The concept for this conference started with a chance meeting and an interesting conversation on the street. Could everyday phenomena, such as the multiplicity of sensors, simple scripts, and security cameras in our daily lives have a deeper underlying pattern or meaning? In attending a number of recent conferences it occurred to me that the sensor data for intelligent buildings and the sensor data involved with some forms of artistic expression such as choreography had something in common, that is they both allow an extension of our bodily awareness and control in relation to our environment. At the same time, groups of buildings and groups of dancers form or weave complex interactions that when combined are reminiscent of an urban condition. As our cities are repositories of combined knowledge, or ‘knowledge combines’, this in turn implies that a form of underlying universal knowledge can be derived from the everyday patterns that surround us.

The proliferation and precision of this actual data also allows one to consider the expansion of universal knowledge. What is important here? On one hand, the artistic impulse gives us greater insights into our culture and identity, and as Robert Bean mentions, many artists continue to invent the potentiality of technology in our own time. On the other hand, the nature of things is such that pressing ecological issues are threatening to turn our weather systems into a maelstrom and we
are just now developing ways to understand and react to global phenomena. The city is central to both concerns. Traditionally home to cultural discourse and exhibition of the arts, the city is also, as Kevin Hydes suggests, the most nimble political entity, where a mayor can, with some authority, affect positive environmental change in a short span of time. Therefore, the theme of Expanding Bodies is worthy of consideration in the three realms of the arts, the city, and the environment. Researchers were invited to consider the following key questions:

- How are perceptions affected by remote sensing?
- How will cities develop in relation to responsive, intelligent buildings?
- What happens when interactive systems are introduced into the environment?

By considering this theme in light of the intellectual territory of the ACADIA conference, one finds many overlaps and perhaps a few incongruities. With the introduction of new ideas into the ACADIA conversation, and the material means of exploring them through workshops, this conference is focused on some of the key issues in our world today.

The conference represents the combined efforts of four institutions: The Association for Computer-Aided Design in Architecture (ACADIA) together with the Canada Design Research Network (CDRN), the Dalhousie University School of Architecture, and NSCAD University. Each institution has played a significant role and provided great support in the organization of this conference. With the introduction of new ideas into the acadia conversation, and the material means of exploring them through workshops, this conference has focused on some of the key issues in our world today.

The ACADIA 2007 Competition started in December 2006 and was closely linked to the Conference this year, in that the site for the ‘co-competition’ looked to the Conference site, the NSCAD Port Campus, and the program for a New Media School was based on discussions with NSCAD faculty, especially David Clark. The competition broke new ground as an online community that, to some extent, controlled their own fate; the winner was decided by the community of competitors. Congratulations to the winners, Miso Soup Design, and the runner-ups StudioSphere, Vokil Design and vuralarchitects. A special competition forum session was held to review the (sometimes bumpy) process, and an awards ceremony took place at the Saturday evening banquet. The competition was organized by Peter Anders, with help from Maia Engeli, Victor Chen, John Cirka, and myself.

The four workshops immediately preceding the conference have been strongly supported by the Canadian Design Research Network. The workshops continue lines of research enquiry developed over the last two years in different locations across Canada. The idea of a pan-national design research community has great merit in such a wide and culturally diverse landscape such as ours.

“Metabolic Networks” brings together researchers working in the area of electronic sensing in art and design, with a special focus on textiles and architectural-scale applications. The Network is a large installation made from a field of suspended fibers with different properties and opportunities for interaction. Workshop leaders were Philip Beesley, Carole Collet, Mette Ramsgard Thomsen, Rachel Wingfield and Mathias Gmachl; the organizers were Sarah Bonnemaison and Christine Macy.

“Sustainable Cities” focuses on sustainable urban design, and visualization to aid participatory planning. It contributes to design research for a key redevelopment site in downtown Halifax, using urban modeling, collaborative planning and advanced visualization tools. Workshop leaders were John Danahy, Rodney Hoinkes, Jeff Lederer, Andy Fillmore, Frank Palermo and myself; the organizer was Thomas Seebohm.

“Activated Ceramics” encourages hybrid applications for a craft media while emphasizing materiality, innovative form, and the integration of varied utilities. An interdisciplinary and team approach focuses on innovative forms for wall and screen assembly systems. The tantalizing possibility for the next generation of ceramics will be bio- façades that shelter, grow; filter light, water and air; and become esthetically significant aspects of eco-structures. Workshop leaders were Lawrence Bush, Monty Stauffer, Patrick Harrop, and Doug Bamford; the organizer was Neil Forrest.

“Future Wood / Three Frontiers” is a symposium on east-coast wood innovation, followed by a GenerativeComponents parametric software workshop. The symposium engages with innovative practitioners and design workshops, allowing participants to expand the body of ideas concerning the digital fabrication of wood across the three frontiers of machinery, materials, and mathematics. Symposium chair was Emmanuel Janesch, with key contributions from John McNab and Steven Kay (Orb Factory). The GC workshop leader was Rob Woodbury.

Associated with this last workshop is an exhibition entitled “Future Wood” curated by Oliver Neumann in the exhibition space at the Dalhousie Faculty of Architecture and Planning. This exhibition is a result of a conference at the University of British Columbia in January 2007. For wood design and building, digital fabrication tools enable the fabrication of complex designs while promoting the evolution of traditional wood building methods and techniques central to the building culture.
and economy in British Columbia and elsewhere.

Traditionally, a number of Software workshops and vendors are associated with the ACADIA conference and this year we were pleased to have the participation and sponsorship of a number of major vendors, including Autodesk, Bentley, Auto-Des-Sys, Graphisoft, Gehry Technologies, Google and McNeel Associates.

The President of NSCAD University, David B. Smith gave the opening address to the conference. Having studied in the graduate program of public art at MIT and specialized in sculpture and public space, he is well placed to comment on the potential of artistic and architectural collaboration in the present technological realm.

Focusing on recent artistic explorations in the field such as the work of Stelarc, the keynote address from Tim Druckery was accompanied by a reception for the exhibition “In the Flesh,” at the Anna Leonowens Gallery. Curated by Robert Bean, the work shows the critical and creative potential of digital media and technology, fully engaged in realities of obsolescence, experiential knowledge, and ethical requirements.

Roy Ascott, who is the founding president of the Planetary Collegium, gave the keynote address entitled “Architecture and the Culture of Contingency: Accommodating the Generative Self” His talk brings to light a broad range of issues from the syncretic reality of contemporary life to emergent transdisciplinary discourses.

Addressing the timely issue of climate change, Kevin Hydes gave a talk on the emerging World Green Building Council. The viral-like growth of this network has been spurred by societies at the forefront of climate change such as Australia, and agents for rapid change such as the C40 Cities Climate Leadership Group.

Also speaking on the theme of sustainability, Carole Collet is a textile designer and instructor that approaches sustainability from the material because materials are omnipresent; as she says: “we wear them, live in them, sit on them, they are used in design, architecture, they surround us.” While exploring recycled and organic products, and digital production techniques, she also endeavours in her work and teaching to challenge the usual aesthetic of eco-design in textile. Andrew Marsh, from the firm Ecotect, spoke about recent developments in energy simulation and analysis software. The tools promote a sense of play and exploration, to aid in understanding how a building can function best in its environment.

The Paper Sessions form the core of the conference. The Expanding Bodies theme of the conference is closely allied to the session on “Interactive and Sensing Technologies in the Arts” chaired by Philip Beesley. One of the outstanding papers in Beesley’s session: “Mis(sed)information in Public Space” by Omar Kahn, looks at the question of freedom and control in relation to the design of interactive media architecture projects for public spaces.

Another session closely related to the conference theme is “Digital Sustainability,” chaired by André Potvin. One of the outstanding papers in Potvin’s session, “Rapid Craft” by Neri Oxman attempts to establish rapid craft protocols for a light-sensing inflatable skin system. Sensors, and other applied electronics, become ubiquitous in that they become part of the material system at hand, and at the same time, define its behavior. A panel discussion featuring Kevin Hydes and Andrew Marsh followed this session.

“Ubiquitous Computing,” chaired by Wassim Jabi features three good papers: “Smart Housing for the Elderly” and “Efficiency, Aesthetics, and Embodied Experience” both by Anijo Mathew, and “Ubiquitous Training of Visual-Spatial Skills” on the development of mobile learning applications by Antonieta Angulo.

Following this session, a special panel entitled “Sensory Frontiers,” chaired by Mahesh Senegala took place. Short presentations featured the work of the Ocean Tracking Network (OTN), the Phoenix Mars Lander mission, and Farid Taheri. The OTN will use rings of seabed sensors around every continent. Animal tracking data could be used to designate new marine protected areas and since the tags measure temperature, scientists Ron O’Dor and Mike Stokesbury can also monitor the effects of climate change. The Phoenix will examine the climate at the north pole of Mars after it arrives next spring. Tom Duck and Cameron Dickinson, two scientists from Dalhousie University helped create a laser probe to study Martian weather. Farid Taheri has been working on issues of structural health, including structural rehabilitation and vibration-based damage detection of structures using smart sensors and materials at Dalhousie University.

The session “Digital Methods of Fabrication and Construction” chaired by Marc Swackhamer has a large number of good papers, so we have in fact two sessions on this theme. The papers range from material investigation through to new architectural work.

One of the outstanding papers in this session is “The Smithsonian Courtyard Enclosure: A Case-Study of Digital Design Processes and Collaborative Innovation” by Brady Peters. In this case, the close collaboration between architects, consultants, and fabricator was of key importance to the success of the project. This was facilitated by using the computer script as a synthesis of design ideas, which was constantly modified and adapted during the design process. A panel discussion on emerging modes of practice followed the second
Other sessions include “Generative and Parametric Design,” chaired by Branko Kolarevic, featuring some very interesting papers including “Some Patterns for Parametric Modeling” by Robert Woodbury, Axel Kilian, and Robert Aish, which explores the use of patterns as explicit elements of learning. “Information Visualization,” chaired by James Agutter, also has some excellent papers such as “Oakland Blues” by Yehuda Kelay, which is a virtual presentation of 7th Street’s 1950’s Jazz Scene. “Digital Technologies in Research, Education, Practice” chaired by Aron Temkin, has some very good papers including “Experimenting with Digital Design Pedagogy” by Thomas Seebohm, which discusses the problems inherent with teaching digital design technique and identifies some optimal strategies.

Other presentations included a poster session for works-in-progress and graduate student work. A number of tours showed off the highlights of Halifax and its surrounding environment, most notably Peggy’s Cove. The banquet on Thursday evening, sponsored by Auto-Des-Sys, took place in the Maritime Museum, a rich showcase of our Maritime History. The banquet on Saturday evening was held in the Immigration Museum Hall and paid tribute to both the winners of the ACADIA 2007 competition and the winners of this year’s ACADIA awards.

I would like to thank everyone involved for their contributions, and the (mostly!) enjoyable experience of putting together this conference. Special thanks are due to Philip Beesley and Jordan Winters. Finally, a note of optimism to end with. The successful partnership of communities such as ours bodes well, to paraphrase Roy Ascott, for the potential transdisciplinary discourses that lie ahead. I look forward to the many brilliant shared endeavors on our collective horizon.

Brian Lilley
Halifax, September 2007