



TECHNOLOGY ENTREPRENEUR CENTER
ENGINEERING AT ILLINOIS



Technology Entrepreneur Center

CREATING
INNOVATORS
ENTREPRENEURS
& LEADERS

tec.illinois.edu

TECHNOLOGY ENTREPRENEUR CENTER (TEC)

— CREATING —
INNOVATORS
ENTREPRENEURS
& LEADERS

CELEBRATING
OUR 17th YEAR



TEC provides students and faculty with the skills, resources and experiences necessary to become successful innovators, entrepreneurs and leaders.

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OUR 17th YEAR

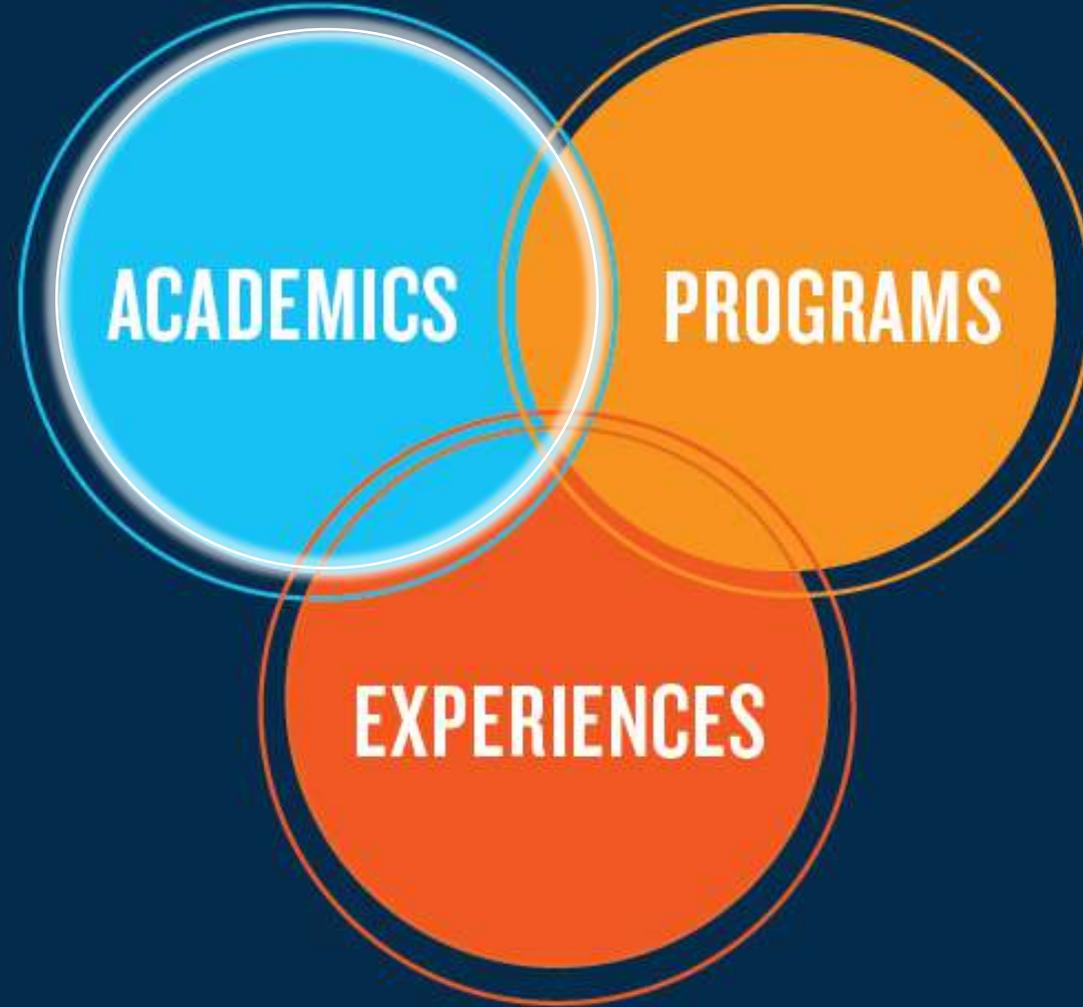


2016-17 Highlights

- 5,000+ participants
- Cozad NVC 125 teams competed for \$200K+
- 2016 Cozad winner **Amber Ag** named top startup of the 2017 Consumer Electronic Show (CES)
- 2016 Cozad finalist **Cast21** raised \$800K for their waterproof, breathable cast
- 2016 Cozad finalist **Reconstruct**, a construction drone startup, raised \$850K
- Launched Faculty Entrepreneurial Fellows program
- Launched *Innovation, Leadership & Engineering Entrepreneurship (ILEE) Degree*



TEC OFFERS:



ACADEMICS: COURSES



1200+

STUDENTS
TAKE TEC COURSES
EACH YEAR

SYLLABUS



- Entrepreneurship-related courses to give students the skills to become successful entrepreneurs
- 20 courses offered in fall and spring
- Taught by a variety of entrepreneurial faculty and industry leaders
- Campus-wide

Learn more at tec.illinois.edu/academics



TEC COURSES

Cultivate Ideas

TE 200: Intro to Innovation

TE 250: From Idea to Enterprise

TE 333: Creativity, Innovation & Vision

TE 360: Lectures in Entrepreneurship



Build

TE 398: Innovation & Engineering Design

TE 401: Developing Breakthrough Projects

- FEF Program
- Student Ideas

TE 461: Technology Entrepreneurship

TE 497: Independent Study



Grow

TE 398: Bootstrap to VC: Fund Startup

TE 450: Startups: Inc, Fund, Contracts, IP

TE 466: High-Tech Venture Marketing

TE 566: Finance For Engineering Management

TE 567: Venture Funded Startups

TE 598: Advancing Creativity



ACADEMICS: CERTIFICATES



350+
NUMBER OF
CERTIFICATES
TEC HAS ISSUED



UNDERGRADUATE

- Innovation
- Innovation, Leadership and Engineering Entrepreneurship (ILEE) – *for non-engineers*
- Technology Commercialization (TC)

GRADUATE

- Business Management for Engineers (BME)
- Strategic Technology Management (STM)

Learn more at tec.illinois.edu/academics

 <p>BUSINESS MANAGEMENT FOR ENGINEERS</p> <p>The Business Management for Engineers (BME) certificate is a graduate level program designed for students with an engineering or technology background who aspire to rise in management, make higher level strategic business decisions, and hone leadership skills. These courses are applicable to students who are/want to be entrepreneurial in starting a company, working for a start-up, or bringing business management skills into their career at an existing company.</p> <p>GRAD</p>	 <p>INNOVATION</p> <p>This certificate program is designed for selected first or second year students whose interests and abilities are in entrepreneurship, innovative product design, and transformative technical products and services. The program consists of a set of courses that have been designed to encourage students to become more innovative and to generate ideas that have the potential to be breakthrough new products.</p> <p>UNDER GRAD</p>
 <p>INNOVATION, LEADERSHIP & ENGINEERING ENTREPRENEURSHIP</p> <p>The Innovation, Leadership, and Engineering Entrepreneurship (ILEE) certificate program is designed for undergraduate engineering students. The requirements consist of a combination of classroom and experiential aspects of innovation, leadership, and engineering entrepreneurship. Students receiving the ILEE certificate will have a set of skills that will enable them to be valuable contributors within small companies, launch own ventures, or be innovative and entrepreneurial leaders within larger corporations.</p> <p>UNDER GRAD</p>	 <p>STRATEGIC TECHNOLOGY MANAGEMENT</p> <p>The Strategic Technology Management (STM) certificate program is designed for graduate level students with an engineering background who aspire to lead a venture, make higher level strategic technology/business decisions, and develop leadership skills. From an innovation viewpoint, this certificate program will provide students with the understanding and the tools to incubate new ventures and participate in the process of innovation and market adoption within corporate environments.</p> <p>GRAD</p>
	<p>TECHNOLOGY COMMERCIALIZATION</p> <p>The Technology Commercialization (TC) certificate program is designed for undergraduate engineering and science students. However, any University of Illinois Urbana-Champaign student may apply for the certificate. With an emphasis on creativity and innovation, this program is designed to provide students with the knowledge base needed to explore the various options for commercializing technology.</p> <p>UNDER GRAD</p>

ACADEMICS: DUAL BS DEGREE



ILEE Dual Degree

- First degree in ILEE offered by College of Engineering at tier 1 research University
- Student Profile
 - Half of engineering departments are represented in our first group of ILEE degree students
 - Students in every engineering department are taking our TEC/ILEE courses
- Curriculum
 - Dual Degree
 - Core + Technical Electives
 - Experiential credit opportunities

Learn more at go.illinois.edu/ILEE

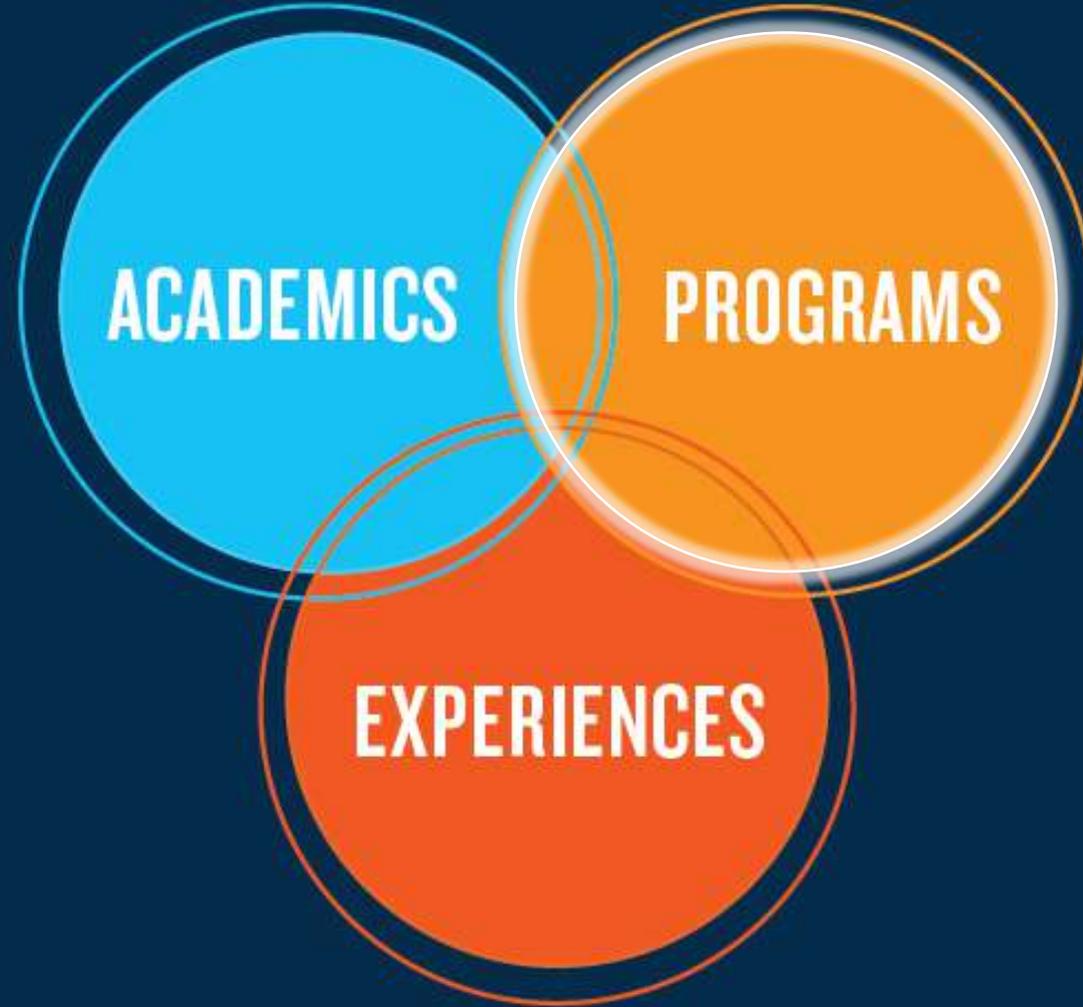
**INNOVATION
LEADERSHIP &
ENGINEERING
ENTREPRENEURSHIP
(ILEE)**

**NEW DUAL
BS DEGREE!**

FOR ENGINEERING
STUDENTS



TEC OFFERS:



TEC PROGRAMS

5000+ students participate annually in TEC programs

Workshops

- International students: how to start a company & other topics
- Patents and IP workshops
- SocialFuse



Build/Make

- Cozad New Venture Competition
- I-Corps
- Courses (Senior Design, ENG 461)



Recognize & Advocate

- Illinois Innovation Prize
- Innovation Celebration
- Entrepreneurship Forum



SOCIALFUSE



800+
PARTICIPANTS
ANNUALLY



Find Teammates at SocialFuse!

- Teams pitch their ideas in front of fellow students to find co-founders and team members for their projects and startups
- Held 4 times/year across campus to encourage interactions among a wide variety of majors
- Students with skills and students with ideas form teams
- 80+ teams pitched last year
- Each event has a sponsor who is interested in reaching innovators and entrepreneurs

Learn more at tec.illinois.edu/socialfuse

SOCIALFUSE



800+
PARTICIPANTS
ANNUALLY



COZAD NEW VENTURE COMPETITION



\$200,000+
IN FUNDING & PRIZES



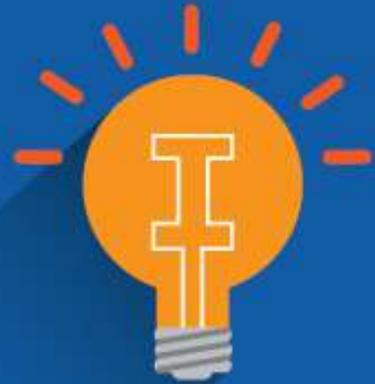
- **Founded in 2000**
- **Collaboration with Entrepreneurship at Illinois**
- **Mentoring from alumni & community**
- **Workshops on business plans, financials, pitching, lean startup, and more**
- **Spans 4 months (Jan. – Apr.)**
- **120+ teams, 250+ students**
- **Prizes include cash funding, legal services, incubator space**
- **Various innovation tracks**

COZAD
NEW VENTURE
COMPETITION **2017**
THE NEXT GENERATION OF **ENTREPRENEURS**

COZAD NEW VENTURE COMPETITION



\$200,000+
IN FUNDING & PRIZES



2017 Winners



Trala

An app that listens and provides real time feedback on pitch and rhythm to violin students. Trala: Learn Violin Faster.



Autonomic Energy Systems

Develops patented microcapsules that prevent fires in and extend the lives of batteries.

ILLINOIS INNOVATION PRIZE



2017 Winner: Lucas Frye *MBA Candidate and Co-founder of Amber Agriculture*

- Lucas won for his work with Amber Agriculture, a startup focused on automating grain management. Using IoT-enabled wireless sensors and cloud analytics, their technology enables farmers to capture the highest possible price for their crops.
- Students must be nominated by a faculty member, mentor, advisor or similar

Learn more at tec.illinois.edu/iip



AWARDED
ANNUALLY TO
THE MOST
INNOVATIVE
STUDENT
ON CAMPUS



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ENGINEERING AT ILLINOIS

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TEC OFFERS:



TEC EXPERIENCES

Real World Experience

- NSF I-Corps at Illinois
- Faculty Entrepreneurial Fellows
- Stay in school startups
- Experiential learning



Immersive Experiences

- ThinkChicago
- Silicon Valley Workshop
- Alternative Spring Break
- Innovation Living-Learning Community



Engage Our Alums

- Sponsorship and education
- Mentoring and networking



INNOVATION LIVING-LEARNING COMMUNITY



200

STUDENTS
CURRENTLY RESIDE
IN INNOVATION LLC



- Created in 2010 as a partnership between University Housing and TEC, Innovation LLC provides students with an introduction to the entrepreneurial eco-system on-campus.
- Located in the Illinois Street Residence Halls, Innovation LLC is a dorm for entrepreneurs that provides resources, on-site classes and workshops focusing on the themes of creativity, innovation and entrepreneurship.
- Programs specifically for Innovation LLC students:
 - *How I Failed* Lecture series (2-3x per semester)
 - *Extreme Entrepreneurial Lock-in* (1x each semester)
- The Garage, a dedicated work space within the community, is available for use by residents as they develop their new businesses and projects.

Learn more at go.illinois.edu/innovationLLC

FACULTY ENTREPRENEURIAL FELLOWS



TAKING EMBEDDED
ENTREPRENEURSHIP
TO A NEW LEVEL



- Faculty proof of concept activity
- Relief from teaching and committee work for 12 months
- \$50K For *Proof-of-concept* Development
- Involving students in the commercialization, exploration and innovation process
- Mentoring from alumni

Learn more at go.illinois.edu/fef



FACULTY ENTREPRENEURIAL FELLOWS



TAKING EMBEDDED
ENTREPRENEURSHIP
TO A NEW LEVEL



ANNOUNCING OUR SECOND CLASS OF FACULTY ENTREPRENEURIAL FELLOWS, FOR THE 2016-17 YEAR:



Jean Paul Allain, Associate Professor, Nuclear, Plasma & Radiological Engineering

Allain and his team will explore bioactive interfaces with atomic-scale additive plasma nanomanufacturing. Their goal is to disrupt the biosurface and biointerface technology space by introducing a plasma source that enables a synthesis approach that is clean, cheap, versatile and scalable. This technology could dramatically improve the safety and performance of knee and hip implants, among other procedures. Target customers are large/mid-size biotech companies and outsourced orthopedic manufacturers. The team will also work on market study of the biomedical implant space including: dental implants, orthopedic/prosthetic and spinal cord injury implants.



P. Scott Carney, Professor, Electrical and Computer Engineering

Carney and his team provide quantitative phase imaging for confocal microscopy (CM). CM is a means to acquire ultrahigh-resolution images while rejecting stray light and other sources of noise and image artifacts. It's used in biology to study subcellular structure and in precision manufacturing to perform nanometer-scale inspections. They will explore commercialization by developing a universal system extension, demonstrate that with systems on campus, and take their product to the major OEM manufacturers for feedback or to build relationships.



Scott White, Professor, Aerospace Engineering

White and his team are tackling the safety and longevity problems of batteries by creating self-healing batteries. Self-healing batteries will be an enabling technology for electrification of the transportation sector by having autonomous shutdown and fire prevention. Longer battery lifetimes will change the economic model for EVs and open new markets. They will explore cost and benefit analysis, market analysis, and demonstration of battery safety efficacy. Lifetime extension battery prototypes will be created and market analysis for self-healing batteries will be explored.



Andrew Smith, Professor, Bioengineering

Smith and his team are working on the development of brightness-equalized quantum dots (QDs) for biomolecular analysis, which would be an improvement over current products. Brightness-equalized QDs are compact and stable, easy to use, and all colors are bright. In addition, a new enabling capability produces many "hyper-spectral colors" for multiplexing. These brightness-equalized QDs can be used for biomolecular imaging and diagnostics, and eventually prepare the way for personalized medicine through biomolecular analysis. *Smith will begin as a Faculty Entrepreneurial Fellow in 2017.*



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THINKCHICAGO



INTRODUCING
STUDENTS TO THE
CHICAGO
TECH ECOSYSTEM



- A collaboration between Chicago Mayor's Office, World Business Chicago, 1871 and the University of Illinois
- Students take a tour of Chicago's fast-growing tech scene
- Held twice a year: Lollapalooza (Aug), Chicago Ideas Week (Oct)

Learn more at thinkchicago.net



SILICON VALLEY WORKSHOP



180
STUDENTS HAVE
PARTICIPATED SO FAR



ROGER DICKEY, GIGSTER



TOM SIEBEL, C3 IoT



MAX LEVCHIN, AFFIRM



MARCIN
KLECZYŃSKI,
MALWAREBYTES



SPENCER GORE, ROHAN GUPTA, CAROL REGALBUTO, CHRIS WALT, TESLA

IVENTURE STUDENT ACCELERATOR



32

STUDENT FELLOWS IN
THE 2016-17 COHORT



- A Cross-campus Educational Accelerator
- Partnership with College of Business, Research Park, Social Innovation & TEC
- 12-month Accelerator
- Early-stage Financial Support
- Expert Coaches and Advisors
- Co-working Space at Research Park and Grainger Engineering Library

Learn more at go.illinois.edu/iventure



AWARE



Accelerating
Women And
underRepresented
Entrepreneurs

AWARE: Accelerating Women And underRepresented Entrepreneurs

- Offers resources and an enhanced infrastructure that make the current entrepreneurial ecosystem more accessible to all:
 - A dedicated entrepreneur-in-residence familiar with the needs of those from underrepresented groups
 - Small proof-of-concept grants for teams
 - Targeted mentorship, training, and networking opportunities

Learn more at go.illinois.edu/aware



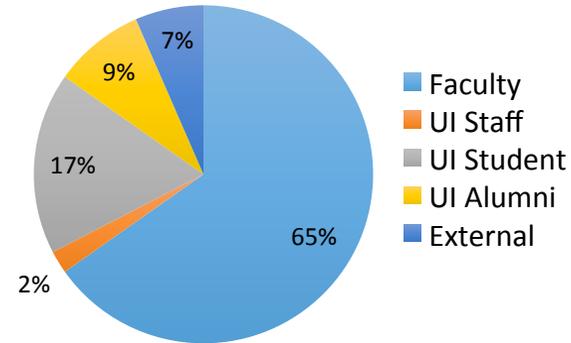
AWARE

ENTERPRISEWORKS



Startup Incubator

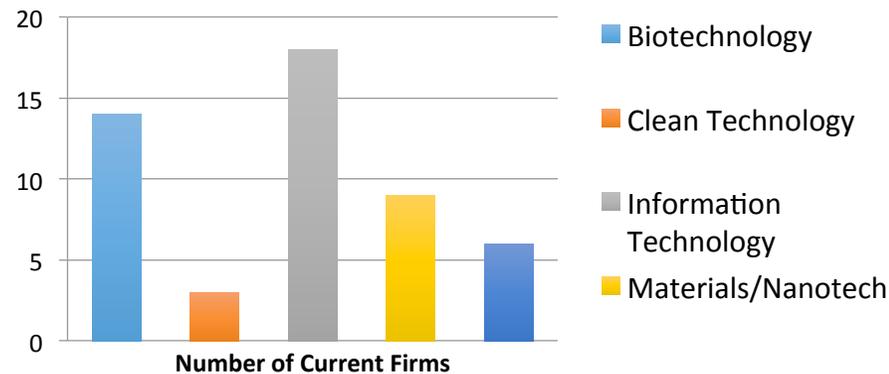
EnterpriseWorks is a 43,000 square foot startup business incubator in the Research Park for early stage tech firms. It is operated by the University of Illinois to launch successful startups.



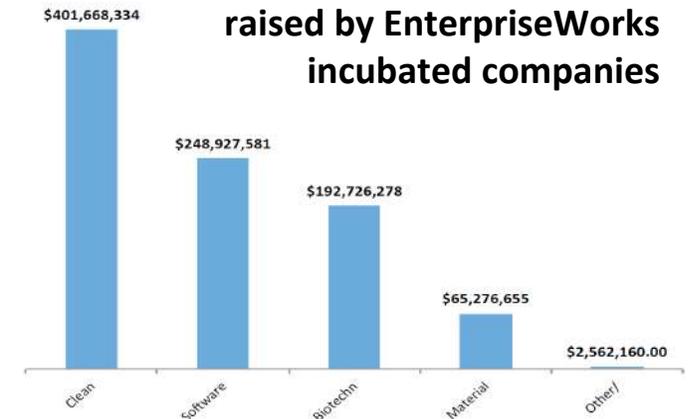
93%
OF CLIENTS HAVE
FOUNDERS AFFILIATED
WITH ILLINOIS



EnterpriseWorks Company Industry Sectors



\$911 Million in equity-based capital raised by EnterpriseWorks incubated companies



ILLINOIS I-CORPS PROGRAMS



NSF I-CORPS teaches university researchers to get out of the building with a targeted Lean Launchpad curriculum to identify valuable product opportunities that can emerge from academic research.

**Team =
Faculty +
Grad Student +
Mentor**

IN PARTNERSHIP WITH
THE NATIONAL
SCIENCE FOUNDATION



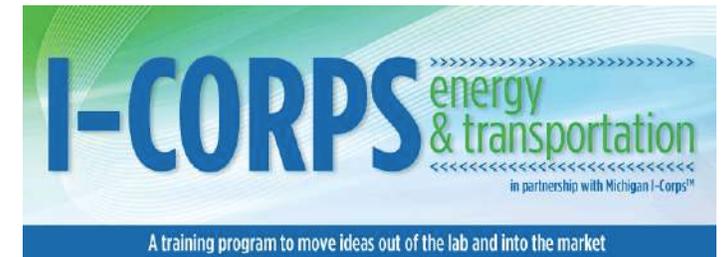
NSF I-Corps at Illinois

Learn more at go.illinois.edu/NSFicorps



Regional I-Corps Node

MWIN MIDWEST
I-CORPS NODE



I-Corps @ Illinois Impact

- Combined with EnterpriseWorks programs (EIR, I-Start), it has been transformative to tech ecosystem
 - Developing Human – changing mindsets
 - Taking it back to the classroom
 - Educating researchers and grad students to be next great entrepreneurs
 - “I wish I would have had this when I started.”
 - Integrated into the ecosystem
 - Recommended by OTM
 - Recommended by Research Park
 - Recommended by area VCs
 - Integral part of ecosystem
 - SBIRs

I-Corps @ Illinois Challenges / Surprises

- Procurement
- Teams do not spend the money
- Recruiting teams
- Tracking results (teams)



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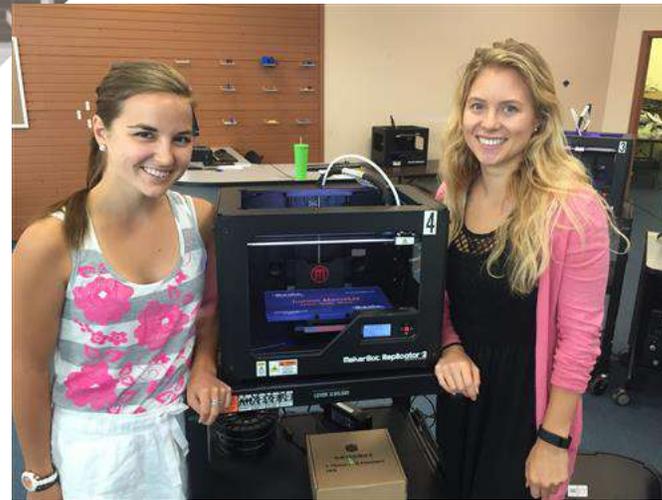
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APPENDIX



STUDENT STARTUP CASE STUDIES



CASE STUDY: PSYONIC



PSYONIC

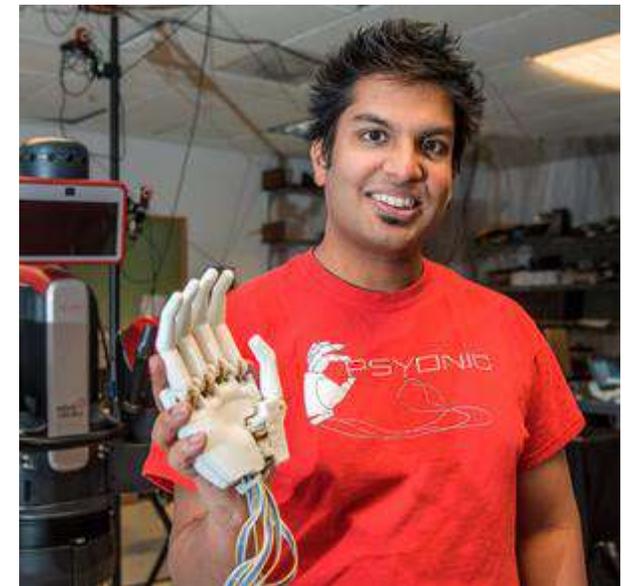
PSYONIC'S MISSION is to deliver advanced, neurally-controlled prosthetic hands with more functionality and lower cost than state-of-the-art prostheses. By employing machine learning algorithms, prostheses are able to recognize different patterns of muscle activity from the user's residual limb. Has the first commercially available prosthesis capable of sensory feedback. PSYONIC's innovations will disrupt the status quo of the prosthetics industry and decrease prosthesis rejection and abandonment. www.psyonic.co

- **HIGHLIGHTS**

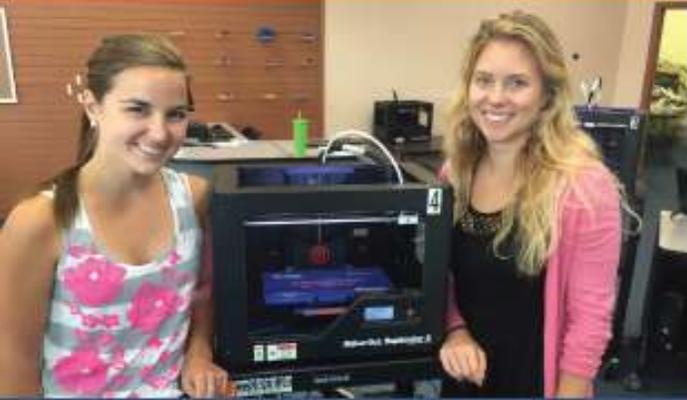
- 2015 Cozad New Venture Competition Winner, \$15K
- 2015 Cozad Samsung Research Innovation Prize, \$10K
- 2015-2016 VentureWell Stage E-Team, \$5K
- 2016 Illinois Innovation Prize Winner, \$18K

- **HOW DID THEY PARTICIPATE WITH TEC?**

- Cozad New Venture Competition,
- iVenture Accelerator
- SocialFuse
- Illinois Innovation Prize
- NSF I-Corps at Illinois



CASE STUDY: MAKERGIRL



- **MAKERGIRL'S MISSION** is to trigger social change by inspiring young women to pursue STEM fields. The co-founders vision of the program is to have gender equality in these fields by 2025. Participants get hands-on exposure to technology, and see how fun it can be. Students get to create projects such as 3-D printed bracelets, hair clips and magnets to take home. Makergirl.us
- **HIGHLIGHTS**
 - Raised more than \$32,000 on Kickstarter
- **HOW DID THEY PARTICIPATE WITH TEC?**
 - SocialFuse
 - Cozad New Venture Competition
 - iVenture Accelerator



CASE STUDY: NARDO TECHNOLOGY



NARDO TECHNOLOGY develops rapid and accurate electrochemical sensors, NardoSensors, for detection of chemical substances in the forensic, food safety and environmental testing markets. The NardoSensor will provide an inexpensive and rapid analysis of complex chemical solutions for instant identification and quantification of unique chemicals within a mixture. www.nardotec.com

HIGHLIGHTS

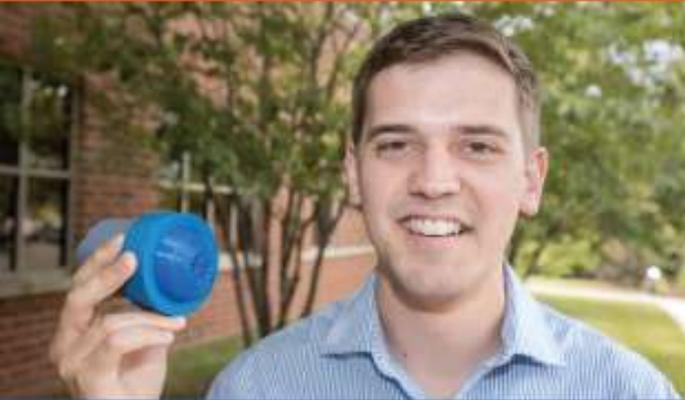
- 2016 Cozad New Venture Competition Finalist
- Completed Proof of Concept
- Completed National NSF I-Corps program

HOW DID THEY PARTICIPATE WITH TEC?

- Silicon Valley Workshop
- Cozad New Venture Competition
- SocialFuse
- I-Corps



CASE STUDY: AMBER AGRICULTURE



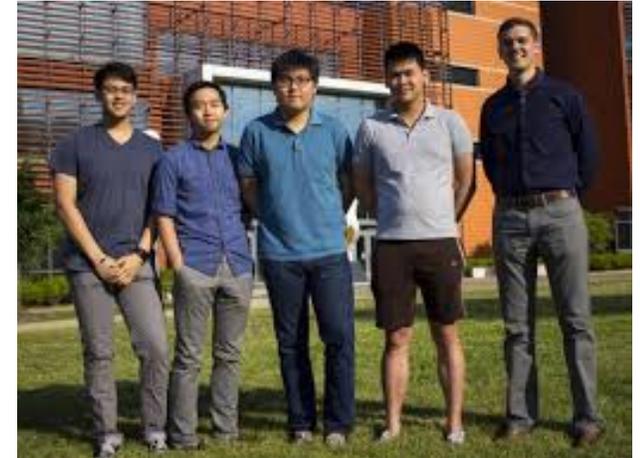
AMBER AGRICULTURE detects moisture in grain bins and sends updates to smartphones, thereby alerting farmers on potential spoilage so that they can take remedial measures. www.amber.ag

HIGHLIGHTS

- 2016 Cozad New Venture Competition Grand Prize Winner
- IllinoisVENTURES Innovation Award
- Cozad Agriculture Startup Award
- I-Start Award
- Accepted into HAX, the world's largest hardware accelerator

HOW DID THEY PARTICIPATE WITH TEC?

- Silicon Valley Workshop, 2016 Cozad winner, SocialFuse, Founders Programming, Ag I-Corps



CASE STUDY: CAST21



SIX MILLION AMERICANS WEAR A CAST EACH YEAR. Medical casts trap heat, sweat, and moisture against the patients skin, causing itchiness, skin breakdown, and even infection. Cast21's waterproof, lightweight casts overcomes these issues and seamlessly integrates with electrical therapy systems to reduce the overall healing time by 1-4 weeks. www.cast21.com

HIGHLIGHTS

- 2016 Cozad New Venture Competition Finalist
- Zeroto510 Accelerator
- 2015 St. Louis University Real Elevator Pitch Competition Winner
- 2016 St. Louis University Pitch and Catch Student Startup Winner
- Featured on WGN News Chicago

HOW DID THEY PARTICIPATE WITH TEC?

- Cozad New Venture Competition, iVenture Accelerator, iCorps



CAST21

CASE STUDY: EXOWEAR



EXOWEAR is creating a wearable device to track 3D movement of the leg for the purposes of monitoring physical therapy. Developing a wearable device that can track 3D motion in space. Using this information, they can determine key medical information like range of motion, daily activity levels, and function tests. The app serves as a platform that connects the patients with their healthcare provider so that physicians can obtain a deeper understanding of their patients condition. www.exowear.co

HIGHLIGHTS

- 2016 Cozad New Venture Competition 3rd Place Winner
- Cross campus collaboration between University of Chicago and Illinois
- Polsky Accelerator
- MATTER



HOW DID THEY PARTICIPATE WITH TEC?

- SocialFuse, Cozad New Venture Competition, iVenture Accelerator, University of Chicago New Venture Challenge



exowear

CASE STUDY: LUMENOUS



LUMENOUS creates computer vision technology to make projection mapping easier, cheaper, and more powerful in advertising. Company launched by three leading computer science PhD students with expertise and licensing history in computer vision technologies. <http://lumenous.co/>

HIGHLIGHTS

- Team has experience developing computer vision products for Microsoft, Adobe, and Disney

HOW DID THEY PARTICIPATE WITH TEC?

- 2012 Lemelson-Illinois Student Prize winner
- 2013 Illinois Innovation Prize winners
- 2014 Cozad winner





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