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<th>Time</th>
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<td>08:30</td>
<td>Registration and Breakfast (8:30AM - 9AM)</td>
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<tr>
<td>09:00</td>
<td>Welcome (9AM - 9:30AM)</td>
<td>1-Minute Madness (9AM - 9:30AM)</td>
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<td>10:00</td>
<td>Opening Keynote (9:30AM - 10:30AM)</td>
<td>Paper Session 3 (9:30AM - 12PM)</td>
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<td>12:00</td>
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<td>Studio Session (12PM - 6PM)</td>
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<td>Demo &amp; Poster Session (4PM - 7PM)</td>
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<td>Break (4PM - 7PM)</td>
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<td>17:00</td>
<td>Welcome Reception (7PM - 8PM)</td>
<td>Gala Dinner (7PM - 9PM)</td>
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Title: Intelligent Physical Modelling Systems – Why?

“What did you think you were doing?” was the question posed by the conference organizers to me as the inventor and constructor of the first working Tangible Interfaces over 40 years ago. I think the question was intended to encourage me to talk about the underlying ideas and intentionality rather than describe an endless sequence of electronic bricks and that is what I shall do in this presentation.

In the sixties the prevalent idea for a graphics interface was an analogue with sketching which was to somehow be understood by the computer as three-dimensional form. I rebelled against this notion for reasons which I will explain in the presentation and instead came up with tangible physical three-dimensional intelligent objects.

I called these first prototypes “Intelligent Physical Modelling Systems” which is a really dumb name for an obvious concept. I am eternally grateful to Hiroshi Ishii for coining the term “Tangible User Interfaces” – the same idea but with a much smarter name.

Another motivator was user involvement in the design process, and that led to the Generator (1979) project with Cedric Price for the world’s first intelligent building capable of organizing itself in response to the appetites of the users. The working model of that project is in MoMA. And the same motivation led to a self builders design kit (1980) for Walter Segal which facilitated self-builders to design their own houses.

And indeed as the organizer’s question implied, the motivation and intentionality of these projects developed over the years in step with advancing technology. The speaker will attempt to articulate these changes with medical, psychological and educational examples. Much of this later work indeed stemming from the Media Lab where we are talking.

Related topics such as “tangible thinking” and “intelligent teacups” will be introduced and the presentation will end with some speculations for the future.

The presentation will be given against a background of images of early prototypes many of which have never been previously published.

Bio:

Professor John Hamilton Frazer holds the Chair of Design Science at Queensland University of Technology where he is in both the Faculty of Science and the Faculty of Engineering and where previously he was the Head of the School of Design. He pioneered the development of intelligent and interactive building design systems and evolutionary design computation and founded and directed the award winning Autographics software development company. He trained as an architect at the independent Architectural Association in London and started his career as a lecturer at Cambridge University and the Architectural Association. He was Head of School and Professor at the University of Ulster before moving to the Hong Kong Polytechnic University where he was Swire Chair Professor and Head of School of Design. He was then appointed as International Research Coordinator for the Gehry Technologies Digital Practice Ecosystem. He holds honorary Professorships from the Universities of Dalian, Fudan and Shandong in China as well as being a Visiting Professor at the Universities of Salford and Brighton. He is an elected Fellow of the Royal Society of Arts and a Fellow of the Chartered Society of Designers. His first book, An Evolutionary Architecture, 1995, is regarded as the seminal work in the field.
MONDAY 01/25

11:30 AM - 1:00 PM

PAPER SESSION 1: Bridging the Physical and Digital Worlds
Session Chair: Orit Shaer (Wellesley College)

Spatial Sketch: Bridging Between Movement & Fabrication
Karl D.D. Willis (Japan Science Technology Agency, ERATO), Juncong Lin (Japan Science Technology Agency, ERATO), Jun Mitani (The University of Tokyo Japan Science Technology Agency, ERATO), Takeo Igarashi (The University of Tokyo Japan Science Technology Agency, ERATO)

Touch & Talk: Contextualizing Remote Touch for Affective Interaction
Rongrong Wang (Center for Human Computer Interaction), Francis Quek (Center for Human Computer Interaction)

Feeling the Beat Where It Counts: Fostering Multi-Limb Rhythm Skills With the Haptic Drum Kit
Simon Holland (The Open University), Anders Bouwer (The Open University), Mat Dalgleish (The Open University), Topi Hurtig (The Open University)

The Peppermill: An Interaction-Powered User Interface Device
Nicolas Villar (Microsoft Research Cambridge)

SOPHYA: A System for Digital Management of Ordered Physical Document Collections
Matthew Jervis (University of Waikato), Masood Masoodian (University of Waikato)

2:00 PM - 4:00 PM

PAPER SESSION 2: Toolkits and Enabling Technologies
Session Chair: Jon Kolko (Frog Design)

Revealing the Invisible: Visualizing the Location and Event Flow of Distributed Physical Devices
Nicolai Marquardt (University of Calgary), Tom Gross (Bauhaus-University Weimar), Sheelagh Carpendale (University of Calgary), Saul Greenberg (University of Calgary)

DisplayObjects: Prototyping Functional Physical Interfaces on 3D Styrofoam, Paper or Cardboard Models
Eric Akaoka (Human Media Lab), Tim Ginn (Human Media Lab), Roel Vertegal (Human Media Lab)

Coming to Grips with the Objects We Grasp: Detecting Interactions with Efficient Wrist-Worn Sensors
Eugen Berlin (TU Darmstadt), Jun Liu (TU Darmstadt), Kristof Van Laerhoven (TU Darmstadt)

ChainX – A Configurable Multimodal Lining to Enable Sensate Surfaces and Interactive Objects
Behram Mistree (Responsive Environments Group MIT Media Laboratory), Joseph Paradiso (Responsive Environments Group MIT Media Laboratory)

Scanning FTIR: Unobtrusive Optoelectronic Multi-Touch Sensing through Waveguide Transmissivity Imaging
Jonathan Moeller (Texas A&M University), Andruid Kerne (Texas A&M University)

Towards Tabletop Interaction with Everyday Artifacts via Pressure Imaging
Clemens Holzmann (Institute for Pervasive Computing, JKU Linz), Andreas Hader (Institute for Pervasive Computing, JKU Linz)
MONDAY 01/25

D A Y  O N E  (Continued)

4:00 PM - 7:00 PM

DEMO SESSION
Session Chair: Leah Buechley (MIT Media Lab)

Relief: A Scalable Actuated Shape Display
Daniel Leithinger (MIT), Hiroshi Ishii (MIT)

Making Digital Leaf Collages with Blow Painting!
Yang-Ting Shen (Georgia Institute of Technology), Ellen Yi-Luen Do (Georgia Institute of Technology)

Constructing With Movement: Kinematics
Leonhard Oschütz (Bauhaus-University Weimar), Daniel Wessolek (Bauhaus-University Weimar), Wolfgang Sattler (Bauhaus-University Weimar)

Hands and Fingers: A Mobile Platform For a Person-Centric Network of Computational Objects
John Kestner (MIT), Henry Holtzman (MIT)

g-stalt: A Chirocentric, Spatiotemporal, and Telekinetic Gestural Interface
Jamie Zigelbaum (Tangible Media Group, MIT Media Lab and Oblong Industries), Alan Browning (Tangible Media Group, MIT Media Lab), Daniel Leithinger (Tangible Media Group, MIT Media Lab), Olivier Bau (InSitu, INRIA Saclay & LRI), Hiroshi Ishii (Tangible Media Group, MIT Media Lab)

An LED-based Multitouch Sensor for LCD screens
Florian Echtler (Technische Universität München), Thomas Pototschnig (Technische Universität München)

Myglobe: A Navigation Service Based on Cognitive Maps
Takuo Imbe (Keio University Graduate School of Media Design), Fumitaka Ozaki (Keio University Graduate School of Media Design), Shin Kiyasu (Keio University Graduate School of Media Design), Yusuke Mizukami (Keio University Graduate School of Media Design), Shuichi Ishibashi (Keio University Graduate School of Media Design), Maki Sugimoto (Keio University Graduate School of Media Design), Masahiko Inami (Keio University Graduate School of Media Design), Naohito Okude (Keio University Graduate School of Media Design), Masahiko Inakage (Keio University Graduate School of Media Design), Adrian D.Cheok (Keio University Graduate School of Media Design)

Liquids, Smoke, and Soap Bubbles – Reflections on Materials for Ephemeral User Interfaces
Axel Sylvester (University of Hamburg), Tanja Doering (University of Duisburg-Essen)

TextDraw: A Prototype for Gestural Typesetting
Travis Kirton (Banff New Media Institute), Pamela Jennings (Banff New Media Institute), Hideaki Ogawa (University of Art and Design Linz)

Think Globally, Build Locally: A Technological Platform for Low – Cost, Open-Source, Locally-Assembled Programmable Bricks for Education
Paulo Blikstein (Stanford University), Arnan Sipitakiat (Chiang-Mai University)

ToonTastic: A Global Storytelling Network for Kids, by Kids
Andrew Russell (Stanford University)

Tangible Jukebox: Back to Palpable Music
Daniel Gallardo (Universitat Pompeu Fabra)

Physics on Display: Tangible Graphics on Hexagonal Bezel-less Screens
Michael Rooke (Human Media Lab), Roel Vertegaal (Human Media Lab)

TessalTable: Tile-based Creation of Patterns and Images
Abel Allison (Stanford University), Sean Follmer (MIT Media Lab), Hayes Raffle (Nokia Research)
Traditional Games Meet ICT: A Case Study on Go Game Augmentation
Takahiro Iwata (Waseda University), Tetsuo Yamabe (Waseda University), Tatsuo Nakajima
(Waseda University)

End-User Design and Fabrication of Interactive Paper Devices
Greg Saul (Carnegie Mellon University), Cheng Xu (Carnegie Mellon University), Mark Gross (Carnegie
Mellon University)

FlexiKnobs: Bridging the Gap Between Mouse Interaction and Hardware Controllers
Kristian Gohlke (University of Applied Sciences Bremen), Michael Hlatky (University of Applied
Sciences Bremen), Sebastian Heise (University of Applied Sciences Bremen), Jörn Loviscach
(Fachhochschule Bielefeld - University of Applied Sciences)

FlyEye: Grasp-Sensitive Surfaces Using Optical Fiber
Raphael Wimmer (University of Munich)

vaileo: Alienation Gesture-Enhanced Tactile Pain Logging
Matthias Löwe (University of Applied Sciences Potsdam), Omer Yosha (University of Applied Sciences
Potsdam), Alexander Krause (University of Applied Sciences Zwickau), Reto Wettach (University of
Applied Sciences Potsdam), Nils Krüger (University of Applied Sciences Potsdam)

Shape-Changing Mobiles: Tapering in One-Dimensional Deformational Displays
Fabian Hemmert (Deutsche Telekom Laboratories), Susann Hamann (Deutsche Telekom Laboratories)
Matthias Löwe (Deutsche Telekom Laboratories), Anne Wohlauf (Deutsche Telekom Laboratories)
Gesche Joost (Deutsche Telekom Laboratories)

A 6DoF Fiducial Tracking Method Based on Topological Region Adjacency and Angle
Information for Tangible Interaction
Hiroki Nishino (NGS - NUS Graduate School for Integrative Sciences & Engineering)

Using Gestures on Mobile Phones to Create SMS Comics
Vidya Setlur (Nokia Research Center), Agathe Battestini (Nokia Research Center), Timothy Sohn (Nokia
Research Center), Hiroshi Horii (Nokia Research Center)

The Peppermill: An Interaction-Powered User Interface Device
Nicolas Villar (Microsoft Research Cambridge)

Knitted Stretch Sensors for Sound Output
Martha Glazzard (Nottingham Trent University) Sarah Kettley (Nottingham Trent University), Philip
Breeden (Nottingham Trent University), Amanda Briggs-Goode (Nottingham Trent University)

Project 6453: a Multi-touch Interactive Table in a Concept Showroom
Ting-Han Chen (XXtraLab DESIGN Co.), Chi-Huang Lu (XXtraLab DESIGN Co.)

Bio Circuit
Holly Schmidt (Emily Carr University of Art and Design), Dana Ramler (Emily Carr University of Art
and Design)

ChameleonBall
Koji Tsukada (Ochanomizu University), Maho Oki (Ochanomizu University)

Creating with Cobots
Christian Cerrito (New York University)

Tangible LightsCapes
Alice Pintus (Copenhagen Institute of Interaction Design)

VR/Urban: SMSlingshot
Patrick Tobias Fischer (University of Strathclyde Glasgow), Christian Zöllner (University of the Arts
Berlin – UdK), Thilo Hoffmann (e-tecture GmbH)
Twinkle: Programming with Color  
Jay Silver (MIT)

Jamming Gear  
So Kanno (Institute of Advanced Media Art and Science)

inoribi – Possibilities of Media Design Implementing the Emergence of the Window and Mirror Interfaces  
Tatsuma Segawa (Keio University), Hiroki Ito (Keio University), Masaya Doi (Keio University), Machi Miyahara (Keio University), Hiroya Tanaka (Keio University)

POSTERS

4:00 PM - 7:00 PM

Karma Chameleon: Bragg Fiber Jacquard-Woven Photonic Textiles  
Joanna Berzowska (Concordia University), Maksim Skorobogaty (École Polytechnique de Montréal)

Interaction Design with Building Façades  
Orkan Telhan (MIT Mobile Experience Lab), Federico Casalegno (MIT Mobile Experience Lab)  
William J. Mitchell (MIT Design Laboratory), Juhong Park (MIT Mobile Experience Lab), Sotirios Kotsopoulos (MIT Mobile Experience Lab), Carl Yu (MIT Mobile Experience Lab)

StitchRV: Multi-Camera Fiducial Tracking  
Sijie Wang (School of Interactive Arts and Technology, Simon Fraser University), Allen Bevans (School of Interactive Arts and Technology, Simon Fraser University), Alissa Antle (School of Interactive Arts and Technology, Simon Fraser University)

WearAir: Expressive T-Shirts for Air Quality Sensing  
Suyoung Kim (Carnegie Mellon University), Eric Paulos (Carnegie Mellon University), Mark Gross (Carnegie Mellon University)

Music-Touch Shoes: Vibrotactile Interface for Hearing Impaired Dancer  
Lining Yao (Zhejiang University - ZJU), Yan Shi (Zhejiang University - ZJU), Hengfeng Chi (Zhejiang University - ZJU), Xiaoyu Ji (Zhejiang University - ZJU), Pengcheng Zhu (Zhejiang University - ZJU), Milan Ye (Zhejiang University - ZJU), Fangtian Ying (Zhejiang University - ZJU)

Silent Mutations: Digital Performances in Physical Spaces  
Claudia Rebola Winegarden (Georgia Tech), Nicholas Komor (Georgia Tech), Scott Gilliland (Georgia Tech)

Anxiety of Patients in the Waiting Room of the Emergency Department  
JungKyoon Yoon (Delft University of Technology)
TUESDAY 01/26  DAY TWO

9:30 AM - 12:00 PM  PAPER SESSION 3: Physical Interaction, Perspectives, and Design Techniques
Session Chair: Ron Wakkary (Simon Fraser University)

**Tangible Lightscapes**
Alice Pintus (Copenhagen Institute of Interaction Design)

**SKIN: Designing Aesthetic Interactive Surfaces**
Heekyoung Jung (Indiana University), Youngsuk Altieri (Indiana University), Jeffrey Bardzell (Indiana University)

**VR/Urban: SMSlingshot**
Patrick Tobias Fischer (University of Strathclyde Glasgow), Christian Zöllner (University of the Arts Berlin – UdK), Thilo Hoffmann (e-tecture GmbH)

**Twinkle: Programming with Color**
Jay Silver (MIT)

**Cartouche: Conventions for Tangibles Bridging Diverse Interactive Systems**
Brygg Ullmer (Louisiana State University), Zachary Dever (Louisiana State University), Rajesh Sankaran (Louisiana State University), Cornelius Toole (Louisiana State University), Chase Freeman (Louisiana State University), Brooke Cassady (Louisiana State University), Cole Wiley (Louisiana State University), Mohamed Diabi (Louisiana State University), Alvin Wallace (Louisiana State University)

**Creative Idea Exploration within the Structure of a Guiding Framework: The Card Brainstorming Game**
Eva Hornecker (University of Strathclyde)

**Whack Gestures: Inexact and Inattentive Interaction with Mobile Devices**
Scott Hudson (Carnegie Mellon University), Chris Harrison (Carnegie Mellon University), Beverly Harrison (Intel Research), Anthony LaMarca (Intel Research)

STUDIO SESSION
Session Chairs: Jay Silver (MIT Media Lab), Amon Millner (MIT Media Lab)

12:00 PM - 6:00 PM  LONG STUDIOS

Experience Definition through Storyboarding (Reading room/cafe, E14-514, E14-526)
Ambient Sites: Making Tangible the Subtle, Ephemeral and Seemingly Silent (E14-433, balcony)
Measuring Biological Signals: Concepts and Practice (E14-384)
Fritzing: advancing electronic prototyping for non-engineers (E14-4th floor conference room)
Making Textile Sensors from Scratch (High Low Tech lab space - E14 5th floor)
Personalizing your Pixels (E14-548)
BodyHack Workshop (E14-525)
Empowering Programmability For Tangibles (E14-393)
TEI 2010 Development Strategies for Tangible Interaction on Horizontal Surfaces (E14-445)
Make Cool Things With Microcontrollers! (Wiesner Room, E15-209)
Wiiimote Hackery (Roth Room 2nd floor E15)
Wireless Wearables (E14-240)
Introduction to CNC Routing for Prototyping and Manufacturing (E15-135)

12:00 PM - 4:00 PM  SHORT STUDIOS

Link Me Up – Hypertext Journalism for TEI10 (TBA)
How To Draw Yourself With Text (E14-370)
Slow Computing Gifts (E14-274)
Exertion Instrument Workshop (E15-350)
Integrating Old Chinese Shadow Play-Piyang into Tangible Interaction (TBA)
WEDNESDAY 01/27  DAY THREE

9:30 AM - 11:00 AM  PAPER SESSION 4: Materials, Garments, and Light
Session Chair: Thomas Pederson (IT University of Copenhagen)

Light Bodies
Susanne Seitinger (Smart Cities, MIT Media Lab), Daniel M. Taub (Camera Culture, MIT Media Lab), Alex S. Taylor (Microsoft Research)

Electronic Popables: Exploring Paper-Based Computing through an Interactive Pop-Up Book
Jie Qi (MIT Media Lab), Leah Buechley (MIT Media Lab)

Captain Electric and Battery Boy: Prototypes for Wearable Power-Generating Artifacts
Joanna Berzowska (Concordia University), Vincent Leclerc (ESKI), Marc Beaulieu (Concordia University), Catou Cournoyer (Concordia University), Catherine Marchand (Concordia University), Gaia Orain (Concordia University), Emily Paris (Concordia University), Miliana Sesartic (Concordia University), Lois Frankel (Carleton University)

Texturing the “Material Turn” in Interaction Design
Erica Robles (New York University, Umeå University), Mikael Wiberg (Umeå University)

inoribi – Possibilities of Media Design Implementing the Emergence of the Window and Mirror Interfaces
Tatsuma Segawa (Keio University), Hiroki Ito (Keio University), Masaya Doi (Keio University), Machi Miyahara (Keio University), Hiroya Tanaka (Keio University)

11:30 AM - 1:30 PM  PAPER SESSION 5: Learning through Physical Interaction
Session Chair: Thecla Shiphorst (Simon Fraser University)

Action and Representation In Tangible Systems: Implications for Design of Learning Interactions
Sara Price (Institute of Education – University of London), Jennifer Sheridan (Institute of Education – University of London), Taciana Pontual Falcão (Institute of Education – University of London)

Tangibles in the Balance: a Discovery Learning Task with Physical or Graphical Materials
Paul Marshall (The Open University), Peter Cheng (University of Sussex), Rose Luckin (London Knowledge Lab Institute of Education)

Cultural Sensible Digital Place-Making: Mediated XicanIndio Resolana
Cristobal Martinez (Arizona State University), Randy Kemp (Arizona State University), David Birchfield (Arizona State University), Ellen Campana (Arizona State University), Todd Ingalls (Arizona State University)

Interactions Around a Contextually Embedded System
Eva Hornecker (University of Strathclyde)

An Empirical Evaluation of Touch and Tangible Interfaces for Tabletop Displays

A General Education Course in Tangible Interaction Design
Fred Martin (University of Massachusetts Lowell), Karen Roehr (University of Massachusetts Lowell)
Panel Session: Art in Sciences: Challenging Explorations

Session Chairs: Jean-Baptiste Labrune (MIT Media Lab), Ryan O’Toole (MIT Media Lab)

This panel will be focused on the opportunities and challenges of combining artistic and scientific practices, especially in the context of universities and research laboratories. In particular, we will present and discuss some successful collaborations that led to projects making sense in both contexts but also less successful ones, and understand why sometimes these two disciplines have difficulties to set a common agenda. Our guests will present and discuss some of their projects and engage in a discussion about the necessary conditions for successful shared practices in art and sciences.

Panelists will include Tavares Strachan, John Frazer, Vik Muniz and Natalie Kuldell. Moderated by Ryan O’Toole and Jean-Baptiste Labrune.

Closing Keynote: Vik Muniz

Abstract:
Brazilian-born artist Vik Muniz creates images using unconventional materials such as chocolate syrup, sugar, and dust to create portraits, landscapes and still lifes, which he then photographs. A master illusionist, Muniz investigates the mechanisms of perception and the visual quality of materials to reveal how the eye can be tricked and deceived. His images simply but powerfully remind a viewer of what it means to see, and how our preconceptions can color every experience.

At his TEl 2010 keynote, Muniz will present a selection of his work since the beginning of his career.

Bio:
Muniz has exhibited his playfully provocative photographs in galleries all over the world. A comprehensive retrospective of his work is currently being shown at the Museum Oscar Niemeyer in Curitiba, PA, after traveling through venues such as the Miami Art Museum, Seattle Art Museum, P.S.1 MoMA, Museum of Art São Paulo, MASP, the Museum of Contemporary Art in San Diego and the Museum of Contemporary Art in Montreal.

Muniz’s work has been included in the collections of major international museums such as the Art Institute of Chicago, Los Angeles Museum of Contemporary Art, The J. Paul Getty Museum, the Metropolitan Museum of Art, the Museum of Modern Art (New York), Museu de Arte Moderna de São Paulo, and Victoria and Albert Museum in London, among others.

Vik Muniz has also been a guest speaker in major universities, museums and conferences such as Harvard, Yale and New York University; TED Conference; the International Center of Photography; the Museum of Modern Art, New York; the Museum of Modern Art of São Paulo; and most recently at the Museum of Fine Arts in Boston.