of Stanford University), I planned and organized the student design challenge for this annual conference held by the Association of Computing Machines (ACM). ACM is a worldwide organization for academic computer scientists.

2007 Interactivity Co-Chair, 25th ACM International Conference on
Computer/Human Interaction (CHI)

Together with Lars-Erik Holmquist of the Viktoria Institute, I coordinated the this annual conference's annual exhibit of interactive systems. CHI is the leading international academic conference for researchers in human/computer interaction.

PROFESSIONAL WORK

Consulting

I have consulted on a variety of projects over the past 20 years, from museum exhibits to websites, DVDs, CD-ROMs, and other interactive projects.

2005 - Present Founding Partner, *Arduino*

Co-founder, strategy and user experience design advisor for Arduino, an open-source microcontroller platform for teaching physical interaction design to technical neophytes. Since 2005, approximately 1.5 million boards have been sold. Arduino is used in high

schools and universities to teach beginners how to connect sensors and actuators to digital systems.

2015 Intel Open Hardware Innovation Advisory Panel

The Open Hardware Innovation Advisory Panel is a group of key enablers in the Open Hardware community operating at the intersection of the Open Source Hardware Association (OSHW), MakerCon (key contributors to Maker Faires), Sketching in Hardware (founders of OS toolkits), and the Open Hardware Summit (an annual gathering of OH innovators). The advisors' role is to help guide Intel through a series of conversations about key issues such as disruptive innovation with open hardware, licensing and trademark practice, community values, path to product, and the evolving global maker community.

2013 Consulting Expert, Monitor Deloitte Strategy Consulting

I participated as an expert on digital fabrication in a day and a half workshop on new business opportunities for Deloitte consulting.

2011 - 2014 NYSCI SciGames Advisory Board

I was on the advisory board for SciGames, an NSF-funded project by the New York Hall of Science whose goal was to develop tools involving play and improvisation in science curriculum for the museum.

2010 - Present RTA School of Media Program Advisory Council
Ryerson University, Ontario, Canada

I serve as a member of Ryerson University's School of Media program advisory council. The council is made up of professionals and academics, and meets annually to review the activities of the School of Media and to offer strategic guidance for the program. RTA is Canada's Premier School of Media Production, Media Art, and Broadcasting.

2010 - 2012 Physical Interaction Advisor, THINC Orangutan Project

I consulted with THINC Design on physical interaction of a new habitat for the orangutans at the Indianapolis Zoo. The habitat included machines to engage the orangutan's intellectually and to afford interaction between the apes and the human visitors to the zoo.

2008 - 2011 HBO PowerPunch

Consulted with HBO's Emerging Technology group on the development of electronic sensing and communication systems for PowerPunch, a system for automatic punch type and force detection in the boxing ring. For this project, we were awarded two US patents, #8622795 and #9120014, both titled *System and method for gathering and analyzing objective motion data*.

- 2005 Artemide Lighting Workshop
Interactive Design Institute, Ivrea, Italy
Worked with a team of 8 designers, engineers, and students to develop interaction design prototypes for new lamps and control systems for Artemide lighting. Developed concept sketches, usage scenarios, and functional prototypes.
- 2004 - 2006 Cairns Project
Digital Democracy Workshop, New York Law School
Consulted on development and design of the Cairns project, "an open-source, web-based knowledge management software that enables practitioners of participation to upload and index information about their own projects and to search easily for information about those of others." The site interface offers a set of visualization tools that make it easier for practitioners to make connections between the work of their own groups or those of others. This project was part of ongoing research in visualization and deliberative practices, part of the Democracy Design Workshop at New York Law School, led by Beth Noveck.
- 2004 Squidball
NYU Media Research Lab
Technical collaborator for the development of Squidball, a large-scale, real-time interactive video game that uses motion capture technology to create a unique and energetic gaming experience. The project was led by Chris Bregler of NYU's Media research Lab. The game necessitated building the world's largest calibrated motion capture volume at that time. It was presented in August, 2004, with an audience of 4,000 people, at the Los Angeles Convention Center, as pre-show entertainment for the SIGGRAPH Electronic Theater.
- 2003 Eos Orchestra
Audio, Video, & Controls, New York, NY
Collaborated on the design and development of a series of networked musical instruments to be played by attendees at the orchestra's annual benefit banquet. Attendees were conducted by the orchestra's artistic director, Jonathan Scheffer, in a live performance of Terry Riley's "In C". Pods were developed in collaboration with Eric Singer of LEMUR, and David Bianciardi of Audio Video & Controls.
- 2002 Children's Museum of Manhattan
New York, NY
Developed hardware and programming for sensors of Daniel Rozin's video painting easel exhibit.
- 2001 AIDS: A Living Archive
Gay Men's Health Crisis and the Museum of the City of New York
New York, NY

Interaction design and production management for two interactive elements of *AIDS: A Living Archive*, an exhibit which chronicles the history of AIDS and AIDS activism in New York City. Exhibit on display at the Museum of the City of New York, May - Sept. 2001.

2000 - 2001 EAR Studio/Diller + Scofidio Architects
 Technical Director, Blur Media project
 New York, NY

Responsible for new technology research and evaluation and technology direction for interactive experience inside the Blur pavilion, which Diller + Scofidio are designing in conjunction with EAR Studio for the Swiss National Expo in 2002.

Pavilion was a 300 x 100 ft. structure on a lake, enshrouded in an artificial cloud. Exhibit consisted of architectural LED signs and 600 visitor raincoats that change color in response to each other and to the LED signs. Due to budget cuts, multimedia exhibit was never developed past the final plans.

1999 EAR Studio
 New York, NY

Programming and consulting for EAR Studio on interaction design and display design on various museum projects, including New York City Police Museum, Princeton University Children's Library, and Diller + Scofidio's proposed media project for the Moscone Convention center in San Francisco.

1999 Luvbuzz
 New York, NY

Consulted on and implemented database-driven display system for Luvbuzz cocktail lounge and date-matching service, specified and installed hardware for day-to-day database operations, coordinated with database developers, and implemented architectural wall displays for images in database. Also designed and implemented an interactive video projection/installation to complement design of space for opening night

1999 Halsell New Media / Corporation for Public Broadcasting
 New York, NY

Collaborated on interaction design and programmed prototype for DVD/DVD-ROM *The Black Press: Soldiers Without Swords*. This hybrid DVD/DVD-ROM was intended as a prototype for a possible digital television interface for CPB.

1999 - 2001 American Museum of the Moving Image
 New York, NY

Consulting on hardware and software upgrades of various AMMI interactive exhibits. Work includes collaborating with museum and programmer on software performance and administrator interface improvements and recommending and implementing

hardware and networking improvements to exhibits, and coordination of all elements into final implementation.

1999 - 2003 Glyph Media/C.B.Cooke
New York, NY

Lingo programming for corporate CD-ROMs, Summer 2002 and 2003.

Wrote interface control and audio control software, hardware design & programming for "12, 28, 37", a video installation by artist C.B. Cooke at the Alternative Museum, New York City. Installation consisted of three video screens activated by a Smith & Wesson revolver.

1996 Malice Palace
Jaime Levy New Media

Programming for Malice Palace, a graphic multi-user networked environment using Time-Warner's Palace software.

Workshop Designer and Organizer

I regularly lead short intensive workshops on physical interaction, networks, and other topics as a visiting instructor at schools, conferences, and other institutions around the world.

July 2019 Lighting workshop,
Beihang University, Beijing, China

I will be giving a two-week workshop in microcontroller programming for lighting design and control at the invitation of Beihang University this summer.

July 2018 Making Clinical Sense conference,
Maastricht University, the Netherlands

A one-day workshop for conference attendees on building electronic candles. The workshop introduced programmable LEDs and microcontrollers as a platform to teach principles of light as an aesthetic medium, electronics, and programming.

February 2016 Columbia University School of Journalism,
Brown Center for Innovation

A two-day workshop for graduate and undergraduate students introducing sensor journalism. Workshop introduced sensors, microcontroller programming, and data logging for journalism students as a way of introducing the physical side of data literacy.

Oct. 2000 Interactive Institute, Stockholm, Sweden
A one-week intensive workshop in physical computing, similar to the course offered in Norway, above.

Mar. 1998 Dramatiska Institutet, Interactive Media Program, Stockholm, Sweden
A one-week intensive workshop in physical computing. Course material derived from the ITP course above, focusing on the hardware tools.

Systems Management

1997 - 1999 Multimedia Lab Manager,
ITP/NYU

Duties included management and maintenance of the lab's facilities in conjunction with the Technical Coordinator; management of a staff of 13 graduate technical assistants; planning and allocation of lab and classroom hardware resources; research and planning recommendations for long-term technical direction of the lab.

Stage Lighting Lighting & Projection

2003 *Youth In Asia: A Techno-fantasia on National Themes*
Tisch School of the Arts Undergrad Drama

Projection design for TSOA undergraduate drama department production. Projection design developed concurrently with script and staging, as this was a new play.

2000 *Evita*
NYC Technical College

Projection design for New York City Technical College production. One of the first two US productions using Dataton's Watchout software.

1989 - 1995 American Repertory Theatre
Cambridge, MA

Lighting Operator. Responsible for running, maintenance, and changeover of all lighting and electrics for shows in rotating performance schedule. Assisted with implementation and programming of lighting designs in technical rehearsals.

PUBLICATIONS

Books

- 2017 **Igoe, T.** *Making Things Talk*, third edition. San Francisco: Maker Media
- 2014 **Igoe, T.**, Coleman, D, Jepson B. *Beginning NFC*. San Francisco: O'Reilly.
- 2011 **Igoe, T.** *Getting Started with RFID*. San Francisco: O'Reilly.
- 2010 **Igoe, T.** *Making Things Talk*, second edition. San Francisco: O'Reilly
- 2007 **Igoe, T.** *Making Things Talk*, first edition. San Francisco: O'Reilly
- 2004 O'Sullivan, D. and **Igoe, T.** *Physical Computing: Sensing and Controlling the Physical World with Computers*. Boston: Muska & Lipman.

Articles

- 2020 Lauren Race, Claire Kearney-Volpe, Chancey Fleet, Joshua A. Miele, **Tom Igoe**, and Amy Hurst. 2020. [Designing Educational Materials for a Blind Arduino Workshop](#). In Extended Abstracts of the 2020 CHI Conference on Human Factors in Computing Systems *Extended Abstracts (CHI '20)*. Association for Computing Machinery, New York, NY, USA, 1–7.
- 2019 Lauren Race, Chancey Fleet, Joshua A. Miele, **Tom Igoe**, and Amy Hurst. 2019. [Designing Tactile Schematics: Improving Electronic Circuit Accessibility](#). In *The 21st International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS '19)*. Association for Computing Machinery, New York, NY, USA, 581–583.
- 2018 **Igoe, T.**, Jeff Feddersen and Ben Light, *Clock Club: Resources for Beginning Timepiece Design* workshop presentation at DIS 2018, Hong Kong SAR.
- 2016 Di Fiore, A., Chiou, K.L., Chevett, M., Overstreet, R., **Igoe, T.** [Ethoinformatics II: developing open-source software and digital data services for primatology](#). Joint meeting of the International Primatological Society and the American Society of Primatologists. Chicago, Illinois. [[poster](#)]
- 2016 Chiou, K.L., Di Fiore, A., Overstreet, R., Chevett, M., **Igoe, T.** [Ethoinformatics I: developing a community-informed standard vocabulary and data model for primatology](#). Joint meeting of the International Primatological Society and the American Society of Primatologists. Chicago, Illinois. [[poster](#)]
- 2016 Di Fiore, A., Chiou, K.L., Chevett, M., Overstreet, R., **Igoe, T.** [Ethoinformatics II: developing open-source digital data services for behavioral field research](#). *American Journal of Physical Anthropology*, 159(Suppl. 62), 130-131. [[slideshow](#)]

- 2016 Chiou, K.L., Di Fiore, A., Overstreet, R., Chevett, M., **Igoe, T.** [Ethoinformatics I: developing a standard vocabulary and data model for behavioral field research](#). *American Journal of Physical Anthropology*, 159(Suppl. 62), 115-116. [[slideshow](#)]
- 2013 **Igoe, T.** Many-to-Many Manufacturing: A review of *Makers: [The New Industrial Revolution](#)*, by [Chris Anderson](#). *Strategy + Business Magazine*, Summer 2013: pp. 99-100.
- 2011 **Igoe, T.** and C. Mota. [A Strategist's Guide to Digital Fabrication](#). *Strategy + Business Magazine*, Autumn 2011: pp. 44-53. This article won a Silver Folio: Eddie award for editorial excellence, best single article in the Business-to-Business >> Technology/Computing/Telecom category.
- 2008 **Igoe, T.** Wireless motion sensing made easy. *MAKE Magazine* June: pp. 125-128.
- 2007 **Igoe, T.** Net data meter. *MAKE Magazine* May: pp. 133-137.
- 2007 Foth, Marcus & Satchell, Christine & Paulos, Eric & **Igoe, Tom** & Ratti, Carlo. (2007). [Pervasive persuasive technology and environmental sustainability](#). Accepted proposal for a workshop held at the 6th International Conference on Pervasive Computing, May 19th, 2008, Sydney, Australia (Workshop).
- 2007 Mellis, D., Banzi, M., Cuartielles, D, and **Igoe T.** *Arduino: An open electronics prototyping platform*. alt.chi presentation at CHI, 2007, San Jose, CA.
- 2006 Hasbrouck, Jay & **Igoe, Tom** & Mankoff, Jennifer & Woodruff, Allison. (2007). [Technologies for Green Values](#). Accepted proposal for a workshop held at the 5th International Conference on Pervasive Computing, September 16th, 2007, Innsbruck, Austria, Innsbruck, Austria (Workshop).
- 2006 **Igoe, T.** *Sensor interfaces: How circuits communicate with the outside world*. *MAKE magazine* February: pp. 160-167.
- 2005 Bregler, C., Castiglia, C., DeVincezo, J., DuBois, R.L., Feeley, K., **Igoe, T.**, Meyer, J., Naimark, M., Postelnicu, A., Rabinovich, M., Rosenthal, S., Salen, K., Sudol, J., and Wright, B. Squidball: An experiment in large-scale motion capture and game design. *Proceedings of the First Annual Conference on Intelligent Technologies for Interactive Entertainment (INTETAIN)*, Springer Lecture Notes in Artificial Intelligence.
- 2005 Bianciardi, D., **Igoe, T.**, and Singer, E. EOS pods: Wireless devices for interactive musical performance. *ACM Fifth Annual Conference on Ubiquitous Computing Adjunct Proceedings*: pp. 13-16.

SPEAKING ENGAGEMENTS

- 2018 Design 3.0, Tsinghua University, Beijing, China
I was an invited speaker at this conference on design and machine learning, hosted by the Tsinghua University Science and KAIST.
- 2018 Making Clinical Sense conference, Maastricht, the Netherlands
I was an invited keynote speaker at the first iteration of this conference, hosted by the Maastricht University Science and Technology Studies (MUSTS).
- 2018 The Generator, Burlington, VT
I was an invited speaker at the Generator, a makerspace in Burlington, VT.
- 2017 CultureHub Maker Forum South Korea
I was an invited speaker for this forum in South Korea, organized by Seoul Institute of the Arts. I presented via live video arranged by LaMaMa Studio in NYC.
- 2016 GOSH! Conference, CERN, Geneva Switzerland
I was an attendee and keynote speaker at the inaugural Gathering for Open Science Hardware (GOSH!), held at CERN in Geneva in March 2016. The meeting was a collection of science researchers and hardware developers interested in collecting best practices for applying open source methods to the development of science hardware and research practices.
- 2016 University of California at Berkeley, Jacobs Center for Design Innovation
I was invited to present a lecture on personal idealism in technology development for the students and faculty at the Jacobs Center.
- 2015 University of North Carolina Physics Department
I was invited to present a faculty colloquium on physical computing to the UNC physics department. The department is beginning their own physical computing course, and wanted to hear how it has worked at ITP.
- 2006 - present Sketching in Hardware
I have been an annual presenter at this workshop on the interoperability of physical computing and electronics toolkits since its inception in 2006. I am also part of the event's informal advisory board.

- 2008 - present Maker Faire.
San Mateo, CA; Austin, TX; New York, NY; Rome, Italy; Shenzhen, China
I have presented talks at Maker Media's annual Maker Faire event on multiple occasions and at multiple venues. Maker Faire is an expo of work by people who make things. The range of work runs from large scale interactive art exhibits to woodworkers, metalworkers, electronics hobbyists, and teachers.
- 2015 Emerging Technologies for the Enterprise Conference,
Philadelphia, PA
Gave the opening keynote talk on the merging of hardware, software, and services through internet and embedded technologies.
- 2014 Yantra 3.0 Art & Technology Festival,
Kathmandu Nepal
I was invited to speak at the Yantra festival, organized by Karkhana, a company focusing on technology education in Nepal. I participated in a symposium at Nepal's premier engineering college, on *Art + Technology: How Interdisciplinary Collaborations Lead to Innovation*, and at the Nepal Art Council on Art and technology collaboration techniques.
- 2014 TFI Interactive, Tribeca Film Festival, New York, NY
I presented at TFI Interactive on physical interaction design. TFI Interactive assembles people from the worlds of film, media, gaming, technology, design and activism to explore storytelling in the digital age.
- 2013 Inst-Int Conference, Minneapolis, MN
I was a featured speaker at Inst-int, a conference focused on sharing insights + experiences from the field of interactive installation. I presented on the importance of physical observation in interactive installation design.
- 2013 IRIS36/SCIS4 Conference, Sanner, Norway
I was a keynote speaker for the 36th annual Information Systems Research Seminar in Sanner Norway, a gathering of Scandinavian computer science researchers. I presented on *What's Wrong With the Internet of Things*.
- 2013 Hacked Matter Workshop 2013
I was a participant in the first Hacked Matter workshop in Shanghai and Shenzhen, China. This workshop, run by Anna Greenspan of NYU-Shanghai, Silvia Lindner of UC Irvine & Fudan University, and David Li of Xinchajian Hackerspace, critically examined connections between the informal networks of shanzhai production and the open innovations of the DIY (do it yourself) maker community in China. The event began in Shanghai with a panel discussion with researchers and practitioners in the field of

shanzhai and making: me, Amanda Williams (Fabule Fabrications), David Li (XinChejian), Ricky Ye (DFRobot), Wu Hao (C2Tech). After that were two days of visits to the open hardware scene & shanzhai manufacturing markets in Shenzhen.

- 2012 Panelist for IDSA-NYC's 2nd annual panel discussion on "The Tangible: Dead or Alive"
I was an invited panelist for the Industrial Design Society of America's second annual discussion on tangible devices, along with designers Karim Rashid, and Dan Formosa of Smart Design.
- 2012 Speaker, TEDxBigApple, "Physicality and Conviviality"
I gave a talk at TEDxBigApple's inaugural event at Saatchi & Saatchi Agency, New York.
- 2012 First Annual Citizen Cyberscience Summit, London, UK
I was a featured speaker at the first meeting of this (now annual) conference on citizen science, organized by University College London, and CERN, the European Organization for Nuclear Research.
- 2011 Toronto Digifest 2011, Toronto, Ontario, Canada
I was a speaker in Toronto Digifest 2011's "Meet the Media Guru" speaker series. Digifest is an international two-day conference and festival of exhibits and workshops on digital creativity sponsored by George Brown College, the Sony Centre for the Performing Arts, the Toronto International Film Festival Group, Applied Arts, Meet the Media Guru (from Italy), TOJam and others.
- 2011 2nd Annual Open Source Hardware Association (OSHW) Summit, New York, NY
Along with the rest of the Arduino co-founders, I gave a keynote address at this international collection of open source hardware developers.
- 2009 - 2010 MIT Media Lab, High/low Tech group. Cambridge MA
Lecture for Prof. Leah Buechley's graduate seminar. Presented annually for two years.
- 2010 University of Tampa, Electronic Media Arts and Technology Program, Tampa, FL
Invited by Prof. Santiago Echeverry, I gave a lecture on Physicality, Conviviality and Openness as ideals for interaction designers.
- 2010 Interaction 10, Savannah, GA
Presented a talk on the differences between open source software culture and design culture, and why designers are needed in open source projects.

I was one of 16 speakers at the inaugural Ignite NYC event. Ignite is an event in which each speaker gets 20 slides and five minutes to present an idea. Speakers include professionals from a variety of industries. I presented Physical Computing's Greatest Hits (or Misses)

- 2008 Virginia Tech School of Performing Arts and Cinema,
Blacksburg, VA
Presented a lecture on physical computing, performance, and the arts as part of the department's speaker series. Lecture was open to the whole university.
- 2008 Nokia-UCLA workshop on Mobile In-Sight
Nauvo, Finland
I was one of a dozen invited researchers to a joint workshop run by UCLA and Nokia on future applications for mobile technologies. The workshop examined trends in technology development, and proposed possible future applications, particularly for retired mobile devices.
- 2008 School of Arts and Communication, Malmö University
Interaction Design Prototyping Laboratory
Malmö, Sweden,
The School of Arts and Communication (K3) and the interaction design studio 1Scale1 run 7 one-day workshops in open software and hardware for designers and artists in Malmö every summer in Malmö, Sweden. I was invited to present a workshop based on my book *Making Things Talk*.
- 2008 O'Reilly Foo Camp, Sebastapol, CA
Foo camp is an informal workshop of 250 Friends Of O'Reilly Publishing, people who are doing interesting work in fields such as web services, data visualization and search, open source programming, computer security, hardware hacking, GPS, and all manner of emerging technologies. Guests are asked to share their work in progress, show off the tools and methods, and tackle challenging problems together. I was invited to be a camper in 2008, and participated in several discussions, shared current projects I was working on, and gathered ideas and potential collaborators for future work.
- 2008 Bergen Center for Electronic Arts, Bergen, Norway,
The Bergen Center for Electronic Arts (BEK), is a non-profit organization Bergen, Norway. BEK combines artistic practice and scientific research and supports electronic artists from Norway as well as international artists. I was invited to BEK to advise on the research of artist-in-residence HC Gilje, and to give a presentation on physical computing in the arts.
- 2007 - 2008 Fritzling Planning Symposium, FH University Potsdam,
Potsdam, Germany

Presented talks on the practice of physical computing, reviewing the origins, current state, and future directions. Participated in planning sessions to design Fritzing, an open source tool for design circuit boards.

2007 9th International Conference on Ubiquitous Computing
 Innsbruck, Austria

Co-organizer of a workshop, *Ubiquitous Sustainability: Technologies for Green Values*, which explored the ways in which research within the Ubicomp community intersects with values and practices linked to environmental sustainability.

2007 Turbulence.org
 Programmable Media: Open Platforms for Creativity and Collaboration
 New York, NY

I was a presenter and roundtable participant in this public session, hosted by Turbulence.org at the Pace Digital Gallery in New York. The evening explored the creation of original software to create tools and services for creative and social use, and the creation of original work using the tools available within open platforms to build community and raise awareness.

2007 Xavier University Department of Arts Community Partners
 New Orleans, LA

In January 2007, ITP partnered with Xavier University's Department of Art in New Orleans in creating a digital storytelling workshop for both Xavier students and the Xavier's community partners, exploring the theme of "home." This partnership took place through a series of one-week intensive exchange programs. This was led by Prof. Marianne Petit at ITP. In October 2007 a team of ITP faculty and community partners traveled to NoLA to host a workshop session with Xavier University's Department of Arts Community Partners. I joined Prof. Petit and two of our resident researchers to present work about physical computing at this workshop.

2005 Industrial Designers' Society of America
 Re-Action: Rethinking Design for the Real World
 Washington, DC

Panel speaker for Tomorrow's Housewares section. Panel co-chaired by Rebecca Trump and Lillian Shieh.

2005 Collaborative Artefacts | Interactive Furniture
 Workshop on Interactive Furniture
 Chateau-d'Oex, Switzerland

Participated in three-day workshop of designers and researchers developing interactive furniture concepts, run by the CRAFT research group from the Ecole Polytechnique

Fédérale de Lausanne. Presented the work of several ITP students and faculty members as part of the workshop's proceedings.

- 2004, 2005 Harvard University
 Dept. of Visual and Environmental Studies
Guest speaker for Digital Expression class, taught by Jeffrey Huang and Muriel Waldvogel.
- 2004 MIT, CS Artificial Intelligence Lab
Guest speaker for HCI Seminar Series. Presented recent projects in Physical Computing, Social Software, and assistive Technologies from ITP.
- 2002 IV Salon y Coloquio de Arte Digital
 Havana, Cuba
One-week presentation on digital art featuring artists and academics from Cuba, North and South America, Australia, and Europe. Presented a talk on physical computing, and exhibited Not your Mother's Dollhouse, a series of digitally-controlled mechanical dioramas, developed in collaboration with M.R. Petit.
- 2000 Siggraph-NYC Invisible Computing
 Fashion Institute of Technology
 New York, NY
Half-day panel discussion. Presented personal projects as part of Dan O'Sullivan's group at ITP. Other participants included Steve Feiner (Columbia University), Bill Gaver (Royal College of Art), Hiroshi Ishii (MIT), Bill Buxton (Chief Scientist, Alias). The goal of the conferences was to build a physical computing community and industry in New York.
- 1997 Interval Research
 Palo Alto, CA
Presentation of personal work to Interval Research staff as part of installation of my *Breath* installation (developed with Romy Achituv) at Interval.

AWARDS

- 2015 Co-recipient of the Tisch School of the Arts David Payne-Carter Award for Excellence in Teaching. This is the fifth time since 2002 that the students of ITP have nominated me for this award.
- 2015 Arduino was collected for the permanent collection at the Museum of Modern Art, New York, NY.

2012 Recipient of a Silver Folio: Eddie award for editorial excellence, best single article in the Business-to-Business >> Technology/Computing/Telecom category for an article co-authored with Catarina Mota, A Strategist's Guide to Digital Fabrication in *Strategy + Business Magazine*.

GRANT AWARDS

2017 University Curricular Development Challenge Fund Grant with Professor Marina Zurkow and Adjunct Associate Professor Stefani Bardin s for the class "Biodesigning the Future of Food".

2013 National Science Foundation grant for Collaborative Research project *Ethoinformatics: Developing Data Services and a Standard "Etho-Grammar" for Behavioral Research*. Project was executed in collaboration with the University of Texas at Austin and Washington University St. Louis.

2009-2010 University Research Challenge Fund, New York University (co-PI with Professor Tom Igoe). "Wired" monkeys: Developing physical computing products for wildlife biology. \$17,466. 2009-2010 Curricular Development Challenge Fund, New York University (co-PI with Professor Tom Igoe). Wildlife observation and sensing: Interactive telecommunications in the natural world. \$6,655.

2013 NYU Entrepreneurial Institute Lean Launchpad Educators Program. Along with Adjunct Associate Professor Jennifer Van Der Meer, I was awarded travel and conference funds to attend the National Collegiate Inventors & Innovators Association (NCIIA) workshop on Lean Launchpad, at Stanford University.

2012 University Curricular Development Challenge Fund Grant with Adjunct Associate Professor Dustyn Roberts for the class "Biomechanics for Interactive Design".

2009 University Research Challenge Fund Grant with Associate Professor Anthony Di Fiore for "Wired" Monkeys: Developing Physical Computing Products for Wildlife Biology. The project explored new methods for tracking new world primates in the Amazon as part of Prof. Di Fiore's ongoing research.

2009 University Curricular Development Challenge Fund grant with Associate Professor Anthony Di Fiore for the class "Wildlife Observation and Sensing: Interactive Telecommunications in the Natural World"

2009 Tisch School of the Arts Dean's Discretionary Fund grant for travel to present two workshops at the O'Reilly Emerging Technology conference in San Jose in March 2009.

2008 Sustainability Fund Grant with Adjunct Associate Professor Jeff Feddersen for Integrated Renewable Energy Generation, Storage, and Monitoring Pilot Project.

COLLABORATORS AND OTHER AFFILIATIONS

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