

Kaustuv De Biswas

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Education

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Cambridge, MA

Candidate for Ph.D. degree in Architecture (Computation), anticipated in 2010

Researching on Distributed and Collaborative Design Environments, Decision making in distributed intelligence / multi agent systems.

Masters of Science in Architectural Studies (Computation), June 2006

Thesis: Developed a computational model of 'Visual Interpretation', which manages to capture the notions of ambiguity in shapes. Implemented a LISP machine, which can interpret simple sketches by using schematic reasoning structures.

JADAVPUR UNIVERSITY

Calcutta, INDIA

Bachelor of Architecture, July 2003

Thesis: Used stochastic search algorithms to generate 'Environmentally High Performance' Architectural Syntax for Calcutta. Designed a residence based on findings and showed that the results were superior to those obtained via other conventional models.

Professional Experience

KNOWLTON SCHOOL OF ARCHITECTURE, OHIO STATE UNIVERSITY

Jan 2009 – current

Visiting Lecturer: Instructor for design computation courses and workshops for architects and designers for the 2009 winter and spring quarters. Also collaborated with other professors for providing computational infrastructures for design studios.

BENTLEY SYSTEMS INCORPORATED,

Jun 2005 – current

Research Associate (Dept. of Applied Research): Part of the development team of Generative Components (GC) – one of the leading parametric CAD modeling tools used in both in academic and professional environments around the world.

Development: Integrated real-time environmental analysis features in a parametric CAD environment, which was the first of its kind. Implemented an automatic documentation facility which allows users to share platform independent web based documents seamlessly. Implemented a drawing extraction facility which allowed users to easily transition from conceptual 3-dimensional models to 2-dimensional construction documents. Worked on the development and testing of GC-Scripting facility which is one of the most powerful features of GC currently.

Consultancy: Advised leading architectural practices including Morphosis, NormanFosters, TVS, dECOi, Portman and Hoberman Associates, integrating parametric modeling in their work flow. Have taught numerous design computation workshops in schools including MIT, Harvard, Architectural Association, Columbia, USC and Georgia Tech.

CENTER FOR ENERGY EFFICIENT BUILT ENVIRONMENT, JADAVPUR UNIVERSITY,

Fall 2003

Research Assistant: Designed and programmed an interactive design analysis software which was successfully implemented to minimize solar gain of a large housing project in Calcutta.

BUILDING RESEARCH AND MANAGEMENT SERVICES PVT. LTD, CALCUTTA,

Spring 2004

Junior Architect: Along with the Principal, designed innovative building details to reduce cost of construction. Details were used to develop 500 EWS (Economically Weaker Sections) dwelling units in Durgapur, West Bengal.

Teaching Experience

“Formed In Translation”: Graduate Elective Course

Department of Architecture, OSU, Spring 2009, Instructor

The course looks at formal structures (music, video and text) and explores computational models for interpreting them into three dimensional spatial ideas. Processing / JAVA was used as the coding environment/language.

“Material Computation”: Graduate Elective Course

Department of Architecture, OSU, Spring 2009, Co-Instructor

The course looks at computational models of materials and radical fabrication logics of composites and heterogeneous materials. The material for the class is inspired by ongoing research work of Alex Tsamis, PhD student (MIT).

“InFORMed Objects”: Programming in three dimensional graphical environments

Department of Architecture, OSU, Winter 2009, Instructor

The workshop aimed at introducing programming constructs and vocabularies to architects and designers. Processing / JAVA was used as the coding environment/language.

“ZERO+ HOUSE”: ARCHITECTURAL DESIGN STUDIO LEVEL 3

Department of Architecture, MIT, Spring 2008, Teaching Assistant

This design studio focused on theorization and implementation of radical building systems (inspired / derived from myths) to design an energy responsive house. My responsibilities were to critique student work, supply them computational infrastructure to help them express their ideas and evaluate them.

“INTRODUCTION TO DESIGN COMPUTATION”

Department of Architecture, MIT, Fall 2007, Teaching Assistant

The aim of the course was to develop a view of computation and design beyond the specifics of techniques and tools, and a critical, self-awareness of the students’ own approaches and metaphors for computation and design. Assisted with curriculum, lectures, and course evaluation

“SPACEFIGHTERS”: ARCHITECTURAL DESIGN WORKSHOP

Department of Architecture, MIT, Fall 2006, Spring 2007, Teaching Assistant

This workshop aimed at designing and implementing an Urban Design Game. My responsibilities were to provide the students guidelines for game design and software infrastructure for developing the game. The output of the workshop was presented at the Third International Architecture Biennale, Rotterdam in July 2007. C#/OpenGL was used as the coding environment/language.

“SPRINGYTHINGY”: ARCHITECTURAL DESIGN WORKSHOP

Department of Architecture, MIT, Fall 2006, Teaching Assistant

The workshop focused on building design interfaces using force-based particle systems, with the goal of allowing intuitive 3D sketching within massively-constrained computational systems to offer technically and formally elegant architectural form-generation. My responsibilities were to provide theoretical and computational framework for student work, provide programming lessons, guide them through the entire process and evaluate them.

“COMPUTER RENDERINGS AND ANIMATION”

Department of Architecture, Jadavpur University, Fall 2003, Guest Lecturer

The aim of the course was to provide a technical exploration through CAD tools (AutoCAD, 3DMax) and look at efficient ways to generate photorealistic computer renderings and animations for architectural spaces and built forms.

Publications

May2008, K DeBiswas, S Kim, "Urban Form Making through Agent Interaction", AAMAS 08
Mar2008, K DeBiswas, S Kim, "Morphing NonCommensurable Perspectives Using MultiAgency", EMCSR 08
Jun2008, K DeBiswas, S Shirazi, "K9 Computation - Essay in Code", Thresholds33, MIT
July-Aug 2004, Bio-Climatic Residences - "Architecture and Design" Vol. XXI No4 Pg 112
Nov2003, Thesis Published in the national magazine "Indian Architect & Builder", Vol17 (03), Pg. 42-47
May2001, Responding to a Primitive Context - "Indian Architect & Builder", Vol14 (09), Pg. 34-36

Presentations

Mar 2009, Presented/Instructed at SmartGeometry Workshop-Conference 2009, San Francisco, USA.
Sep 2008, Exhibition of Work, Venice Biennale 2008
May2008, BE 2008 Applied Research Seminar, Baltimore, USA
Feb 2008, Presented/Instructed at SmartGeometry Workshop-Conference 2008, Munich, Germany.
Jun 2007, BE 2007 Research Seminar, London, UK
Mar2007, Spacefighter Game Installation, Rotterdam Biennale 2007
Jan 2007, Instructor at SmartGeometry Workshop-Conference 2006, New York, NY, USA
Sept 2006, Presenter/Instructor Pratt Institute of Design, New York, NY, USA
Mar 2006, Instructor at the Parametric Modeling Workshop at Columbia University, NY, USA.
Mar 2006, Instructor at the Generative Components Workshop at Harvard University, Cambridge, USA.
Jan 2006, Presented/Instructed at the SmartGeometry Workshop-Conference 2006, Cambridge, UK.
Jan 2006, Instructor at the Scripting Workshop at the Architectural Association, London, UK.
Nov 2005, Instructor at the Parametric Modeling Workshop at MIT, Cambridge, USA.
Aug 2005, Instructor at the Parametric Modeling Workshop at GeorgiaTech, Atlanta, USA.

Fellowships and Awards

Industry Sponsorship (Bentley Systems) for PhD Studies at MIT 2006
W Danforth Compton Memorial Fellowship Award, MIT 2004
Inlaks Foundation Scholarship for Graduate Studies at MIT 2004
Second Prize for 'Tsunami Challenge' (Rehabilitation of the Tsunami Affected Regions in Asia), MIT 2005
First Prize for Architectural Design Competition, BE College, Howrah 2002
Second Prize for Product Design Competition, BE College, Howrah 2002
Honorable Mention for INSDAG National Design Competition, 2001
Second Prize for International Pavilion Design (Netherlands), Kolkata Book Fair 2001
Second Prize for Architectural Design Competition, GND University, Amritsar 2000
First Prize for Engineering Faculty-wide Scientific Model Competition, 2000

Leadership

EMPLOYER RELATIONS DIRECTOR, MIT CAREER FAIR 2008 Managed sales and relationship with over 300 employer accounts. Promoted employer diversity and successfully increased participation from Non-Profit Institutions and NGOs.

STUDENT REPRESENTATIVE, COMPUTATION GROUP, MIT 2008-09 Organized forums where graduate students could share, peer review research ideas and promote collaborative projects. Increased participation by several folds. Organized the first Computation Group Alumni Symposium in Feb 2009.

PRESIDENT, MIT INDIA STUDENT ASSOCIATION (SANGAM) 2004-05 Organized various cultural events in MIT, including 'Diwali Nite 04', which attracted over 500 guests. Instrumental in the creation of 'MIT-India Reading Group' which analyzed India centric issues ranging from 'health care' to 'education system' in the nation.

UNIT SECRETARY, DEPT OF ARCHITECTURE, JADAVPUR UNIVERSITY 2002 Led the school at several national architectural conventions.