Solar Sails: An Installation

2nd Prize winner from 115 entries, US Department of Energy Sun Wall competition, Washington, DC, 2000AD.

Competitors included Studio GANG, Ove Arup, Kiss+Cathcart, James Carpenter and Wellington Reiter

Mahesh Daas, Selected Design Work
The Ensemble:
Four sails
A spinal stair
Few needles of time
A tree of life
A plaza of celebration
A plaza to the sun
Baron BMW Dealership

AIA Kansas City Merit Award, 2001
Evolution of the "ramp display" and other elements
Armadillo

Advanced Fabrics Exhibition at Henry B. Gonzalez Convention Center, San Antonio, 2005

Winner of the International Fabrics Foundation Outstanding Achievement Award
BASE OF THE PYRAMID
MORE THAN 4,000,000,000
PEOPLE LIVE ON
$4 OR LESS A DAY
dialogue TAP-TAP
A NEW way to DISCUSS...

"We are going to engage you in a different form of discussion called TAP-TAP. I am going to have a question and five panes to that question to four volunteers. Someone starts and the discussion continues. The rest of the people will be standing by to add to the discussion. You have the option to comment on the question and if you are good at the discussion, you will have a better discussion than if you just tap or say nothing.

MARK HENDRICKSON: I am going to give you a question and I will ask you to give a question to four volunteers. Someone starts and the discussion continues. The rest of the people will be standing by to add to the discussion. You have the option to comment on the question and if you are good at the discussion, you will have a better discussion than if you just tap or say nothing.

SHAPAR ALABAYCHE: We need to engage you in a different form of discussion called TAP-TAP. I am going to have a question and five panes to that question to four volunteers. Someone starts and the discussion continues. The rest of the people will be standing by to add to the discussion. You have the option to comment on the question and if you are good at the discussion, you will have a better discussion than if you just tap or say nothing.

PAUL SUTHERLAND: We need to engage you in a different form of discussion called TAP-TAP. I am going to have a question and five panes to that question to four volunteers. Someone starts and the discussion continues. The rest of the people will be standing by to add to the discussion. You have the option to comment on the question and if you are good at the discussion, you will have a better discussion than if you just tap or say nothing.

MARTIN smith: What do you mean by leveraging technology? I believe we can do it in two ways: one is to leverage technology to help us in our daily lives, and the other is to leverage technology to help us in our daily lives. I think we need to leverage technology to help us in our daily lives.

THEOSON ERIK SMITH: I believe we can do it in two ways: one is to leverage technology to help us in our daily lives, and the other is to leverage technology to help us in our daily lives. I think we need to leverage technology to help us in our daily lives.

MARK HENDRICKSON: I believe we can do it in two ways: one is to leverage technology to help us in our daily lives, and the other is to leverage technology to help us in our daily lives. I think we need to leverage technology to help us in our daily lives.

ELIZABETH FAYMETH: I believe we can do it in two ways: one is to leverage technology to help us in our daily lives, and the other is to leverage technology to help us in our daily lives. I think we need to leverage technology to help us in our daily lives.
UTenSAils: Design-Develop-Build Studio, Spring 2005

University of Texas at San Antonio, Senior Topics Studio

Students:
Shad Calvetti, Steven Cordero, Michael Czimskey, Curtis Fish, Hector Guevara, Matthew Martinez, David Matiella, Hector Mendez, Sarah Ness, Joshua Pierce, Ryan S quyres, Andrew Wit

Mahesh Daas, Selected Student Works
Refereed Scientific Publications (3)

Articles in Trade Magazines and Other Professional Publications (5)

Awards and Recognition (4)
1. AIA Best Practice BP07.05.04 *UTenSAIlS: A Design-Develop-Build Studio*.
2. President’s Distinguished Achievement Award for Creative Production, UTSA 2007/8.
3. AIA International Achievement Award for Freestanding Canopies 2007, Nominated.
4. AIA International Achievement Award for Architectural Structures 2007, Nominated.

Presentations and Workshops that Featured UTenSAIlS (10)
5. UTenSAIlS project presented at the National School of Architecture and Planning, Jawaharlal Nehru Technological University, Hyderabad, India, July 2006.
6. UTenSAIlS project presented at UDUBIAA forum for architecture, Bangalore, India, August 2006.
7. UTenSAIlS project presented at the College of Architects, Texas A&M University, February 2007.

Company
   1. A. B. Chance
   2. American Earth Anchors
   3. Astrup Company
   4. Bruni The Welder Inc.
   5. The Chemist Company
   6. Comet Sign
   8. Dazion LLC.
   9. Delta Prime Specialties
   10. Fiesta Bolt Co., Inc.
   11. GARCES Metal Speciality, Inc.
   12. Hayn Enterprises LLC.
   13. Hendee Enterprises Inc.
   15. Home Depot
   16. Lawrence Calvetti, PE
   17. Lowe’s
   18. Metlar Design
   19. Rich Thorsten, PE
   20. Robert Harper, AIA, PE
   21. Ronstan International Inc.
   22. Verseidag Seemee U.S.
   23. W. L. Gore and Assoc.
   24. Wayne Reddell, PE

Sponsorship
   1. Helical Earth Anchors
   2. Earth Anchors
   3. Ferrari PVC Coated Fabric
   4. Aluminum Welding
   5. Fabric Fabrication
   6. Aluminum Cutting
   7. General Contractor
   8. Lycra IFR Fabric
   9. Anchor Installation
   10. Stainless Steel Hardware
   11. SS Welding, Stamping, Waterjet Cutting
   12. Back Entry SS Rigging
   13. Aluminum Donation
   14. Red PVC Coated Fabric
   15. Misc. Hardware
   16. Foundation Engineering
   17. Misc. Hardware
   18. Membrane Struct. Software
   19. Helical Anchor Engineering
   20. Engineer of Record
   21. Front Entry SS Rigging
   22. Blue PVC Coated Fabric
   23. Back Entry PTFE Fabric
   24. Fabric Structure Engineer
Project Title: **Lock Ten**  
Students Name: **Natalia Beard**  
Level: Senior  
Course: **Computer projects in design**  
Adviser/Instructor: **Mahesh Senagala**  
Principal Investigator: **Mahesh Senagala**  
Department/School: **School of Architecture**  
University of Texas at San Antonio, San Antonio, Texas

**Summary description of project:**
This is the Second Prize winning entry in the ACSA/AISC (American Institute for Steel Construction) competition. The competition called for an “Experimental Performing Arts Center” on the banks of Tennessee River in Chattanooga. The emphasis of the project was on the innovative use of structural steel. Tennessee River has nine locks that regulate the water levels and make the boat transportation possible. Using the center as a tenth lock on the river, this student incorporated into the design early 20th century steel techniques and construction to allude to the long history of the Chattanooga steel industry.

**Reasons for the nomination:**
This proposal is a unique solution to a multitude of problems: problems of history, urbanism, structure, topography, waterfront, program and circulation. form-Z was used right from day one as a part of the Computer Projects in Design course. The software acted as a design incubator and was integral to the synthesis of the various problems, to evolve the design, to develop the detail and to communicate such a complex project to its audience.

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* Credit reflects the previous name of Mahesh Daas

Also an ACSA-AISC competition 2nd Prize winner, 2002-3
i.i FOREWORD

In spring 2009, An Inconvenient Studio was conducted at Ball State University with an aim to radically innovate through active strategies in environmental design (in distinction to passive design), digital technologies, robotics, interactive architecture, and collaborative design approaches that challenge conventional models of studio education. Known by many names (interactive architecture, responsive architecture, smart environments, intelligent buildings, situated technologies, and robotic architecture), these new technologies hold tremendous promise for the future of architecture.

The studio was given an opportunity to self-organize and operate around a self-defined mission and brand, as well as a set of advanced technology and design topics. Inconveniently, no preconceived design projects were given to the students. No deadlines were provided. Instead, a virtual studio consisting of 13 graduate and undergraduate students and two instructors was turned into an entrepreneurial think tank (An Inconvenient Studio 2009) with an organizational structure that evolved through practical as well as academic needs. The students were asked to come up with projects and project time lines through collective dialogue, exploration and consensus as well as to develop and choose roles for themselves for tasks such as direction, fundraising, archiving and recording work, and public relations. The studio needed to be an agile and adaptive organization to maximize its reliance on the collective intelligence—identifying problems through research and developing proposed solutions through design. As an organization, the studio was allowed to consider failure and conflict as inherent conditions of any system. Instead of handling them top-down, the studio was allowed to go through the natural cycles of learning from failure and conflict-resolution as part of the learning process.
TWIST
Adam, Elizabeth and Kyle

Twist focuses on transition spaces in order to create an awareness of self and of others in space. The lycra fabric swivels with the help from an inner, acrylic frame. The rotating frame stretches the fabric into a grill like opening which allows users to see beyond.

The intention of the project was to speculate on a kinetic window shading system that would replace current mechanical blinds. The shades open as users walk by, allowing light to be softly blocked throughout the day. To prevent heat gain, the component-based system can be expanded to any swatch of window sizes. The group plans to investigate further prototypes with the use of Arduino computing and more sophisticated motor and sensing technologies.
Morpho Luminescence
Adam, Elizabeth and Kyle

Morpho Luminescence utilizes an understanding of fashion photography to find its form and provide optimized lighting, enhancing the experience of styling on clothing. Fashion photographers commonly use a three-point lighting set, composed of a bright key light above eye level, a softer fill light and a back light, to create subtle shadows and a three-dimensional effect.

Similar to a photographer's set, the installation variably tunes lighting levels in order to affect the fitting room experience and adapt its form to accommodate changes in the space. In its idle state the dimly lit surface hangs free, signaling to consumers that it is ready for use. A simple, infrared sensor analyzes human presence and variation in space before initiating a reconfiguration of surface panels. As the sensor reads differences in height, two Arduino microprocessors interpret the data and drive stepper-motors to manipulate the installation surface.
As part of the ninth edition of the BEYOND MEDIA festival in Florence, Italy, the SPOT ON SCHOOLS exhibition explored the didactics in the field of architectural design and of the new media of communication, while focusing on the most recent development of the use of digital technologies for design research in the field of education. Invited to show work at SPOT ON SCHOOLS, I.M.A.D.E installed various exhibit pieces on the mezzanine in the Stazione Leopolda, including Morpholuminescence, Bodhi Tree, and Veneer Luminaires.

Comprised of custom laser-cut “petals”, “stems”, and hinges, Morpholuminescence was pre-assembled for testing prior to shipping in pieces. Petal movements and LED hue variations were driven by Arduino microcontrollers via data from proximity sensors. Assembled completely on-site and illuminated with spot lighting, the Bodhi Tree required laser cutting of over 10,000 components from hardwood veneer. The Luminaires were also constructed on-site from hardwood veneer along with lightweight acrylic armatures and fluorescent lighting.
Other Projects by An Inconvenient Studio, 2009