

Fall 2009  
ENCOURAGING  
INNOVATION

## Letter from the Director

Dear Friends of the Hobby Shop,

Time flies and this newsletter is overdue, but that's because so many exciting things are happening in the Hobby Shop!

Next June, we are hosting the 2010 Furniture Society Conference where many of the finest designers and makers in the world will show their work and demonstrate techniques. I hope this gives you one more reason to come visit us in Cambridge. Visit the Furniture Society Website and click on Hayami's FS10 Preview video (<http://www.furniture-society.org/furn/>).

This September, we made substantial improvements to the shop thanks to a generous alumni donation. We removed the dust collector for the planer and reconfigured the central dust collector to add the planer and a new wide-belt sander. We had to move 10 machines, but it improved the dust collection and opened the shop visually. We also replaced the spindle sander and chop saw. After only one week, we were up and running again.

This is a challenging time for MIT, and I must thank our supporters for their commitment to the Hobby Shop. Despite the economic turmoil, we had almost 100 contributors—50 percent more than last year—and an increase in the total donations. Along with strong membership revenue, your generosity allowed us to go ahead with the shop renovation despite budget cuts.

But moving forward, an even greater percentage of our budget will have to come from shop membership fees and donations. Your continued support is more important than ever to maintain and improve the Hobby Shop for future MIT students.

Please read on for a taste of the other exciting things going on in the Shop!

Sincerely,

*Ken Stone '72*

Director, MIT Hobby Shop

[kenstone@mit.edu](mailto:kenstone@mit.edu)



*Director Ken Stone and his son, Rob with the stool Rob built.*

## inside:

- 2 Guitar Building Class
- 3 The Intellectuals Circle  
Smoot Plaque Unveiling
- 4 Hobby Shop Entrepreneurs

Greg Schroll Wins Popular Mechanics  
Breakthrough Award

Greg Schroll '08 was named one of Popular Mechanics "Top 10 Most Brilliant Innovators of 2009," for his Spherical Robot built in the Hobby Shop. Greg received the Next Generation Award at the Breakthrough Award ceremonies in New York City this October. You can read the article in the November issue or online at <http://www.popularmechanics.com/science/robotics/4332921.html>

# Build Your Own Electric Guitar Class

By John Armstrong, Department of Brain and Cognitive Sciences

That everyone has something to teach is one of the guiding principles of IAP, but on the first day of class it is easy to wonder if what you are teaching is going to work. Fortunately, it – that is to say the Build Your Own Electric Guitar or Bass class – did work. When the dust had settled, the MIT community featured five new guitars and one new bass.

The process for the class was conceptually pretty simple: transform an ash blank into a guitar body, bolt on a pre-made neck, solder the electronics together, and you have an instrument. A system of acrylic router templates allowed for a high degree of precision and made quality work easy even for those with limited woodworking experience. In each class session, there was notable progress in coaxing the guitar out of the wood—a positive reinforcement that helped maintain the enthusiasm of the class.

Because the relationship between an instrument and its player is an intimate one, the act of creation can make for a very special bond. It was therefore very gratifying to see the pride that the students took in their work. In the end, each guitar was a very individual expression wrought in wood (especially that of graduate student, Rob Morris who routed out an extra cavity to accommodate a wireless controller and other enhanced electronics – this is MIT after all). I know that one day very soon, someone will say “Nice guitar” to which everyone in the class can proudly respond, “I know. I made it.”



Adrienne Watral, a graduate student in Mechanical Engineering, tries out the guitar she built during IAP.



John Armstrong helps Derek Brine, a graduate student in Urban Studies and Planning.

Rob Morris's finished guitar.



# The Intellectuals Circle Tours MIT Campus

By Hayami Arakawa, *Hobby Shop Instructor*

After 11 months of work with members of the MIT Hobby Shop, I completed The Intellectuals Circle this last February. Funded by a grant from the MIT Council for the Arts, “The Intellectuals Circle” is a mahogany bench in four sections 14 feet in diameter.

The concept for the public-seating piece came as a reaction to reading “Continental Drift,” an interview with Jean Baudrillard by Deborah Solomon. After reading this interview, I felt compelled to design a furniture piece that promoted intellectual discourse.

The design seeks to encourage direct conversation with seats opposing each other. The opening was held on April 2 in the great atrium at the Brain and Cognitive Sciences Building. The Intellectuals Circle started its tour of the MIT campus soon after, and has been displayed throughout the summer in the Stata Center lobby and the Student Center Strat-

ton Lounge. The Circle will resume its tour soon in the List Visual Arts Center.

For a brief history and list of upcoming show dates of the Intellectuals Circle, please visit [www.intellectualscircle.blogspot.com/](http://www.intellectualscircle.blogspot.com/)



## Smoot Plaque Unveiled

The Smoot Plaque, machined in the Hobby Shop by Ilan Moyer, was unveiled in a ceremony on the Mass. Ave bridge on June 4, 2009. For more information, history, and photos of the Smoot plaque, go to <http://tr.im/Dle1>.



The one-ton concrete post, custom-designed by Ilan Moyer and Ken Stone to secure the plaque, is lowered into place.



Bob Ferrara '67 and Ken Stone '72 unveil the Smoot Plaque during the ceremony.



Chaplain to the Institute, Robert Randolph blesses the Smoot Plaque.

## Student Close-Up: Mike Short

*MIT is famous for its entrepreneurial students, their innovative products, and the businesses they start. The Hobby Shop has helped many, and a recent example is Mike Short.*



When Mike Short started at MIT as an undergraduate, he didn't know how to use anything beyond some woodworking hand tools. He joined the Shop his freshman year, finding it "a great place to learn how to work with your hands and tackle real-life engineering problems."

During his senior year, for fun, Mike built an 8-foot tower, which mixed different colors of LED lights to change colors with the music playing. When the uncle of a friend, experienced in cinema lighting, heard about the tower, he told Mike this would be a great product if it could be adapted to an on-camera ring light. The LEDStorm On-Camera Light business was born.

Mike built a number of revisions of the LEDStorm at the Shop, making extensive use of the water jet, drill press, and manual mill. "The water jet helped immensely in rapid prototyping of flat parts, and has served to speed up both my research and

my personal projects," says Mike.

Starting a business is not simple. "Between a general lack of funding, lack of time, and the pressures of getting degrees at MIT, we had quite a tough time starting out," Mike remembers.

The LEDStorm business is still very small, but it shipped its first orders and is quickly gaining momentum. "Upcoming events, trade shows, and advertising look to be increasing the possible revenue for our company faster than I could have imagined," says Mike.

Through the Hobby Shop, Mike gained invaluable knowledge about building and solving engineering problems. "I've gained confidence in my engineering abilities, knowledge in the planning and execution of projects, and had lots of fun."

To learn more about Mike's business, go to <http://www.ledstorm.com/>

## Lime Design Finds Success With The Barmaid

An idea is transformed into a working prototype with help from the Shop

Ever wanted to re-salt or add more salt to a half-finished margarita? In the spring of 2006, Sloan students Tim McCaffery and Rishi Dean joined the Hobby Shop to solve this nagging problem, with the goal of finding a way to apply a solid to the vertical wall of glassware that cannot change orientation. From a technical standpoint, they sought to control the flow rate of a solid mixture.

With the assistance of Ken Stone, the team built three fully functional prototypes using different dispensing methods. By building many simple prototypes, the team was able to quickly test many possibilities and move the concept forward.

After graduating MIT in 2006, Tim

and Rishi decided to form a design company, Lime Design, to commercialize the device. Over the next three years, the team

worked part time on market research, industrial design, and design for manufacture. During this time, the team grew and added more members. Finally in the summer of 2009, Lime Design launched The Barmaid, a machine that easily and quickly spread a layer of tasty salt around the rim of a glass.

Through the early work at the Hobby Shop, the team learned a tremendous amount about the design and engineering challenges in transforming a concept into a working prototype. To learn more about Lime Design, go to [www.limetreecove.com](http://www.limetreecove.com)



*Rishi Dean '06, Tim McCaffery '06, and Mohan Kumaramangalam '06 are ready to show their product for their final class presentation.*