



## From the Director ...

NCATC Friends and Colleagues,

As an Affiliated Council of the **American Association of Community Colleges (AACCC)** and active member of their Economic and Workforce Development Commission for over 26 years, NCATC continues its work on behalf of ATCs across the country to enhance both our peer network and, through our collective efforts, America's technical workforce.

NCATC has been a proud partner, sponsor, and content contributor for AACCC's annual Workforce Development Institute (WDI) since its inception. In January, we coordinated the exhibit hall showcase of the world's first 3D-printed car – **the Strati** (see right). NCATC brought together several of its key Strategic Partners in the exhibit hall and for a standing-room-only panel discussion on **"3D Printing/Additive Manufacturing – The NEW Industrial Revolution."**

We are extremely proud of our 26-member Strategic Partners Alliance (SPA) and appreciate those that actively participated in the 2015 WDI. They include the Association for Manufacturing Technology (AMT), Stratasys, and America Makes/NAMII. You can learn more about all of our corporate partners under the Strategic Partners tab of the NCATC website.

We encourage you to stay connected with us in 2015 via the NCATC website, social media, and quarterly e-newsletters like this one. As the leader in advanced technology workforce and economic development, you will find NCATC's resources a go-to source for timely information about workforce activities across the country as well as member benefits, resources, Board of



Directors news, events, and value-added benefits from our Strategic Partners.

Craig

J. Craig McAttee  
NCATC Executive Director ◆



The **Strati**, manufactured by Local Motors in collaboration with Cincinnati Incorporated and Oak Ridge National Laboratory, is the world's first 3D-printed car.

Pictured at left are **Greg Jones** of AMT and **Scott Murakami** of the University of Hawaii Community Colleges.

### Related links and videos of Strati:

Ben Geier, "Local Motors Shows Strati, the World's First 3D-Printed Car," *Fortune*, January 13, 2015. (<http://fortune.com/2015/01/13/local-motors-shows-strati-the-worlds-first-3d-printed-car/>)

"New Dimension of Driving: First Ever 3-D Printed Car Drives onto the Plaza," *NBC Today Show*, October 7, 2014 ([http://www.today.com/id/49063771/ns/today-today\\_video/#56190928](http://www.today.com/id/49063771/ns/today-today_video/#56190928))

Michael Molitch-Hou and Danielle Matich, "Come See the Amazing, the Extraordinary, the Stupefying 3D Printed Car!" *3D Printing Industry*, September 14, 2014 (<http://3dprintingindustry.com/2014/09/14/come-see-amazing-extraordinary-stupefying-3d-printed-car/>)

IMTS-TV, "iSpy: Under the Hood," September 11, 2014 (<http://www.imts.com/video/index.cfm?vid=1181>)

## NCATC and US Fab Lab Network Establish Partnership

*Paul Pierpoint, Northampton Community College*

By now nearly everyone in the world of advanced technology is familiar with the fab lab concept – *give regular people access to modern means for invention and almost anything can happen*. In the decade since the concept was first developed by Neil Gershenfeld at MIT, fab labs have sprung up around the world empowering thousands of people to create amazing things using advanced fabricating technology that only a few years ago was way beyond the reach for all but a few.

Today, many Advanced Technology Centers include a fab lab or some other variation of "maker space" to support the creative energies of students, artists, children, teachers, inventors, and anyone else with a dream to make something. Fab labs have helped to launch the Maker Movement that has captivated the imagination of thousands of people and made manufacturing "cool."

The fab lab movement is no longer in its infancy and as individual fab labs move into their "adolescence" many are challenged to become self-sustaining. The business

See "Fab Lab," page 3

## Female Anoka Students Pursue Nontraditional Careers

Nick Graff, Anoka Technical College

If you heard someone describe themselves as “loud, strong, obnoxious, doesn’t care about getting their fingers cut or getting dirty, just basically being one of the guys,” you wouldn’t think much of it would you?

But what if the person saying it is a twenty-something young lady?

“I can give it and I can take it, crack jokes and stay laid back,” says first-year Anoka Technical College Precision Machining student Micaela Barr. Barr is currently one of two female students—compared to close to 60 young men—in a nontraditional career program for females at this Minnesota public institution. Statewide, in 2014 out of 710 “completers” in Precision Metalworking just 5% of them (36) were female, compared to 673 males. In 2013, it was only 4.5%.



Nationally, according to 2010 statistics from the National Center for Women and Girls in Education (NCGWE), “females made up less than 25% of participants in science, technology, engineering, and math (STEM) programs nationally (21% at the secondary level and 24% at the

postsecondary level), and much lower numbers in manufacturing (17% and 11%, respectively).”

Barr has been involved in Machining for “about 7 years,” she says including a two-year period she was out “but really missed it!” She was 18, out of high school and looking for a job and she didn’t want to work at a grocery store or “fold sweaters.” A friend asked her if she’d like a job “pushing buttons?” She says she thought, “why not?”

This in spite of having no exposure to Manufacturing growing up. “I was a daddy’s girl growing up. I went hunting and fishing and helped him work on cars. I paid attention, so I knew how to grab a crescent wrench and where to hold the flashlight.” She says most of her friends growing up were boys, so working in a predominantly male work environment is comfortable.

Even though she’s not quite halfway done with her education, she works full-time and “sets up CNC mills, lathes, and robots and gets to program the machines when jobs get moved from machine to machine.” Barr gets excited about this stuff. “Everything is made by a machinist, like every screw. You couldn’t have a car unless the machinist makes the piston(s). It’s COOL!”

On the other side of the wall to the machine shop, over in welding, resides another female student, Madeline Honeck, also in her twenties, who grew up on a farm and started welding gates and pens for livestock with her brother. “I was about twelve and I liked helping him.”

Honeck is married, has her own house, family, and animals and was boosted in her pursuit of welding because her mom told her “do whatever you want!” Honeck says that she loves the independence

of welding. “You don’t have to worry about or depend on others to do your work.”

She has chosen TIG welding as her specialty because it involves a lot of custom work. “You don’t just pull the trigger and go. You have to think about what you’re doing.” Of course, she says “TIG welding also pays more than stick or MIG.”



Both women say they know they have to overcome an unfair bias. Honeck shares the time she was asked to interview at a company and the HR person literally “looked her up and down” and said dismissively, “you can’t work here, we lift heavy things.” Both acknowledge that they started out at lower pay and were given less desirable jobs. And both agree that completing their education will help them gain respect since, as one put it, “nobody will hire an inexperienced female.”

Barr says that a manufacturing environment is not for everyone. “You have to have tough skin. Girls can sometimes be a hassle, spread rumors and backstab.” And although it’s not pleasant for her, sometimes she “has to whine to gain equality and stay up with the guys. I have to work twice as hard to get where I want.” She says she is required to wear steel-toed boots and jeans and doesn’t want her manner of dress to garner unwanted attention. “I wear hard rock t-shirts to fit it. If I find guys staring at me, I just move boxes to create a barrier.”

Barr has a four year-old daughter who “has Barbies, dresses, and high-heeled shoes.” But Barr also lets her “haul out tools and watch videos,” just like she did. “I want to make sure she has options!” ♦

• “Fab Lab,” continued from page 1 •

model for starting a fab lab is often not the model that will assure success into the future. But business models that will assure success are something of a holy grail for many of us who believe strongly in the power of our fab labs to transform lives and communities.



<http://usfln.org/symposium/>

If you have a fab lab at your college or if you are considering creating one, the United States Fab Lab Network (USFLN) offers an extended network of colleagues from which you can learn. A new partnership between USFLN and NCATC provided NCATC members a reduced early registration rate to attend the USFLN’s 2015 Symposium at NCATC member institution Gateway Technical College, March 23-25. The symposium theme is Fab Lab Sustainability and the program will also include presentations on education and innovation/entrepreneurship in the fab lab. NCATC is looking forward to growing its partnership with USFLN in 2015. Stay tuned for updates on future activities and opportunities for collaboration. ♦



## Apprenticeship Resources from the U.S. Dept. of Labor, Employment and Training Administration

### Quick-Start Toolkit

[http://www.doleta.gov/oa/employers/apprenticeship\\_toolkit.pdf](http://www.doleta.gov/oa/employers/apprenticeship_toolkit.pdf)

### The Federal Resources Playbook for Registered Apprenticeship

<http://www.doleta.gov/oa/federalresources/playbook.pdf>

### American Apprenticeship Grants

<http://www.dol.gov/apprenticeship/grants.htm>

### White House Fact Sheet

<http://www.whitehouse.gov/the-press-office/2014/12/11/fact-sheet-president-obama-launches-competitions-new-manufacturing-innov>

### Infographics on Apprenticeship Stats from Multiple Sectors

<http://www.dol.gov/apprenticeship/shareables.htm>

# CALL FOR PRESENTATION PROPOSALS

**NCATC Fall Conference  
October 7–9, 2015**

**Sheraton Hotel, Clayton, MO**

Hosted by



**Submission deadline: May 1.  
Submit yours at [ncatc.org](http://ncatc.org) today!**

## NCATC Summer Workshop • June 10–12, 2015

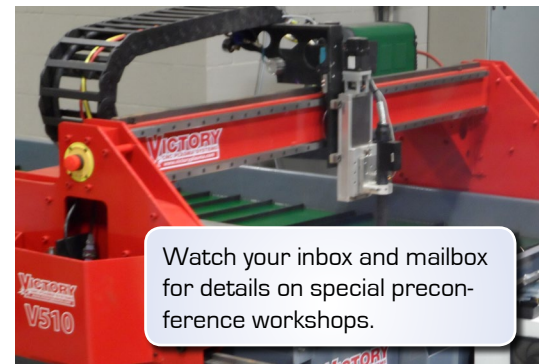
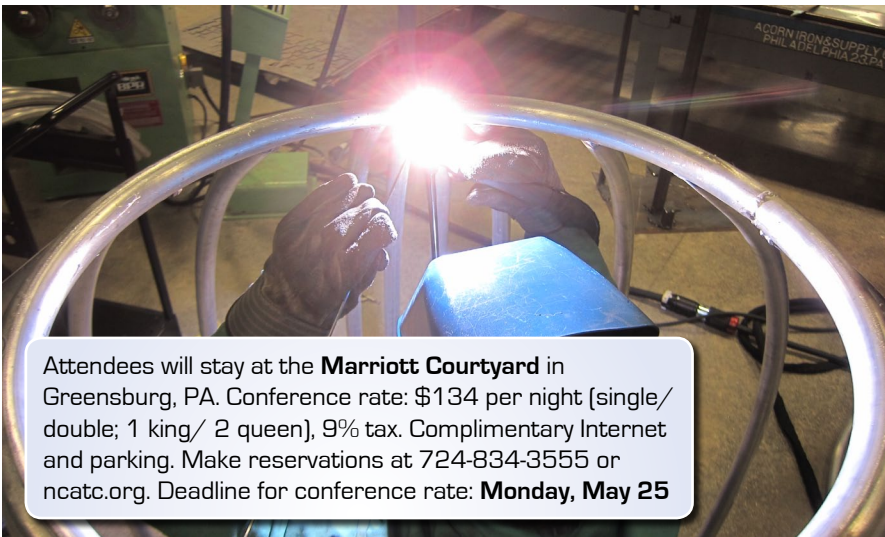
**Westmoreland County Community College**



The **Summer 2015 Summer Workshop** will be held at Westmoreland's brand-new Advanced Technology Center.



Attendees will stay at the **Marriott Courtyard** in Greensburg, PA. Conference rate: \$134 per night (single/double; 1 king/ 2 queen), 9% tax. Complimentary Internet and parking. Make reservations at 724-834-3555 or [ncatc.org](http://ncatc.org). Deadline for conference rate: **Monday, May 25**



Watch your inbox and mailbox for details on special pre-conference workshops.