

# Science Spaces, FabLabs, Maker Spaces, and Hacker Spaces

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## Contents

<b>1</b>	<b>The MIT FabLab</b>	<b>2</b>
<b>2</b>	<b>TED Talk: Niel Gershenfeld on FabLabs</b>	<b>3</b>
<b>3</b>	<b>Kansas City FabLabs</b>	<b>3</b>
<b>4</b>	<b>Bay Area Tech Shop</b>	<b>4</b>
<b>5</b>	<b>The BTC FabLab</b>	<b>4</b>
5.1	A Sample of Available Equipment . . . . .	4
5.2	Hours . . . . .	5
5.3	Safety Class . . . . .	5
5.4	Membership Fees for Students . . . . .	5
5.5	Membership Fees for Nonstudents . . . . .	5
<b>6</b>	<b>Make Magazine</b>	<b>5</b>
<b>7</b>	<b>Maker Faires</b>	<b>6</b>
<b>8</b>	<b>Make:KC Show and Tell Meeting, March 1, 2011 at the Metropolitan Community College Tech Center</b>	<b>6</b>
<b>9</b>	<b>A Presentation by Julia Cole and Leigh Rosser at a Make:KC Show and Tell Meeting</b>	<b>7</b>

10	Bob Spangler, Thing a Day	7
11	Luis Rodriques, Maker Faire, Kauffman Foundation	7
12	Make:KC Presentation by Steve Rees, Student Electric Car	8
13	Hammer Space	8
14	HMS Beagle Science Store	8
15	The CCKC Hacker Space	8
16	Make:KC	9
17	STEM Society	9
18	Blue Valley Center for Advanced Professional Studies, CAPS, FabLab	9
19	Science Cafe	9
20	Kinetic Art	10
21	The Wichita Maker and Art Space, Wichita State University	10
22	Hilbert Space	10

## 1 The MIT FabLab

From Wikipedia: "A FabLab (Fabrication Laboratory) is a small-scale workshop with an array of flexible computer controlled tools that cover several different length scales and various materials, with the aim to make "almost anything". This includes technology-enabled products generally perceived as limited to mass production.

While Fab Labs have yet to compete with mass production and its associated economies of scale in fabricating widely distributed products, they have already shown the potential to empower individuals to create smart devices for themselves. These devices can be tailored to local or personal needs in ways that are not practical or economical using mass production.

The Fab Lab program was started in the Media Lab at MIT, a collaboration between the Grassroots Invention Group and the Center for Bits and Atoms (CBA) at the Massachusetts Institute of Technology, broadly exploring how the content of information relates to its physical representation, and how a community can be powered by technology at the grassroots level. While the Grassroots Invention Group is no longer in the Media Lab, The Center for Bits and Atoms consortium is still actively involved in continuing research in areas related to description and fabrication but does not operate or maintain any of the labs worldwide (with the exception of the mobile fab lab).

The fab lab concept also grew out of a popular class at MIT (MAS.863) named "How To Make (Almost) Anything". The class is still offered in the fall semesters.

As of July 2010, there were 45 labs in 16 countries, per a list assembled by MIT. The table below includes those listed on the MIT list, plus others known to have come into being (currently 46)"

## **2 TED Talk: Niel Gershenfeld on FabLabs**

Center for Bits and Atoms at MIT. Making a unique thing for yourself.

[http://www.ted.com/talks/neil\\_gershenfeld\\_on\\_fab\\_labs.html](http://www.ted.com/talks/neil_gershenfeld_on_fab_labs.html)

## **3 Kansas City FabLabs**

There is a FabLab at the Metropolitan Community College Business and Technology Campus, called the BTC FabLab. There is also FabLab at the Blue Valley School District CAPS facility in Johnson County. The Hammer Space in Kansas City considers itself a FabLab, but is only getting started now.

The original idea of a FabLab, the idea originated at MIT, was that the FabLab would be available to both students and to the general public. The BTC FabLab has changed its policy, and is now available to the general public for a fee. The Blue Valley FabLab is still only available to high school students.

## 4 Bay Area Tech Shop

The Tech Shop has several installations around the country. They have expensive machines that members who join the Tech Shop may use. Members pay a monthly fee, which might be too much for casual amateurs.

<http://techshop.ws/>

## 5 The BTC FabLab

Metropolitan Community College Business and Technology Campus  
1775 Universal Ave  
City, MO 64120\ -1318  
(816) 604-5200  
Stephen Dowell FabLab Manager  
Fab.Lab@mcckc.edu  
816.604.5233  
FabLab  
MCC-Business and Technology  
1775 Universal Ave.  
Kansas City, MO 64120

The FabLab is NOW OPEN at MCC-Business and Technology Campus!  
Membership Fees, Non-Student Membership and Lab Usage Policies, FabLab Pricing Guide.

FabLab is a resource to access tools, technology, and training. FabLab is a laboratory filled with high-tech machines and tools what you create there is limitless.

FabLab members conceptualize, design, develop, fabricate, and test almost anything. If you are an artist, engineer, tinkerer, inventor, student or own a businesses, the FabLab will soon become your new favorite place!

The Fablab is located in Technology Center, Room 204 at the MCC-Business and Technology Campus. It is open to all MCC students and employees.

### 5.1 A Sample of Available Equipment

Standard woodworking equipment: saws, planers, bandsaws, et cetera.

A medium size metal lathe  
A vertical milling machine  
Large drill presses.  
Various metal CNC machines  
Various electrical and gas welding equipment  
Various grinding machines  
A large plasma cutter  
Various bending and forming machines  
Various 3d printers including stereolithography machines.  
Power metal bandsaws and cut off machines.

## **5.2 Hours**

The FabLab is open Monday through Thursday, 12:00 PM to 9:00 PM, and by special appointment.

## **5.3 Safety Class**

All members must attend an Orientation/Safety Class, which will cover general lab safety, tool and machine usage, and FabLab rules.

## **5.4 Membership Fees for Students**

FabLab membership is 50 dollars per semester. Students must be enrolled in a minimum of 3 credit hours. The Orientation-Safety Class is covered by the 50 dollar membership fee.

## **5.5 Membership Fees for Nonstudents**

Nonstudents can use the FabLab for 50 dollars a month, or 40 dollars a month for members of Make:KC. There is also a daily rate of 15 dollars. For more information about nonstudent access and fees contact Steve Dowell.

# **6 Make Magazine**

The O'Reilly Company publishes a quarterly magazine called Make magazine. Each quarterly issue comes in the form of a richly illustrated paperback

book. This was started by O'Reilly's cofounder Dale Dougherty. He told me that he and Tim O'Reilly had been technical writers in Silicon Valley, when they decided to start O'Reilly Publications several years ago. They have published hundreds if not thousands of technical books, originally focusing on Unix, and computer technology, but now having a somewhat broader focus.

## **7 Maker Faires**

O'Reilly sponsors Maker Faires. Last year (2010) there were three major Maker Faires, in San Francisco, Detroit, and New York. There were also some mini Maker faires, one in Kansas City last summer (2010). There was a nearly major Maker Faire last year in Kansas City at Union Station (July 2011). Also there was a Kansas City mini Maker Faire in August 2011, held in Parkville, Missouri. Parkville is a small picturesque town located about 15 miles from downtown Kansas City on the banks of the Missouri river, and on the adjacent bluffs.

## **8 Make:KC Show and Tell Meeting, March 1, 2011 at the Metropolitan Community College Tech Center**

### **Introduction by Vince Thompson:**

"This month we have Julia Cole and Leigh Rosser giving a presentation about their kinetic art installations around Kansas City. They are a collaborative team that makes ecologically and community-oriented art for public spaces. They will present a selection of their interactive sculptures, show details of the fabrication process and electronics, and answer questions. They like the fact that their interactive work involves the viewer in creating an experience. Their work usually involves sensors of one kind or another, microprocessors, and some form of output including digital media, relays or motors. They also do a great deal of their own fabrication using a CNC router and other standard workshop equipment.

As always you will have an opportunity to bring some of your own projects to share with the group. We also will have an opportunity to learn more about the BTC Fab Lab and get a tour of the facilities. Hope to see you there."

## 9 A Presentation by Julia Cole and Leigh Rosser at a Make:KC Show and Tell Meeting

Julia Cole is an interdisciplinary artist, educator and community strategist. Her first career was as a biologist, which brought her to America from England. She then went on to earn a Bachelor of Fine Arts from the San Francisco Art Institute, and a Master of Fine Arts from the University of Washington in Seattle. She has made many interactive art works, often including sound and video components. Julia chaired the Interdisciplinary Arts department at the Kansas City Art Institute for six years, and now works part-time with the Charlotte Street Foundation, coordinating a funding opportunity for interdisciplinary art practices called Rocket Grants (<http://rocketgrants.wordpress.com>).

Leigh Rosser works as an exhibit designer with Eisterhold Associates. His training is in architecture, but soon after graduation he got caught up in the digital boom in San Francisco. He has worked with animation, interface design, and 3-D modeling and design. Leigh had some background in electrical engineering, but has learned most of the things he knows about programming and interactive technology by tinkering. He has an intuitive understanding of how things work and is now pursuing these interests by combining electronic control with mechanical structures, mostly through his public art work with Julia.

## 10 Bob Spangler, Thing a Day

Bob Spangler of Make:KC is an enthusiastic maker. He participates in the national **Thing a Day** activity, which I think is held each February. Their idea is to make a new thing each day of the month.

## 11 Luis Rodriques, Maker Faire, Kauffman Foundation

Luis works for the Kauffman Foundation, is a member of CCCKC, and sometimes participates in the Make:KC activities. He organizes the Kansas City

Maker Faire at Union Station.

## **12 Make:KC Presentation by Steve Rees, Student Electric Car**

An Electric car was built by students at De LaSalle high school located on Truman road in Kansas City. This project was guided by several area engineers. The project gained national publicity. It consists of a former indy racing car covered with transparent plastic. It has recorded fantastic fuel efficiency on a famous test track. The project had some large corporate sponsors, including a tire company.

## **13 Hammer Space**

Dave Dalton has bought a former AT and T switching facility on 63rd Street, about a block west of Oak, (440 E 63rd St). He intends to make this into a place similar to the Tech Shop. The Kansas City Hacker Space CCKC moved to this space recently (November 2011). Their lease at the cave expired this year (2011).

## **14 HMS Beagle Science Store**

John Kuhns and his wife Carol run the HMS Beagle store in Parkville. Missouri. John is a chemist, a glass blower, and a naturalist. He has had a strong interest in Darwin since he was a child. Carol also has a scientific background. Make:KC meets in the H. M. S. Beagle store basement on most Tuesdays at 6PM. John also has science clubs for children, high school students, and adults. It is a beautiful store, well worth a visit.

## **15 The CCKC Hacker Space**

Until this fall (2011), CCKC (Cowntown Computer Congress of Kansas City, not to be confused with the Cowntown Computer Congress of New York City) met in a limestone cave. The cave is under 31st and Mercier in Kansas City Missouri. Thursday is an open meeting when anyone can attend. However,

CCCKC moved to the new Hammer Space this fall, (November 2011). Several classes are offered by CCCKC. The Thursday meeting at 7PM is open to all. For more information search for CCCKC on the internet.

## 16 Make:KC

Vince Thompson is the leader of the Make:KC group. They have a **Show and Tell** meeting on the first Tuesday of the month at the Metropolitan Community College BTC campus. They also have maker nights, where people work on a common project. These take place at the HMS Beagle Store in Parkville on Tuesdays starting at 6PM. For more details search for Make:KC on the internet.

## 17 STEM Society

This is a Science, Mathematics, and Engineering society, with meetings each month on the second Tuesday at the Trailside Center at 99th and Holmes in Kansas City Missouri, starting at 6PM. Everyone welcome.

**Link**

[www.stem2.org](http://www.stem2.org)

## 18 Blue Valley Center for Advanced Professional Studies, CAPS, FabLab

Search the internet for Blue Valley CAPS.

## 19 Science Cafe

There is a science cafe in Kansas City. It was located in a sports bar near the CAPS facility. They meet once a month, often on the second Tuesday. But I think they have moved. Search the internet for "Kansas City Science Cafe."

## **20 Kinetic Art**

Kinetic art combines art and engineering.

## **21 The Wichita Maker and Art Space, Wichita State University**

John Harrison runs a maker space in Wichita and was a tenured faculty member at Wichita State in the music department teaching violin. He is concert master of the Wichita symphony. He also is an engineer working for a company doing electronics and software.

## **22 Hilbert Space**

This is an abstract Maker Space. It is complete.