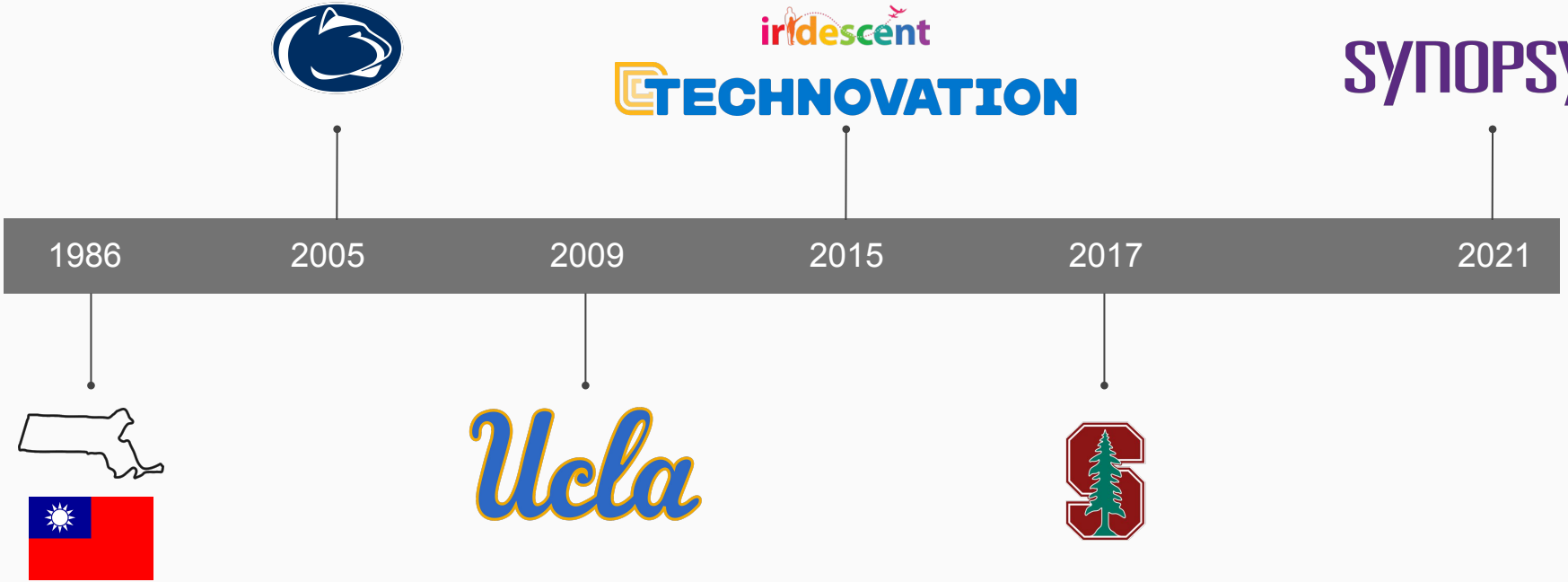
Academia & Industry & Nonprofits, Oh my!

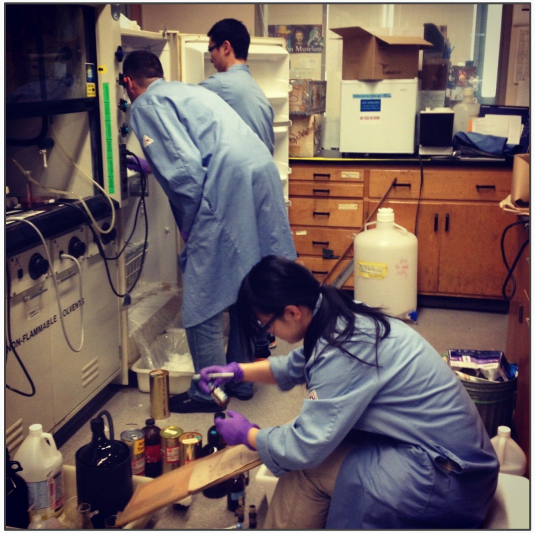
Angela Hwang, Ph.D.

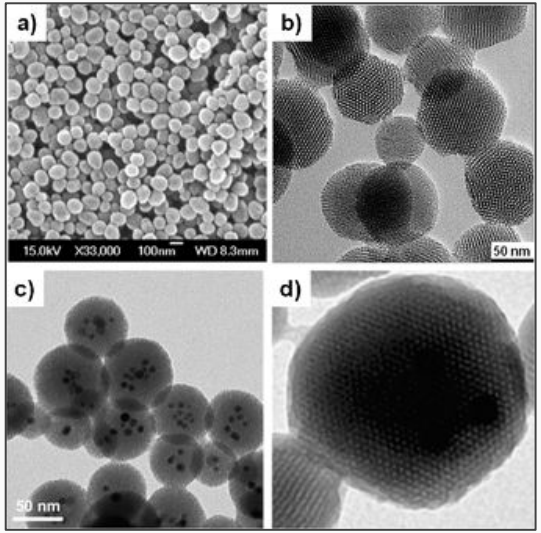
Timeline

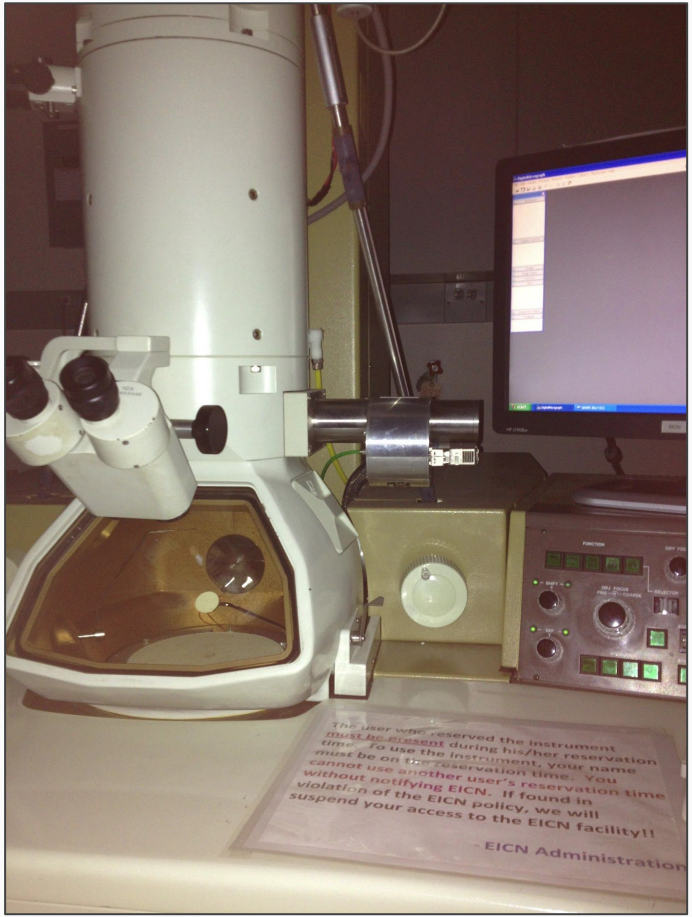

1986
2005
2009
2015
2017
2021
irídescent
TECHNOVATION
SYNOPSYS®
Ucla

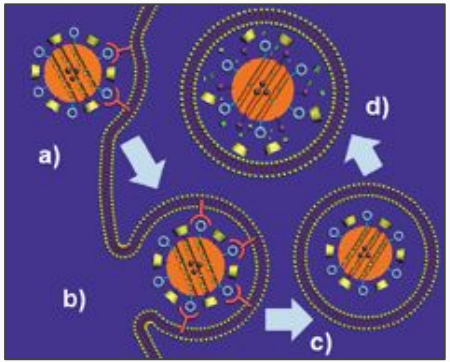
Grad school:
College 2.0

Zink Lab - mesoporous silica nanoparticles for drug delivery

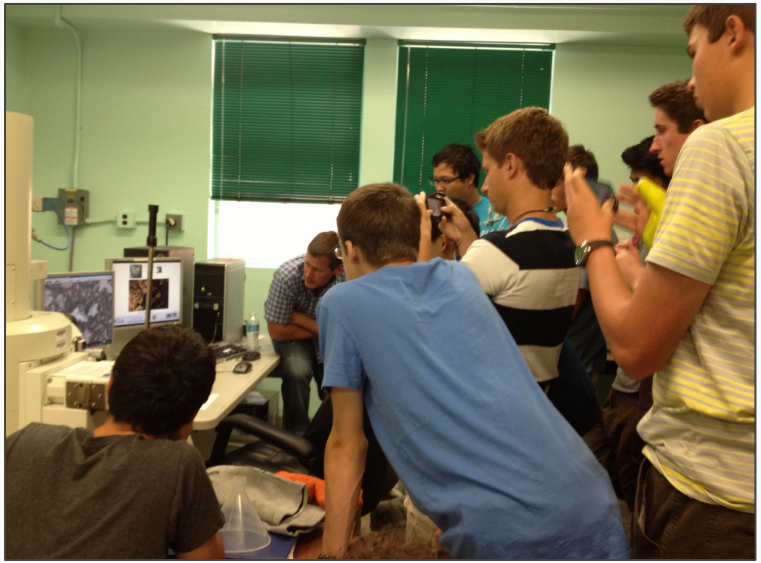








Outreach, Extracurriculars, and Graduation



What I Learned

- Project management
- Problem solving & troubleshooting
- Time management
- Self management
- Self efficacy
- Grant writing process (NSF, DTRA)

Nonprofits:
Like startups, but social impact bottom line

Technovation (formerly known as Iridescent)

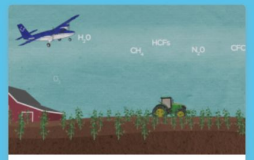
Platform

curiositymachine.org/challenges/

Topics

- All Challenges
- Inspired by BOEING
- Artificial Intelligence
- Aerospace
- Art of Science
- Biomechanics
- Biomimicry
- Civil Engineering
- Computer Science
- Electrical Engineering
- Food Science
- Materials Science
- Mechanical Engineering

All Design Challenges



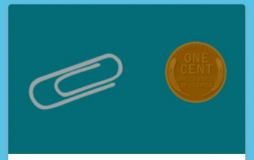
Design a Sampling Aircraft
Build an aircraft that can collect air samples.

Make a Nanostamp
Create a stamp to reproduce a drawing from a meter away quickly and accurately.

Build a Nanopipe
Create a tube that can separate different objects based on how you you build the walls.

Make Identical Quantum Dots
Make spheres that are all the same size.

Build a Planting Machine
Build a machine that distributes seeds precisely.



Build a "No Wire" Circuit
Build a circuit using conductive everyday objects

USC, Family Science, Professional Development

MUBADALA

USC University of Southern California

Interviewing & making videos with creative teams

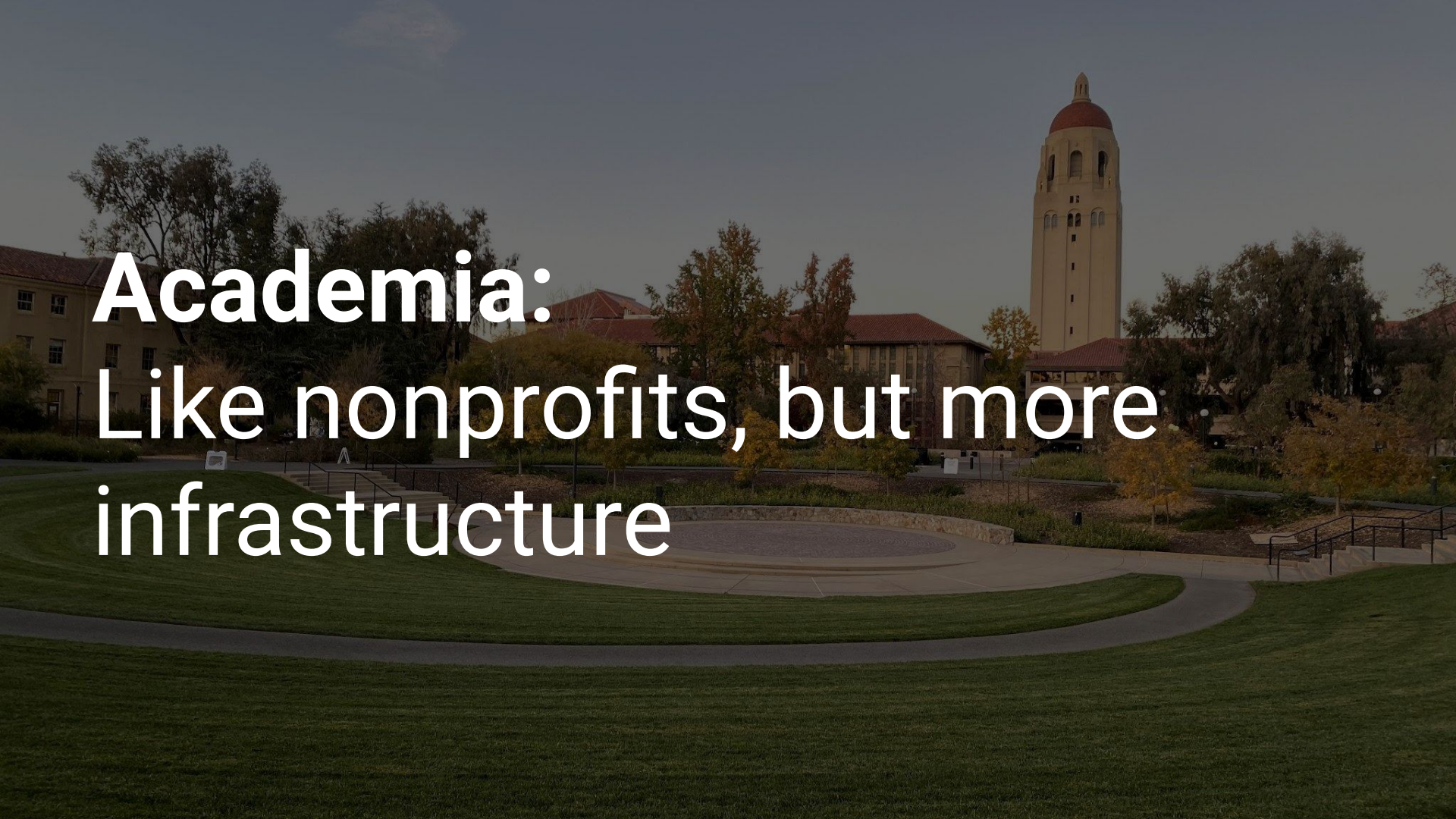
BOEING

Rensselaer

Cummins

What I Learned

- Program management
- Adapting & multiple hats
- Public speaking & communication
- Work travel & TSA precheck
- End to end video production & animation
- Working with different types of people
- Grants & proposals, collaborations


Academia:
Like nonprofits, but more infrastructure

National Nanotechnology Coordinated Infrastructure - NSF Funded

NNCI Sites

Center for Nanoscale Systems (CNS)

Cornell Nanoscale Science and Technology Facility (CNF)

Kentucky Multi-Scale Manufacturing and Nano Integration Node (KY Multiscale)

Mid-Atlantic Nanotechnology Hub (MANTH)

Midwest Nanotechnology Infrastructure Corridor (MiNIC)

Montana Nanotechnology Facility (MONT)

nano@stanford

Nanotechnology Collaborative Infrastructure Southwest (NCI-SW)

Nebraska Nanoscale Facility (NNF)

Northwest Nanotechnology Infrastructure (NNI)

Research Triangle Nanotechnology Network (RTNN)

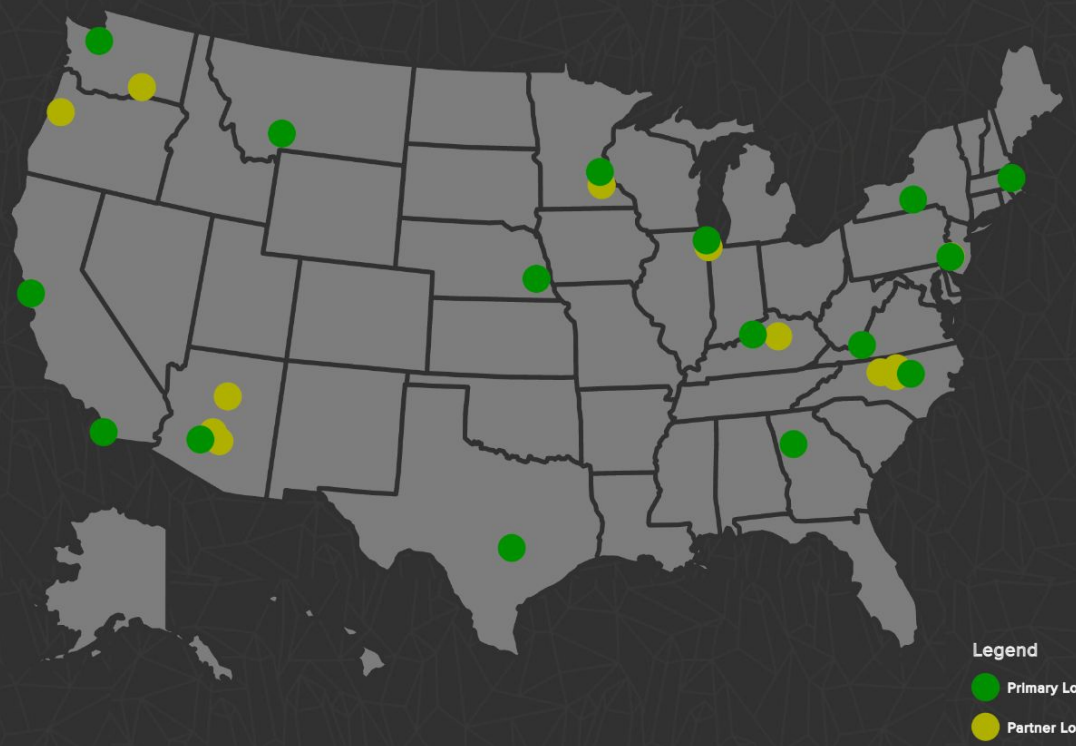
San Diego Nanotechnology Infrastructure (SDNI)

Soft and Hybrid Nanotechnology Experimental (SHyNE) Resource

Southeastern Nanotechnology Infrastructure Corridor (SENIC)

Texas Nanofabrication Facility (TNF)

Virginia Tech National Center for Earth and Environmental Nanotechnology Infrastructure (NanoEarth)



Education

Stanford ONLINE

Nano @ Stanford

This resource contains materials to prepare researchers to become effective users of the nano@stanford nanofabrication and nanocharacterization tools and facilities, as well as to be useful to anyone wanting to learn about nanofabrication.

Estimated 10 weeks
5 hours per week

Self-paced
Progress at your own speed

Free
Access to course at no cost

There is one session available:

5,471 already enrolled! After a course session ends, it will be archive

Starts Nov 4

Enroll

I would like to receive email from StanfordOnline and learn about other offer

Jun
24

Nanoscience Summer Institute for Middle School Teachers (NanoSIMST)

Content Deepening Courses

APPLY NOW!

NanoSIMST at Stanford University

The nanofacilities at Stanford (nano@stanford) are holding a four day Nanoscience Summer Institute for Middle School Teachers (NanoSIMST). See what we did in 2018.

June 24-27, 2019
10am - 6pm
Stanford University

Selected teachers will learn the underlying physical concepts in nanotechnology and nanoscience in simple terms. This unique learning experience can enrich your current courses through both deepening content understanding and instructional practices. Please keep in mind, housing stipends are not provided.

Date and time

June 24, 2019 - June 27, 2019

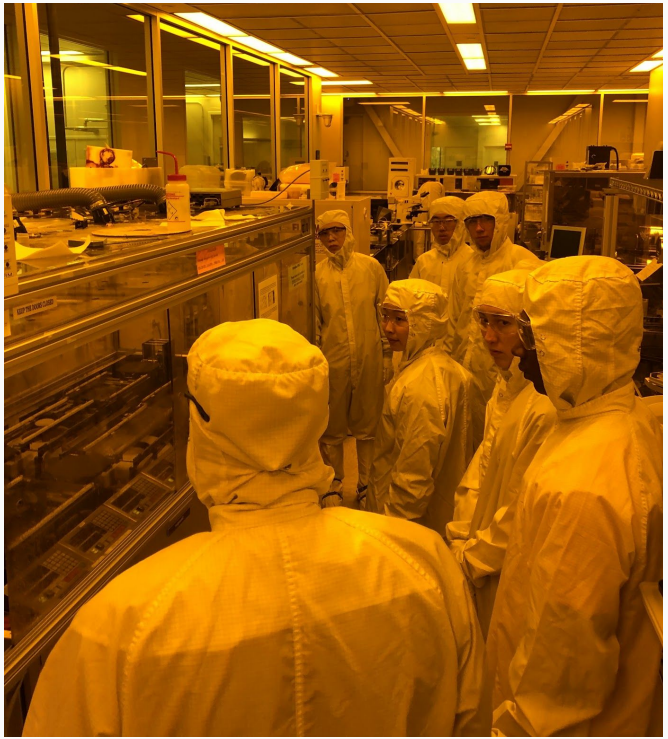
Location

Stanford University

Cost

Receive stipend upon completion of workshop ($400) and classroom implementation ($200)

Outreach



Stanford | News

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JUNE 30, 2017

Local students explore science at the nanoscale in Stanford tours

Students, educators and industry professionals from outside Stanford learn about advanced tools and equipment at the Stanford Nanofabrication Facility and Stanford Nano Shared Facilities.

BY TAYLOR KUBOTA

Ten people get into bunny suits, many for the first time in their lives. Under the hoods, their hair is in hair nets. Goggles cover their eyes, their gloves are tucked into their sleeves. For those with facial hair, that's netted too.

With all hair, lint and dust safely tucked out of the way, the students are ready to enter the Stanford Nanofabrication Facility. This particular group was part of a class from California State University, East Bay, co-taught by Ryan Smith, assistant professor of physics at CSU-EB, and Erik Helgren, associate professor and chair of physics at CSU-EB. The class visited as part of a collaboration between the two schools, designed to expose Cal State students to nanoscale science and engineering.

Students from California State University, East Bay, watch Uli Thumser prepare silicon

"Many of these students have never

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1.68K subscribers

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1,683 views • 2 years ago

Located in the heart of Silicon Valley, nano@stanford serves academic, industrial, and governmental researchers across the U.S. and around the globe. We offer a comprehensive array of advanced fabrication & characterization tools, as well as staff expertise in nanoscale science and engineering. nano@stanford is a network of open-access facilities that includes the Stanford Nano Shared Facilities (SNSF), the Stanford Nanofabrication ...

READ MORE

Uploads PLAY ALL

STEM Superheroes - Victoria Arias & Tanya Liu

STEM Superheroes – Andrea Wallace & James Carpenter

STEM Superheroes – Marina Damiano & Alexandra de Paz

Cool Cure UV Exposure Chamber Tutorial, Flexible...

ML3 Direct Write Machine Tutorial - Part 2

Scanning Probe Microscope – Magnet Activity

What I Learned

- People management & influence
- Leadership skills
- Working with academics
- University operations & politics
- NSF grant process

Industry:
Fast and slow

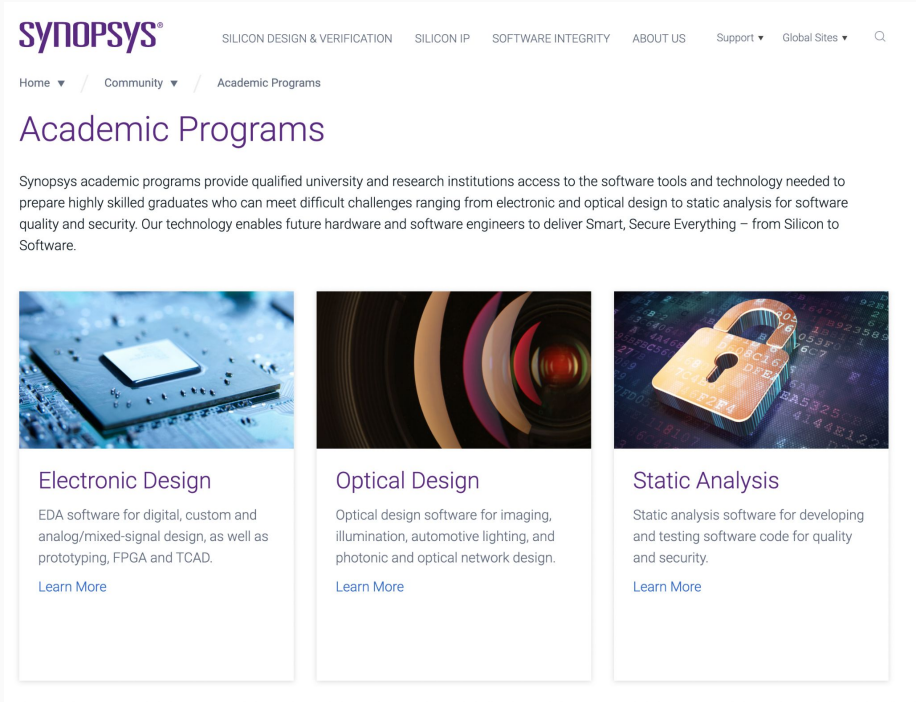
Academic Partnerships & University Programs

SYNOPSYS®

Silicon to Software™

Synopsys is an American electronic design automation company that focuses on silicon design and verification, silicon intellectual property and software security and quality.

30+	$3+ billion	15,000+
years in business	annual revenue	employees



What I Learned

So far...

- Corporate lingo is an entirely different language for each company
- High levels of security and privacy
- Global view of work & impact
- Working with a large amount of people
- Much more infrastructure is good and bad

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final takeaways

- Work hard and be nice
- “Yes, and” mindset
- Proactively ask for feedback
- Fit is important! The role and your life will change over time
- Stay at a job as long as you can add bullet points to your resume
- Your network is extremely helpful
- Don’t be afraid of cold calls or using LinkedIn, leveraging help from others

Thank you!

https://www.linkedin.com/in/angelahwang