

TE 250

How this course shaped my entrepreneurial journey

Paul Couston

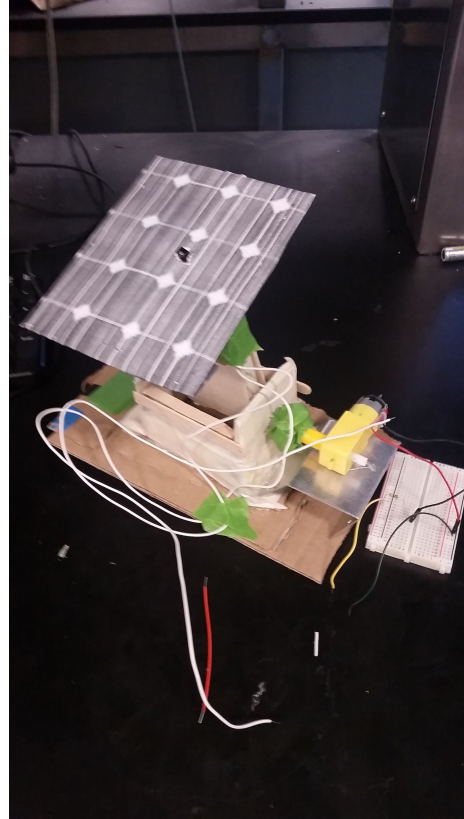
paulcouston@gmail.com

This Class

- This guy is your professor (take him seriously) ----->
- Harlee is an incredible founder, mentor, and a good friend
- This class is 20 Miles Wide but 1 Foot Deep
 - Briefly cover multiple topics
 - Project - you get what you give
 - You will learn to find and listen to your customer
 - This is what you need to start any tech venture - This is the way
 - I still revert to the basic taught here
- This will connect you to more TEC and Entrepreneurial opportunities on campus
 - Take full advantage of this while you can
 - ^ Cause I am



How did I end up here?



Freshman Year: Flower Power Energy



Wired In: Paul Couston

By Paul Wood [wood@gauche.com](#) Day 15, 2018 (Updated Jun 20, 2018)



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Latest News

- Police in Belarus detain opposition activists after rally**
Police shooting of Black man stops arrest in Wisconsin city
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- US issues joint global rally and COVID-recovery hopes**
Team Kentucky Pulls out of US Congressional election race just as tight as in 2018
- Deafnet Day says we won't restore mail-sorting machines**
People collectors, sets stage for Laura to hit US as hurricane

On Sundays, staff writer Paul Wood spotlights a high-tech difference maker. This week, PAUL COUSTON, 19, is working on green energy projects. He's a sophomore in industrial engineering, but also planning to get a dual degree in innovation leadership and engineering entrepreneurship. Couston is in the first cohort of the new program. Couston is also president of the Student Sustainability Committee at the University of Illinois, one of the largest in the nation. In the Coast Competition, he entered an solar energy project with roommate Nathan Franciszyk. It is only one of many projects he is working on.

Where did the idea come from?

It was an 18-year-old freshman, and in a class about ranging "from idea to enterprise." We were asked to pitch in with a project. I said "I have an idea." I worked in remodel/redesign at a construction company over the summer before college. I was building a patio, and I made one little mistake on the woodwork, and I didn't have a handle. I needed to use a saw. The generator was off. I had to pull it out, pour gasoline into it, start it — because we weren't using power in the backyard — then let the saw warm up. With the generator running, and I turned on the saw, used it for one minute, then turned off the generator. What if we had a generator that could store just a little bit of power, like a capacitor — that was the "aha!" moment — so if you just used it for a little while? This wouldn't have to waste that fuel. When I first came up with the idea, it was just straight solar. I realized that wasn't powerful enough, especially for construction. We had a couple pivots, thinking about third-world development. And then we thought it might make more sense just to license the technology outright to the manufacturer.

Soph-Jr Year: Optivolt Labs



U of I students use solar power to create phone charging case

by Sarah Gledhill | Friday, September 8th 2017



Optivolt's solar-powered phone case is the result of a project by two University of Illinois students who are using solar panels to power up phones. (OPTIVOLT)



CHAMPAIGN, Ill. (WCCU) — Often times, you see solar panels on the rooftops of homes or businesses, but two University of Illinois students are using solar panels to power up their phones.

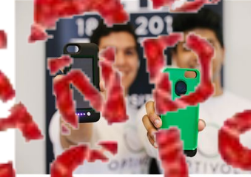
"Always on my phone so my battery is always going and dies," said student, Chris Napier said.

We're glued to our small screens for most of the day.

"My cell phone dies like every day before I get back to my apartment, which is what irritates me," U of I student, Jacqueline Moore said.

Paul Couston BSIE 2019: Undergrad students create solar powered phone charging case

Kristin ... with Madeleine ...
7/18/2017



Couston and ... prototypes of these cases. Photo by Emma Fleener

Paul Couston's love for making things can be traced back to "a huge case of LEGOs" he and his brother spent many Saturdays playing with at their suburban Chicago home.

The young siblings did plenty of building with the LEGOs, but they also conducted mini experiments, testing their creations and making adjustments along the way.

"We would make it and then drop it from different heights to see what was strong enough to hold together, or we would experiment to figure out how we could build a taller tower," says Couston, who is starting his junior year at ISE this fall.

As a high school student, while many of his peers were obsessed with technology, Couston's love for LEGOs evolved into an interest in construction and manufacturing, which he explored through summer employment and internships.

"We're making tangible things that people will actually be drawn to the physical interaction between people and things," he says. "There's something rewarding about having an idea and being able to make something physical. I'm also a visual thinker—I'm addicted to CAD and 3D printing, which is essentially grownup LEGOs."



Senior Year Drop Out: Techstars Chicago



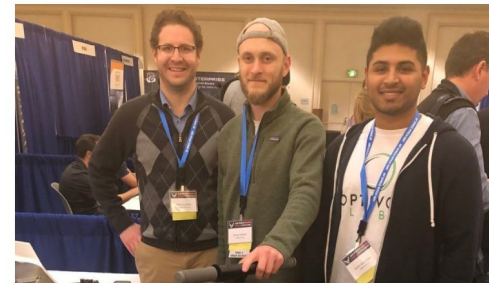
Year 4: Move To Bay Area



SPACENEWS

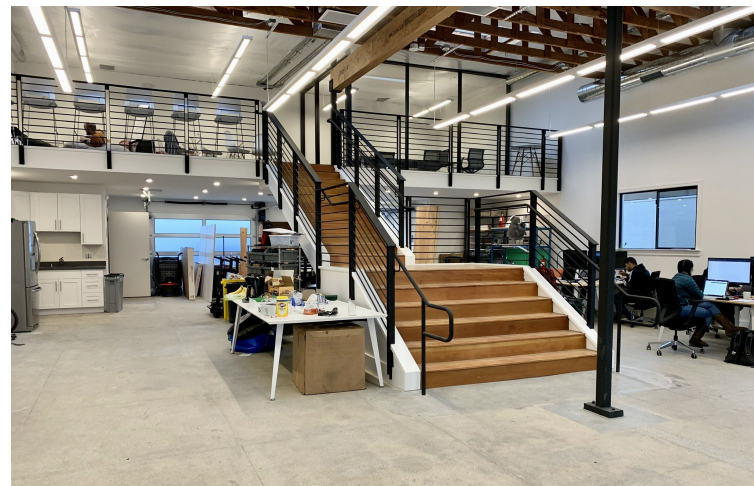
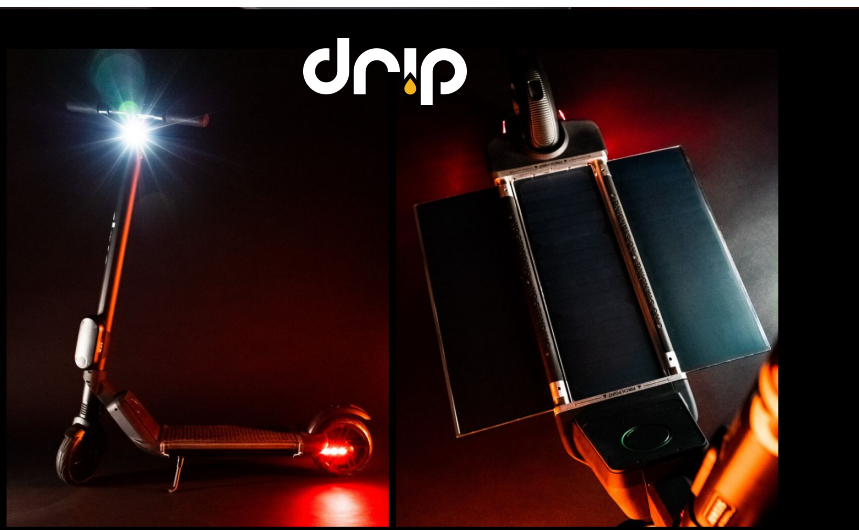
Air Force awards \$9 million on first Space Pitch Day San Francisco

by Debra Werner — November 5, 2019



Optivolt Labs employees: research engineer Tony Griffin, Daniel Kofman, chief technology officer and co-founder, and Rohit Kalyanpur, founder and CEO, won funding for their solar technology in San Francisco Nov. 5, 2019 at the U.S. Air Force Space Pitch Day event. Credit: SpaceNews/Debra Werner

This article was updated Nov. 6 at 4:40 Eastern time to note that the Air Force is offering startups the



So what am I doing now?

Some pretty secret stuff



Augmenting human beings to perform in extreme environments



Some Animals are built for their environment



But humans are not..

This is most apparent in extreme conditions



Technology is needed to help humans adapt..

Our Mission:

To utilize technology to **augment** and **enhance** the productivity and well-being of humans from simple wearables to full exoskeletons.



Alex Gorsuch, MS-IE
Chief Technology Officer

- Led development of over 200 products (concentrating on ruggedized, low SWaP-C projects like firearms, flexible displays, sensor arrays, and tactical autonomous systems)
- Instructor of Illinois I-Corps at UIUC and NSIN Defense Innovation Accelerator
- Entrepreneur-in-Residence at UIUC
- Established Hacking for Defense program at UIUC
- Consults on customer discovery, lean prototyping, SBIR, and technical hurdles



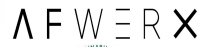
Deana McDonagh, PhD-ID
Design Executive Officer

- Expert of human/machine design interface and translating invention into innovation (biomedical, consumer products)
- Professor of Industrial Design and User Experience
- Co-founder SciHub Partners (Frank Wilczek (MIT), Nate Newman (ASU) and Walter Herbst (Northwestern))
- Director of Insights, Herbst Produkt, California
- Entrepreneur, researcher and designer
- Published over 200 research papers (3 patents pending)



Paul Couston, BS-IE
Chief Executive Officer

- Has successfully built and lead hardware teams as the co-founder and former COO of solar technology company, Optivolt Labs
- Raised \$2.5M in Angel/Venture funding and secured SBIR Phase 2 funding (\$750k) through AFWERX and the 21st Space Wing
- Former Chairman of a \$10 Million SSC grant fund at UIUC
- Industrial Engineer - prototyping and manufacturing SME (5 patents pending)



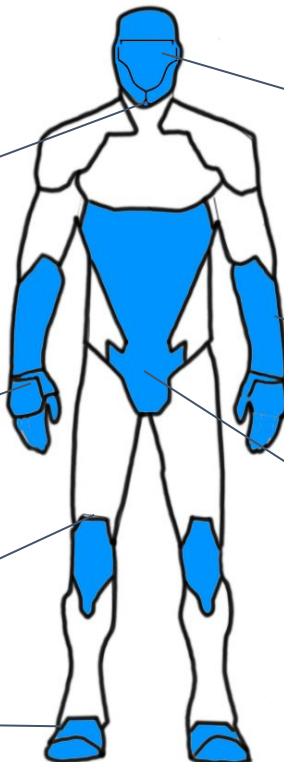
Building the Iron Man Suit

Technically, the DoD does not have a contract for "iron man" suit, but they do release new contracts daily that help us build parts of it.

Integrated Respirator Information System
Contract value: \$700k

BAA, Warrior Performance
Contract value: \$1M

DoD Combat Readiness, Rapid Development to Slow Bleeding and Absorb Impact
Contract value: \$2M



Versatile Integrated Protection with Encumbrance Reduction (VIPER)
Contract value: \$1M

MTRC Portable Welder Combat Evaluation (CV)
Contract value: \$200k

Sky High Relief - USAF Inflight Bladder Relief System
Contract value: \$1.5M

Markets

DOD

(Special Forces / Airforce)



First Responders

(Firefighters / EMT)



Disaster Relief

(American Red Cross / United Nations)



Space and Low Oxygen:

(NASA / Deep Sea Expeditions)



Things I've Learned

- Communication is key
 - Customers
 - Investors
 - Team
- Focus on the customer, not the amount of \$\$\$ you raise or how “cool” your technology is
- Nothing matters if founders can't respect each other
- Don't get free legal services for your incorporation documentation
- Enjoy the journey