

# Illinois MakerLab

## 2016 Annual Report



Learn.  
Make.  
Share.



College of Business  
University of Illinois at Urbana-Champaign

# What will you Make?



Aric Rindfleisch  
Executive Director  
Illinois MakerLab



Vishal Sachdev  
Director  
Illinois MakerLab

Thank you for taking the time to browse through this annual report of our Lab's activities. We founded the Illinois MakerLab four years ago with six MakerBot 3D Printers and two Gurus in a small room in the second oldest building on the Illinois campus. Since then, we have considerably expanded the scope of our operations and are now located in the one of the newest buildings on campus and are stocked with nearly 20 Ultimaker 3D printers and manage a staff of 9 Gurus.

During these past four years, 3D Printing technology has also made substantial advances, including the development of exciting new printing technologies, a notable expansion of the types of materials that can be printed, and a tremendous growth in this technology's impact on business and society. For example, during the past year alone, Hewlett Packard, Polaroid, and Mattel have ventured into the 3D Printing business.

Likewise, the past year has also been a period of remarkable growth for the Illinois MakerLab. During 2016, we retired our MakerBot printers (which had a combined usage of over 20,000 hours), welcomed Ultimaker as our official 3D Printer supplier, developed and launched the world's first online 3D Printing specialization via Coursera, and expanded the reach of our printing capabilities by joining 3D Hubs. This annual report contains more details about these initiatives as well as several of our other accomplishments during the past year.

Although we have traveled far, we still have a long way to go in terms of realizing our goal of becoming the world's premier educator in the 3D Printing domain. Our current accomplishments would not be possible without our many supporters, including the College of Business, Ultimaker, Autodesk, Coursera, 3D Hubs, MakeShaper and many others. We are grateful for this support and look forward to working with both our current partners and welcoming new partners who would like to join us in helping teach the world how to turn their Ideas into Objects!

A handwritten signature in black ink that reads "Aric Rindfleisch".

A handwritten signature in black ink that reads "Sachdev".

# Our Story

## SPRING 2013



- ▶ World's 1<sup>st</sup> 3D Printing Lab in a Business School
- ▶ Founded: January 2013
- ▶ Mission: To be the world's premier educator in desktop 3D Printing
- ▶ Location: Business Instructional Facility, 3<sup>rd</sup> Floor (Room 3030)
- ▶ Equipment: 20 3D printers, 8 Apple computers loaded with 3D design software, and 2 3D scanners
- ▶ Impact: Taught thousands of people how to turn ideas into objects

## FALL 2016





# People: Advisory Board

**Our advisory board provides high-level oversight and guidance to our lab's operations.**



**Erwin Cruz**  
Director of Intellectual Property Strategy & Management,  
W.W. Grainger, Inc



**Matt Griffin**  
Director of Community for North America,  
Ultimaker



**John Hornick**  
Partner,  
Finnegan Law Firm



**Zach Kaplan**  
CEO & Founder,  
Inventables



**Lauren Slowik**  
Design Evangelist,  
Shapeways

# People: Gurus

**Our Gurus manage our Lab's daily activities and help students, faculty and staff turn their ideas into objects.**



**William Jones**  
General Studies



**Dash Kosaka**  
Computer Engineering



**Steve Koziel**  
Social Psychology



**Bill Malak**  
Aerospace Engineering



**Joshua Mathew**  
Information Systems &  
Process Management



**Erin McKee**  
Information Systems &  
Process Management



**Jim Scharfenberg**  
Aerospace Engineering



**Kyle Teschendorf**  
Mechanical Engineering



**Scott Zelman**  
Aerospace Engineering

# Equipment

## PRINTERS

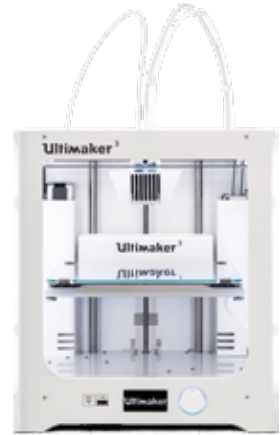


2 Go



Ultimaker 2+

UM 2+ EXT



UM3

Our Ultimaker printers allow individuals to turn ideas into objects.

## SOFTWARE



Cura



Tinkercad



Fusion 360

Our 3D software packages are versatile and easy to use.

## SCANNERS



Sense



Structure

Our 3D scanners allow individuals to turn objects into ideas.

# Our Offerings



## Courses

**Making Things:** project based undergraduate course focused on 3D printing

**Digital Making:** undergraduate course in which students acquire digital making skills

## Workshops & Camps

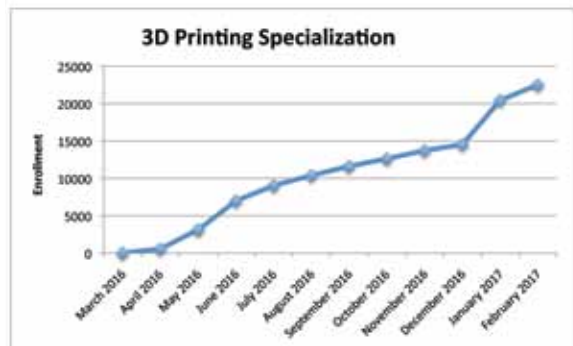
- Basic 3D Printing
- 3D Design – Tinkercad
- 3D Design – Fusion 360
- 3D Scanning



**NEW** Minecraft + 3D Printing  
Workshops are open to anyone in our campus and community

## Coursera

### 3D Printing Specialization

A 5 course specialization offered on Coursera that teaches students how to turn ideas into objects  
<https://www.coursera.org/specializations/3d-printing>



In partnership with:  



# What will you Make?



## Ideas to Objects

A look at some of the things we have made during 2016

- State Farm Center
- Max (our 3D printed man made from over 85 pieces)
- Lots of head scans and prints
- Replicas of ancient artifacts & modern movie memorabilia
- Prototypes of new products





# MakerGirls

The MakerLab is proud to be in partnership with the MakerGirls who are doing great work by providing STEM education to young girls (ages 7-10) through 3D Printing, creative activities, and fun lessons. The MakerGirls' mission is to have equal number of women and men involved in STEM K-12 education programs and pursuing STEM degrees by 2025. They want to inspire and educate girls to show them that they are capable of being strong individuals.



This past summer they designed four new 3D Printing sessions as well as a day camp for their young participants. These sessions focus on teaching girls more about STEM but also the changing world of 3D Printing. The MakerGirls also went mobile this summer by driving a trailer full of 3D Printers across the country. This road trip introduced hundreds of girls across the US to the magical possibilities of 3D Printing!



# Student Profile: Arielle Rausin



Arielle Rausin was a student in our Digital Making class. This class entailed a semester long project in which Arielle decided to create the first 3D Printed wheelchair racing glove. These gloves usually take weeks to make since they are custom fit for each racer and are very expensive at about \$350 per set. By 3D printing the gloves, they became not only cheaper (costing about \$4) but also lighter in weight, which helped Arielle climb hills more easily and push at higher speeds. This project has become so successful that Arielle recently launched her own company (Ingenium Manufacturing), which is designing 3D Printed racing gloves for wheelchair athletes around the world.

**To visit Ingenium Manufacturing's site please see:**

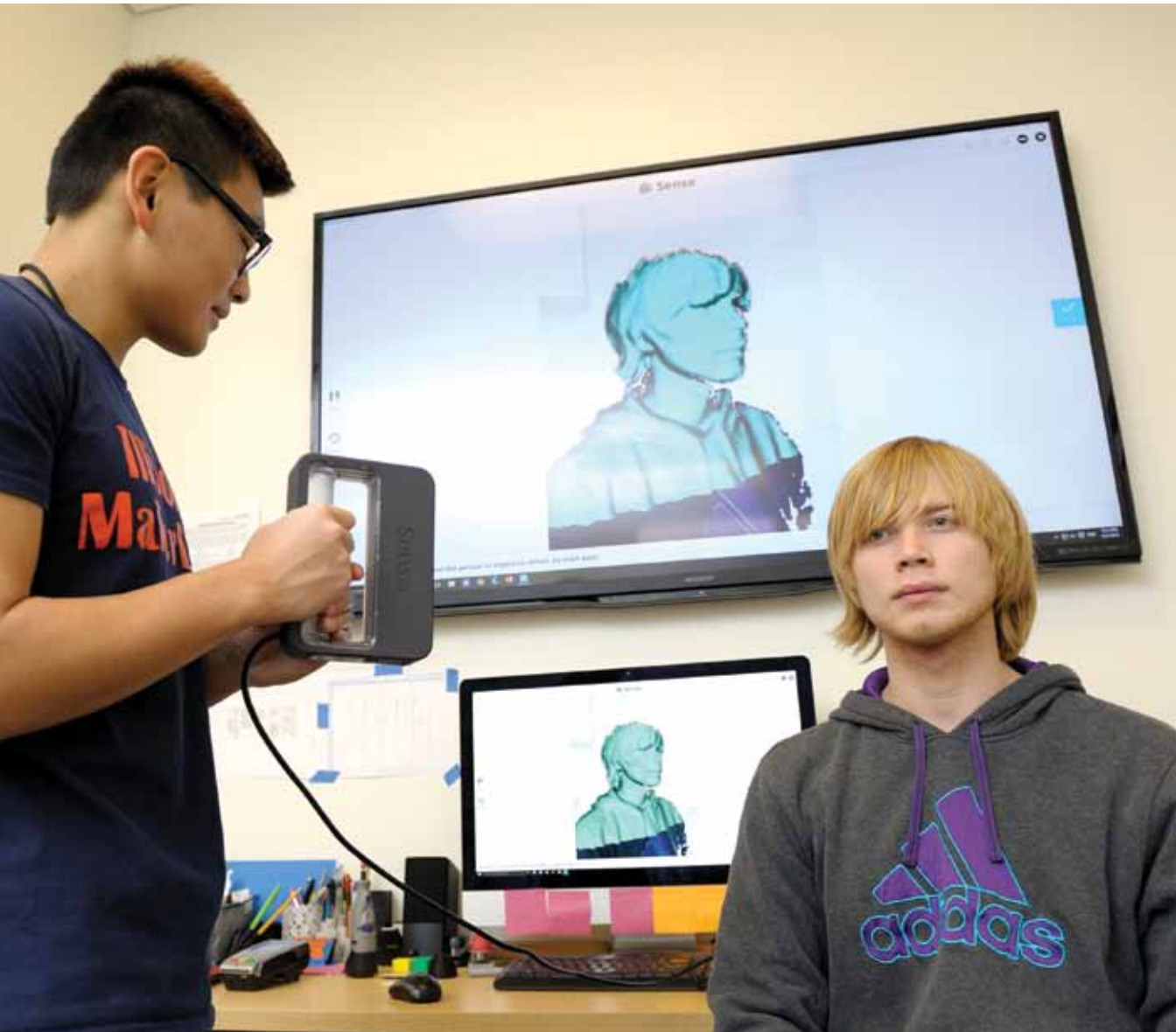
<http://www.ingeniummanufacturing.com>

**To learn more about Arielle please see:**

<https://youtu.be/tBdU3Hmx6mM>

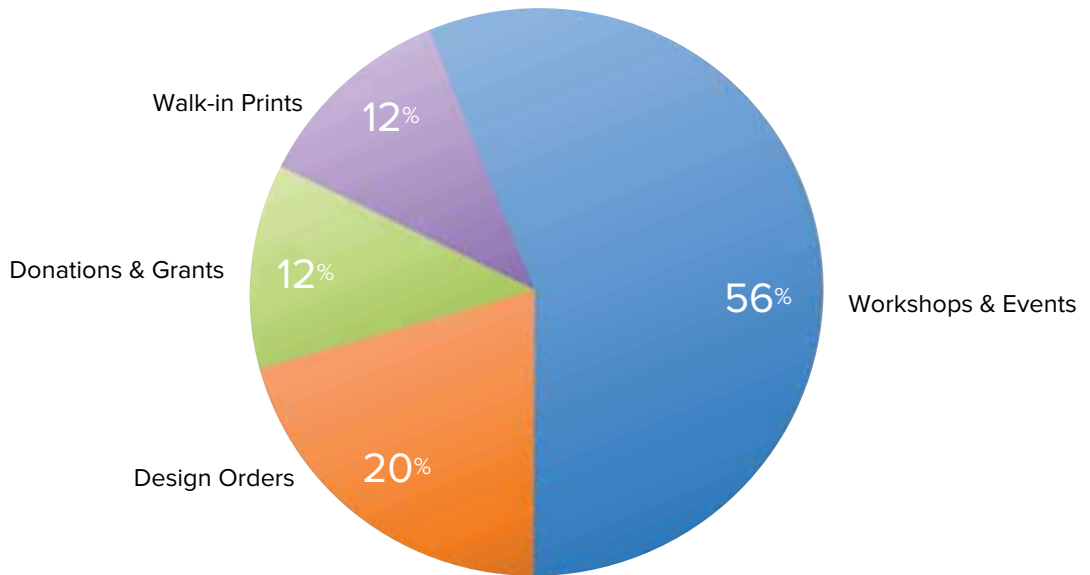
# Guru Profile: Billy Malak

Billy Malak is one of our MakerLab Gurus. The Gurus are an integral part of the lab, helping with day-to-day functions, completing orders, and running workshops. Billy is a junior in aerospace engineering and also a member of the Marching Illini Band. He enjoys designing and printing models of spacecraft.

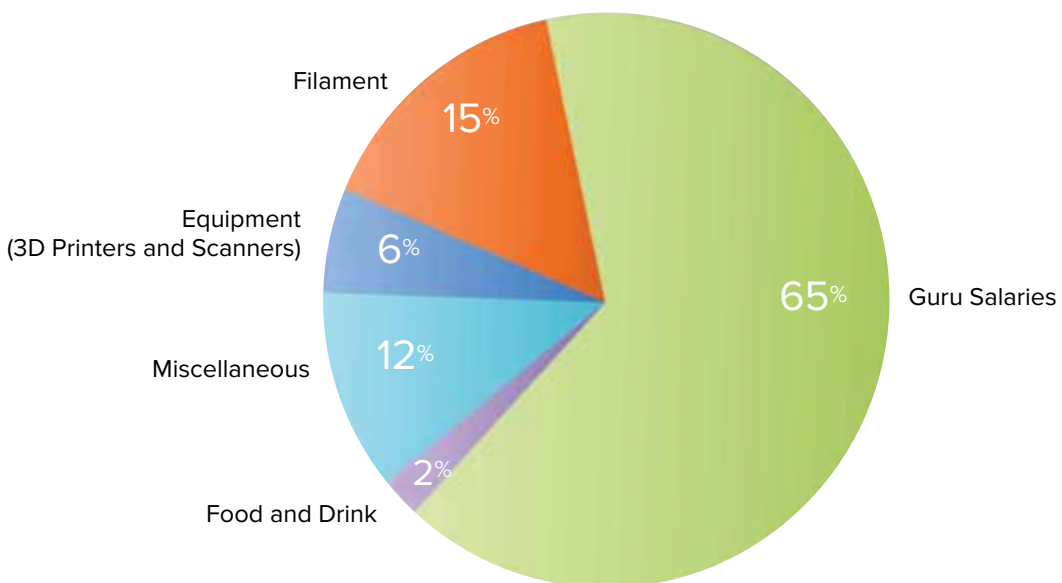


# MakerLab Financials

## Revenues



## Expenses





# Our Needs

The MakerLab is self supported and receives no regular funding from the University of Illinois Urbana-Champaign or the College of Business. Thus, our Lab heavily depends upon donations in order to continue our operations. In the near future, we want to expand our offerings and we need your help. Here are some of our needs:

- Filament to fuel our printers
- Hiring additional Gurus to enhance and expand our operations
- Expanding our lab by adding capacity for 12 more printers

**The fuel for our printers are spools of filament made from a sustainable corn-based polymer.**



**The filament costs \$25 per spool (1 kilo) which will support a printer for 2 weeks**

**What can you make with a kilogram of filament?**



50 iPhone cases



200 MakerLab  
key chains



20 Block I's



A large-scale model  
of the Eiffel tower

# Key Accomplishments



Over the past year our lab has had several notable accomplishments:



Developed and launched the world's 1st 3D Printing Specialization on Coursera



Established a strategic partnership with Ultimaker who provided us with 19 state of the art desktop printers



Established a new volunteer program, which includes over a dozen students across campus



Printed and assembled a life size 6 foot man courtesy of our friends at Voodoo Manufacturing



Inspired the development and launch of other 3D printing labs at the business schools at Yonsei University in Korea and University of Grenoble in France

# Revolutionary Developments

*The 3D Printing Revolution is on its way and the Illinois MakerLab is proud to be at the leading edge of this new movement. In 2016 alone, we have seen...*



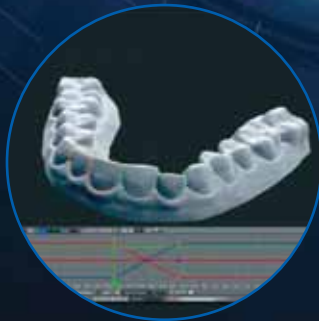
Hewlett-Packard launched a new 3D Printer that combines multiple printing technologies



General Electric purchased two 3D printing companies for \$1.4B



Local Motors launched Ollie, a 3D printed, electric, autonomous vehicle



A college student in New Jersey 3D printed his own plastic braces for only \$60



The world's first 3D printing restaurant opened to rave reviews



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