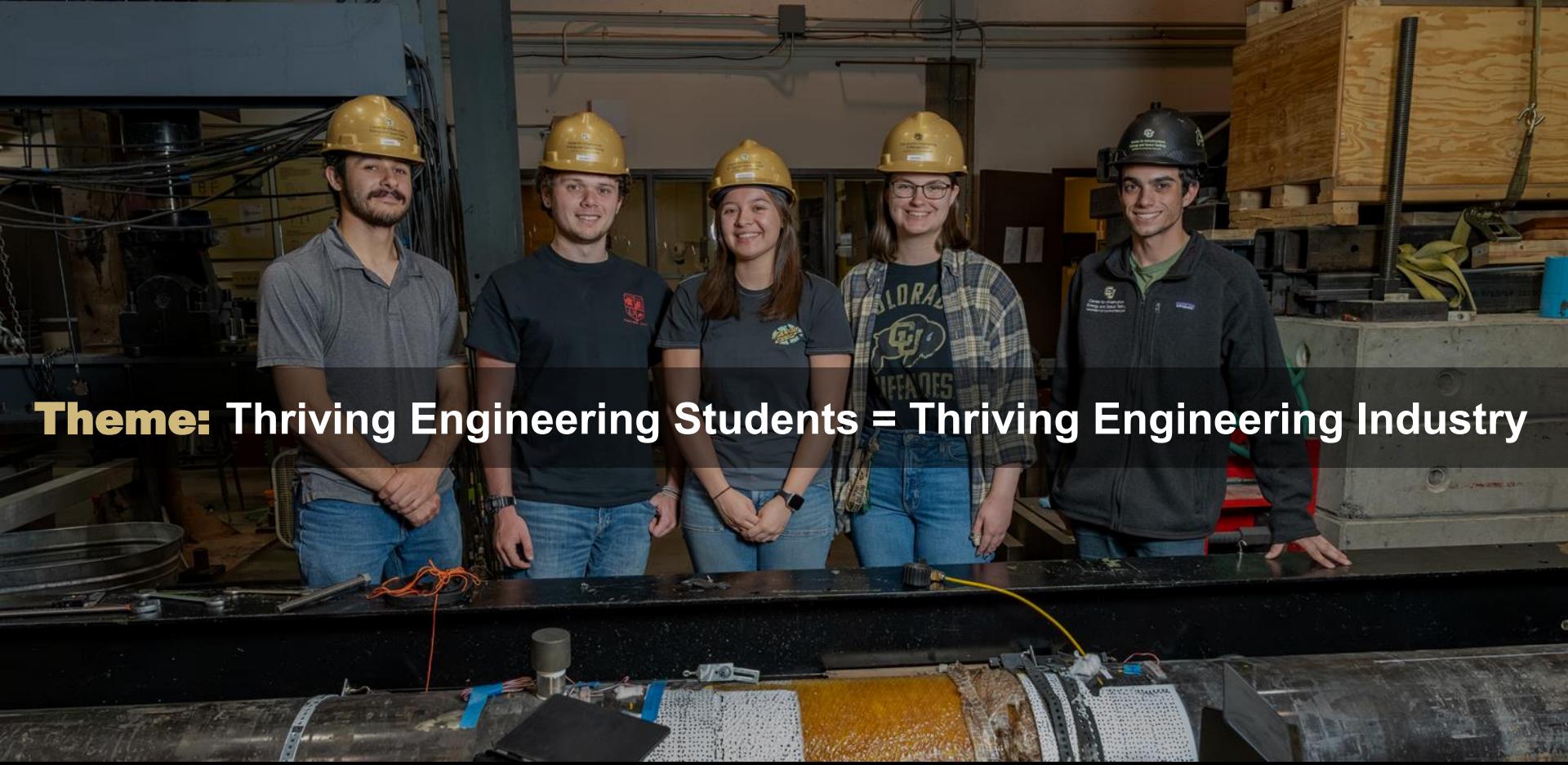


Theme: Thriving Engineering Students = Thriving Engineering Industry

Engineering Advisory Council Meeting

Spring 2025

Keith Molenaar
Dean, College of Engineering & Applied Science
University of Colorado Boulder

Engineering Advisory Council

Purpose:

- Advise the college on programs and policies
- Encourage and advocate for resource development
- Develop and guide education, outreach, and research programs
- Recognize achievements of alumni and other supporters in publicity and public relations

Meeting Expectations:

- Provide candid assessment to help us improve
- Speak and listen for understanding

Since Our Last EAC Meeting

Elevating Our Reputation Through Innovation

- Investing in Innovation & Entrepreneurship
- Implementing new MarComms vision forward
- Initiating Quantum and AI research & education
- Progressing Integrated Bus+Eng (IBE) degree
- Keeping with new EAC meeting format
    - Two 90-min. workshops
    - Focusing on student activities for spring

Agenda

Thriving Students = Thriving Industry

- Welcome & State of the College
- State of the Campus
- *Workshop:* ProReady
- Lunch with Students
- *Workshop:* Student Cohorts
- Three-Minute Thesis Presentations
- Professional Degrees

EAC Executive Committee

Bhavna Chhabra

CHAIR

Susie See

VICE CHAIR

Ed Ward

COMMITTEE MEMBER

Hari V. Krishnan

COMMITTEE MEMBER

EAC Membership Updates: Departures

Mike Gazarik

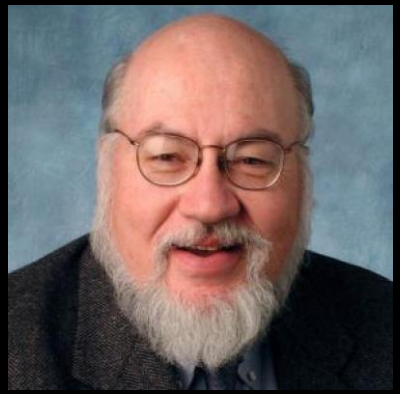
CU BOULDER

Mark Matossian

EFFICIENT FRONTIER

Ed Crawley

MIT



Dale Hatfield

CU BOULDER

Our sincere thanks for your incredible contributions!

EAC Membership Updates: New for Fall

Stephanie Golmon

DRAPER
PhD Aerospace, CU Boulder

John Linebarger

MEDTRONIC
VP Engineering

Julie Pearl

TECHNOLOGIST & INVESTOR
Former Google, Microsoft

WARM WELCOME TO

STEVE McLAUGHLIN *incoming*

14TH PRESIDENT OF THE COOPER UNION

College of Engineering & Applied Science
UNIVERSITY OF COLORADO **BOULDER**

Be confident. Be inspired. Be a leader.
Be Boulder.

College Leadership Updates

Mary Steiner
Associate Dean for Students
Departing

Stacey Hogan
Assistant Dean for Students
Incoming

Thank you, Mary for 19 years of service to our college!

Welcome to the team, Stacey. We look forward to working with you!

Current State of U.S. Higher Education

- Enrollment cliff
- Increasing cost of attendance
- Erosion of public confidence
- Attacks on DEI programs
- Gen Z attitudes
- Impact of AI

Federal Transition

From your perspective…

- Where do you see opportunities in the new federal landscape?

Driving our Strategy Forward

2025 NAE Fellows

Professor Scott Diddams

Professor and Robert H. Davis Endowed Chair

Electrical, Computer and Energy Engineering

PRIMARY SELECTION
Electronics, Communication & Information Systems

For contributions to optical frequency combs and their applications.

Professor Hanspeter Schaub

Distinguished Professor and Glenn L. Murphy Endowed Chair

Ann and H.J. Smead Aerospace Engineering Sciences

PRIMARY SELECTION
Aerospace

For contributions to the control of satellite formations and relative orientations utilizing natural forces, including the use of electrostatics.

NATIONAL ACADEMY OF ENGINEERING

2026 West Regional Meeting

Target Dates: March 24-26, 2026

Agenda:

- Business Session
- Public Symposium

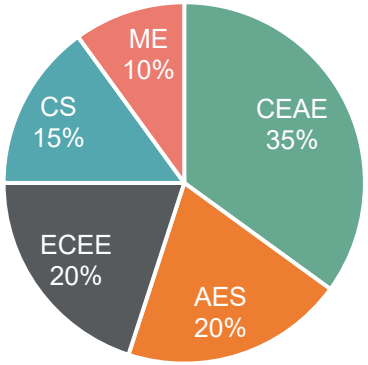
ACADEMIA + INDUSTRY + GOVERNMENT + STUDENTS

NATIONAL ACADEMY OF ENGINEERING

Research & Policy Advancement Fellows

Recognizing and supporting faculty who are actively engaging in positions that shape local, state, and national research and policy agendas.

18 Fellows



Fellows represent tenure-track, teaching, and research faculty at all ranks.

Innovating technologies, policies and partnerships for watershed management

Driving Impact in the Colorado Higher Education Landscape

Advising NASA on Technology Priorities for Planetary Defense

Research-based building codes for climate change & earthquakes

Space traffic management and nuclear deterrence

Policies for multiple assistive devices to enhance movement, mobility, and quality of life

Real-time Geographic Spectrum Sharing: Better Hurricane Predictions & Faster Wireless Speeds

Innovation & Entrepreneurship

Actionable Takeaways from I&E EAC Workshop (Fall 2024):

- **Enhance I&E Exposure:** Provide targeted awareness, showcase success stories, and introduce innovation and entrepreneurship pathways early to students, staff, and faculty.
- **Innovate the Curriculum:** Build new I&E-focused courses across all levels, explore startup internships, and training that emphasize importance of grit, communication, and business modeling.
- **Support Graduate Ventures:** Integrate entrepreneurship education and training into grad/postdoc training with fellowships, venture-launch courses and programs, and simplified support structures.
- **Empower Faculty Engagement:** Include entrepreneurship in tenure criteria, offer entrepreneurship sabbaticals, and provide funding to engage faculty in I&E ecosystem.
- **Leverage Alumni & Industry:** Strengthen mentorship networks, collaborate on support for venture development, and align incentives for alumni and industry partners and donors.

Innovation & Entrepreneurship

2025 CEAS I&E Fellowship Program

- **Goal:** To engage faculty, graduate students, and postdoctoral researchers in the CU Boulder I&E ecosystem by providing financial support at critical points of inflection for **entrepreneurship training**, **team building**, and **customer discovery**.
- **$200,000** program co-sponsored by **CU Venture Partners**
- **19 Fellowships** awarded to faculty, graduate students, and postdoctoral researchers who collectively launched **10 New CEAS Startups in 2024-25**

Introduction to Entrepreneurship: Fall 2025 (1 Credit)

- **Goal:** To engage and teach faculty, staff, undergraduate and graduate students, and postdoctoral researchers the fundamentals of entrepreneurship.

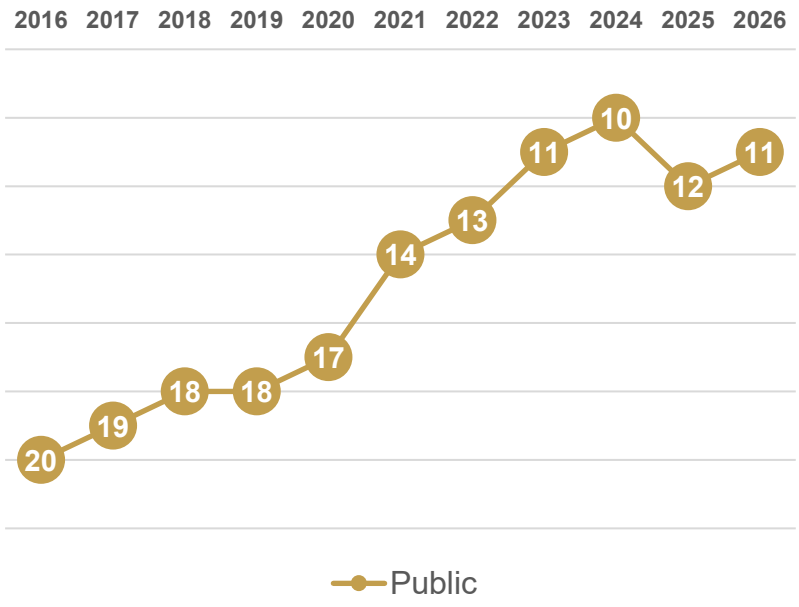
Innovation & Entrepreneurship

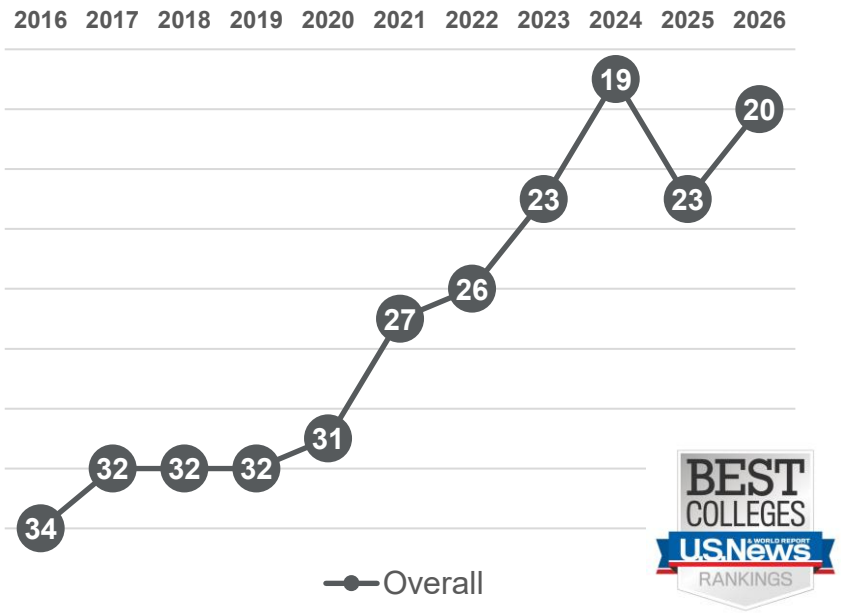
Other I&E Initiatives:

- Administering Awareness Campaign for Faculty through **Weekly Opportunities Newsletter**
- Establishing an Equitable and **Entrepreneurial Leave Policy** for Faculty
- Integrating I&E Activities in **Comprehensive Review, Promotion & Tenure Criteria**
- Exploring Feasibility of Launching **I&E Professional Master's Program (PMP)**
- Collaborating with Advancement on **Fundraising Initiatives** to Support I&E Programming

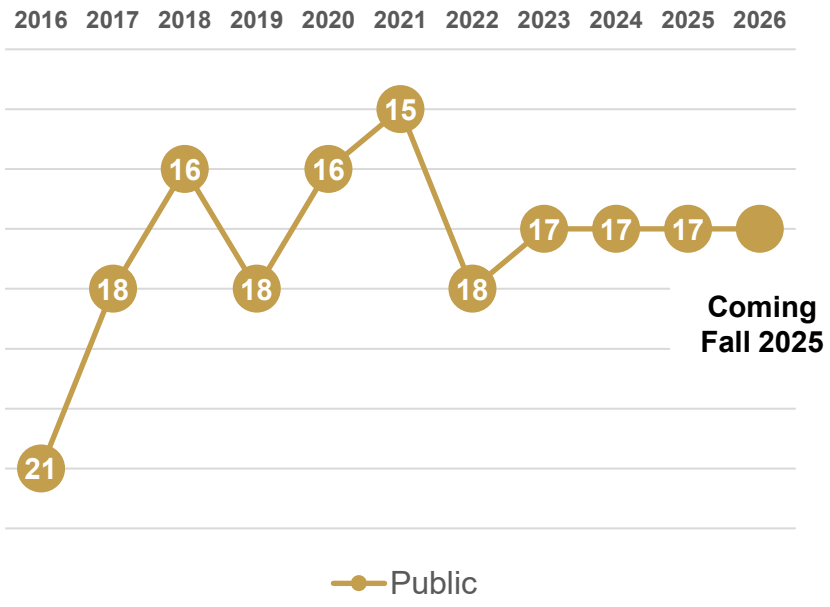
Recipients of 2025 CEAS I&E Fellowships:

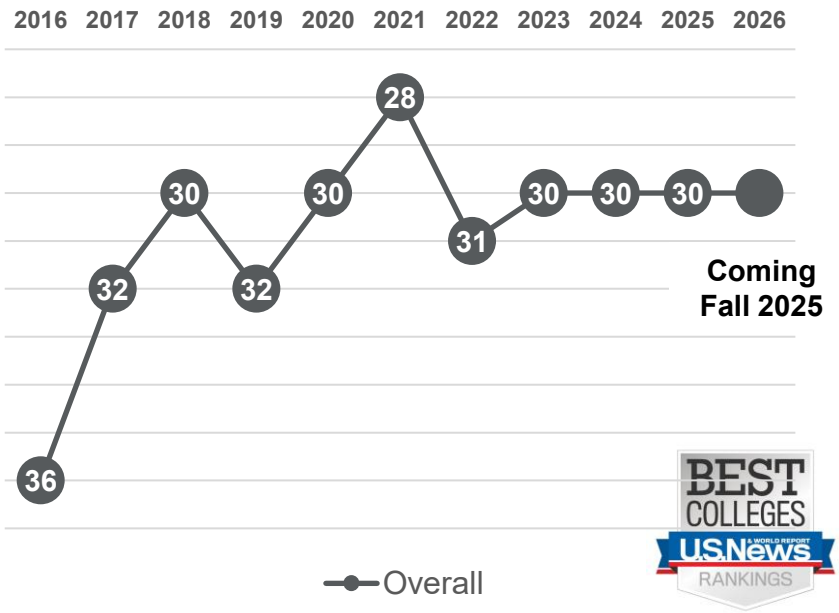
Graduate Rankings





Undergraduate Rankings





Dean's Fellowship: Excellence in AI

- **Faculty leadership in responsible use of generative AI in the classroom**
- **Received 12 proposals and funded 8 projects**
- **Generative AI Futures Lab**
  - Educate faculty and students about generative AI
  - Facility that allows them to work with various generative AI technologies
- **Generative AI-based automatic tutoring system**
  - Provide support to students anytime
  - Allow course staff to monitor generative AI usage

MS Artificial Intelligence Degrees

Launch: Fall 2025

Online MS-AI

- Flexible enrollment options
- Self-paced coursework
- Performance-based admissions
- Reduced tuition rates

coursera

Launch: Fall 2026

Residential MS-AI

- Semester-based schedule
- Traditional course-based program
- Apply through graduate school
- Standard tuition rates

CU Boulder Campus

Integrated Business–Engineering Degrees

Pilot
Launch: ~~Fall 2026~~ Fall 2027

IBE – B

(B: Business)

- 4-year degree
- AACSB-accredited
- housed in Leeds

- Program structure: see next slide
- Full proposal to Regents in Fall 2025
- Initial cohort: 40

Second Phase
Launch: Fall 2027

IBE Honors

(Business + Engineering)

- 5-year dual degree
- ABET accredited
- AACSB-accredited

- Program structure to be developed this summer
- Full proposal to Regents in Spring 2026
- Initial Cohort: 40

IBE-B Degree

Y1	APPM 1350: Calc 1 for Engineers 4	ECON 2010: Microeconomics 4	BCOR 1015 or BCOR 1030 3	CSCI 1200: Intro to Computing 3	COEN 1830/1500: First-Year Seminar 1
	Engineering Math: 4	ECON 2020: Macroeconomics 4	BCOR 1025: Statistical Analysis in Business 3	BCOR 1015 or BCOR 1030 3	
Y2	PHYS 1110 General Physics 1 (4)	BCOR 2201: MKTG (1.5) & BCOR 2202: Org. Behavior (1.5) 3	BCOR 2203: ACCT1 (1.5) & BCOR 2204: FNCE (1.5) 3	BCOR 2205: Info. MGMT (1.5) & BCOR 2206: Ops. MGMT (1.5) 3	GEEN 1400: Engineering Projects 3
	BCOR 2301: Bus.Law (1.5) & BCOR 2302: Ethics/Soc.Resp. (1.5) 3	BCOR 2303: ACCT2 (1.5) & BCOR 2304: Strat. & Entre. (1.5) 3	BASE 2104: BCOR Applied Semester Experience 6	GEEN/AREN 1017: Engineering Drawing 3	
Y3	Business - Area of Emphasis Class 3	Business - Area of Emphasis Class 3	GEEN 2400: Engineering Projects for the Community 3	GEEN 2851: Statics for Engineers 3	Written Communication L/D 3
	Business - Area of Emphasis Class 3	GEEN 3400: Invention and Innovation 3	GEEN/MCEN 3024: Materials Science 3	GEEN 3852: Thermodynamics for Engineers 3	Gen. Ed: Global Diversity: 3
Y4	IBE Eng Captone 3	Business - Area of Emphasis Class 3 3	Engineering Tech Elective 3	Gen.Ed: US Diversity 3	Gen. Ed: Arts & Humanities (1)-3
	Area of Emphasis-Senior Seminar 3	Business - Area of Emphasis Class 3	Engineering Tech Elective 3	Electives: 3	Arts & Humanities (2) -3

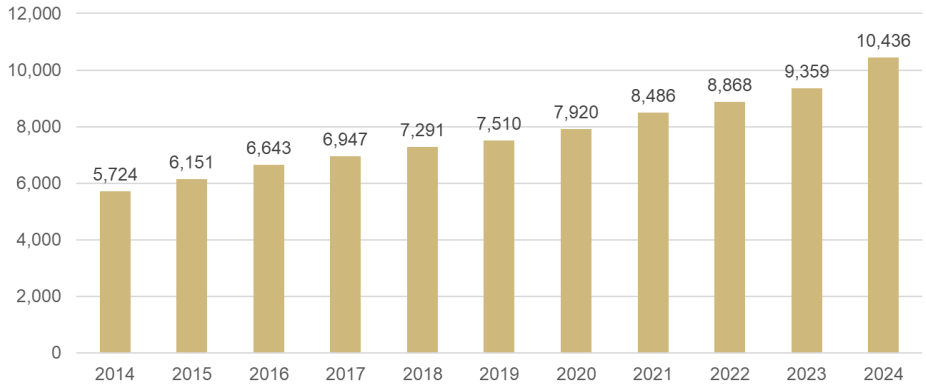
- 120 credits
- 35 engineering credits (~30%)
- engineering course options approved by IDE
- business courses approved by Leeds
- admission criteria same as the current one used by Leeds (very similar to CEAS)

- engineering, math, cs
- general education
- business core
- business emphasis (entrepreneurship, sustainability)
- new courses

Imagining Schools within the College

College offers 15 undergraduate and 37 graduate degrees (and growing)

- 6 departments
- 10 interdisciplinary programs
- 2 partnership programs
- 1 institute



School of Computing

CHARGE	Explore unit within CEAS which would connect computing programs, solve important problems through interdisciplinarity, and adapt to current and future technological needs of society and CU.
FIRST STAGE	Broad task force formed September 2024, submitted report February 2025; focusing on purpose, vision, educational and research priorities, impacts.
CAMPUS INPUT	Supportive of CEAS authority to set up internal structures; sees as opportunity for campus-wide computing-related strategic discussions and planning.
NEXT STAGE	Structural and operational planning tentatively targeting Summer 2026 launch.

2025 President's Inclusive Excellence Award

Amy Moreno-Sherwood

Director, The BOLD Center

Honors individuals across all four CU campuses who have demonstrated outstanding commitment and made significant contributions to advancing inclusive excellence within our diverse University of Colorado community.

2025 President's Inclusive Excellence Grant Recipients

Angela R. Bielefeldt

Professor, Department of Civil, Environmental, and Architectural Engineering; Director, Engineering Education

Azadeh Bolhari

Associate Teaching Professor, Department of Civil, Environmental, and Architectural Engineering

The President's Inclusive Excellence Grants support innovative and creative initiatives that advance inclusive excellence across the University of Colorado.

Creating Inclusive Student Chorts

- Engineering Connections
- Lattice Scholars
- BOLD Scholars
- Society of Women Engineers
- Kiewit Design-Build Scholars
- 80+ Engineering Student Societies

Giving to the College

Significant Major Gifts FY25

- $5.5M Endowed Scholarship for Engineering Students interested in medicine
- $2.5M Endowed Professorship in Space Policy and Law
- $2.5M Endowed Scholarship for the Lattice Program
- $1M Endowed Scholarship for Mechanical or Chemical Engineering students
- $400K Endowed Scholarship for Society of Women Engineers (SWE)
- $400K Endowed Faculty Fellowship for Computer Science

Total CEAS Fundraising FY25 = $33,731,000

EAC Member Philanthropy

- Each member to give **$2,500** annually to CU, with **$1,000** minimum going to the CEAS Dean's Fund
- As of April 22, we're at **45%** overall giving. **Goal is 100%!**
- Gifts can be made until **June 30** to count toward this year's giving
- **Thanks to all who have made their gifts this year!**

Estate Planning

Is CU in your estate plans?

Do we have documentation of your wishes?

See Kristen for more information!

Kristen Gallagher
Assistant Dean For Advancement

Kristen.Gallagher@colorado.edu

State of the Campus

Russell L. Moore

Provost and Executive Vice Chancellor
for Academic Affairs

Thriving Students = Thriving Industry: Helping Our Students Become ProReady

Dr. Ben Weihrauch
Sr. Director of Student Professional Development

Agenda: 75 minutes

- Review of ProReady homework (2 minutes)
  - ProReady website, video, article
- Future of the ProReady Center (8 minutes)
- World Café-style breakouts (3 x 15 minutes)
- Large group discussion (20 minutes)

Be ProReady! Chart your personalized path to career success.

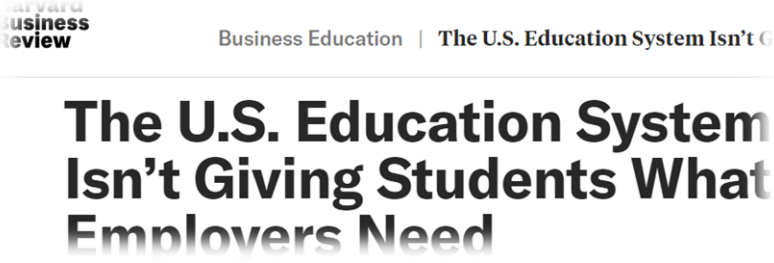
The ProReady initiative is designed to prepare every CU Engineering student for career success in their chosen field. Follow the ProReady formula to help you:

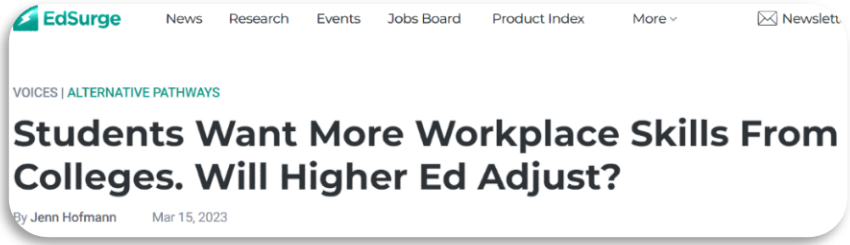
- **Chart your career path**
- **Gain relevant experience**
- **Grow your professional network**

The ProReady initiative is an easy and flexible formula for career success for CU Engineering students. Use the ProReady website to connect with resources, experiences, networks, and events from across the college. No matter your major (BS or BA degree), year in school, or background, you can start becoming ProReady at any time.

The US Needs More Engineers. What's the Solution?

By Abhi Kodey, Julie Bedard, Jonathan Nipper, Nancy Post, Sibley Lovett, and Adriann Negreros

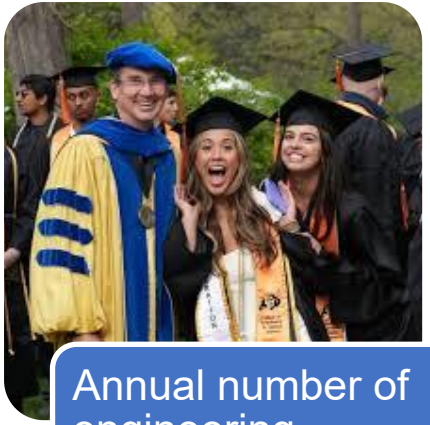




Engineering Labor Market Trends

Number of engineering students in the US

- 622,000



Annual number of engineering graduates in US

- 146,000

Annual demand for new engineers in US

- 400,000

ASEE, 2018, NCES, 2023, BLS, 2023, Lightcast, 2024, Boston Scientific Group, 2023

Be ProReady

ProReady is an initiative to prepare every student in the College of Engineering and Applied Science for career success in their chosen field. Follow the ProReady formula to take advantage of the great career readiness opportunities from across the college.

Chart Your Career Path

Gain Relevant Experience

Grow Your Professional Network

Start Now: colorado.edu/engineering/proready

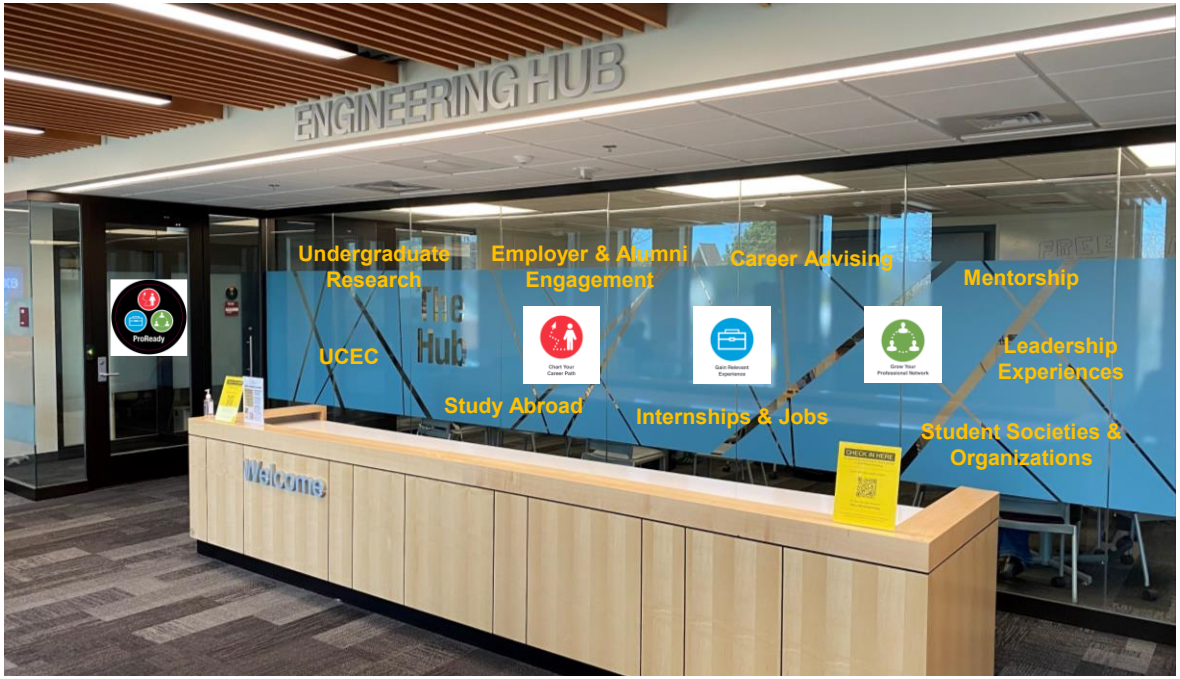
Engineering & Applied Science
UNIVERSITY OF COLORADO **BOULDER**

ProReady

Engineering ProReady 2.0

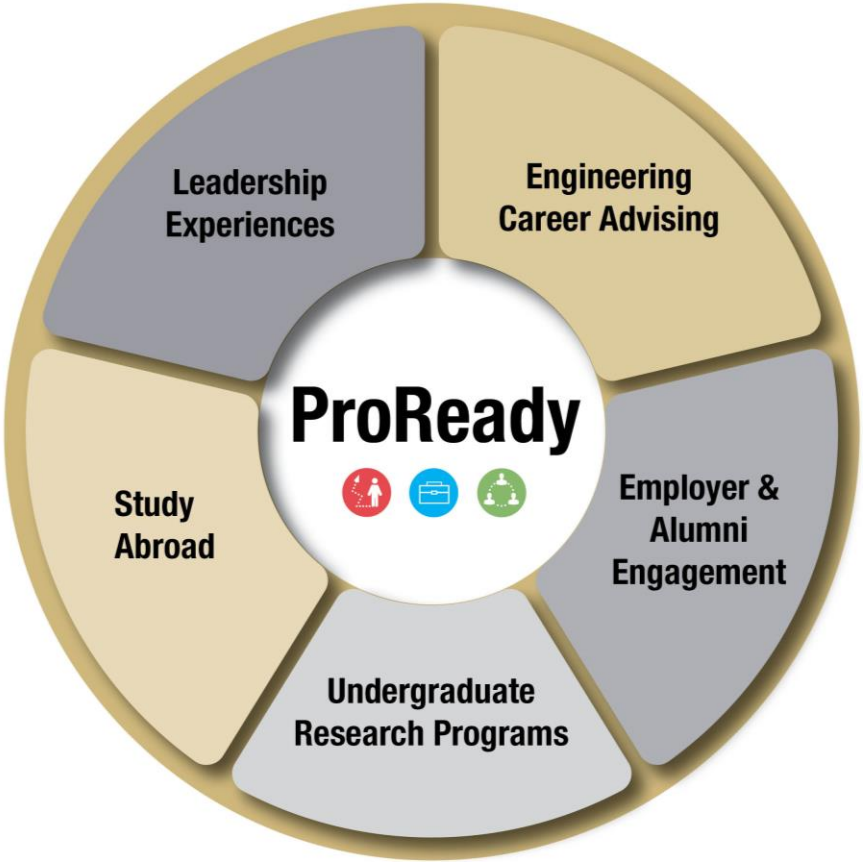
- Develop a **best-in-class center** for integrated career and professional development services with **five core ProReady services.**
- CU Engineering graduates will thrive professionally by developing **strong workplace competencies through relevant professional experiences**.
- Fulfill the College's **Strategic Vision** and center our Engineering ProReady work through the lens of **access, equity, and inclusion.**

Coming Fall 2025: ProReady Center @ The Hub



Engineering ProReady Center @ The Hub:

5 Core Services



Increase our ProReady KPIs

	2018-19	2023-24	GOAL: 2026-27
Internship participation	43%	65%	80%
Undergraduate research participation	23%	32%	50%
Study abroad participation	13%	15%	15%
Earned job, grad school, military: *upon graduation*	59%	72%	80%
Earned job, grad school, military: *6 months post graduation*	93%	95%	95%

CEAS Senior Survey, 18-19 to 22-23

Small Group Discussion

- **Small group discussion prompts**
  - 3 EAC members at each table
  - ProReady Partners at each table
  - 3 discussion prompts x 15 minutes
- **Large group discussion (20 minutes)**
  - Share out key insight on each discussion prompt

Small Group Discussion: Topic #1

- How can ProReady best prepare our students to **thrive and be resilient in a rapidly changing** engineering and computing **work environment**?

Small Group Discussion: Topic #2

- **What professional knowledge, skills, and abilities are engineering grads missing** that keep them from “hitting the ground running” or moving up in your organization?

- How can the ProReady team – and CU Engineering – address this?

Small Group Discussion: Topic #3

- What **recruitment and talent acquisition needs and challenges** does your organization face?

- **What services or programs can ProReady provide** to become your top long-term partner for talent acquisition and recruitment?

ProReady

Engineering & Applied Science

UNIVERSITY OF COLORADO **BOULDER**

Start today colorado.edu/engineering/proready

ProReady + Strategic Vision Alignment

CU Engineering Strategic Vision – Education Pillar:

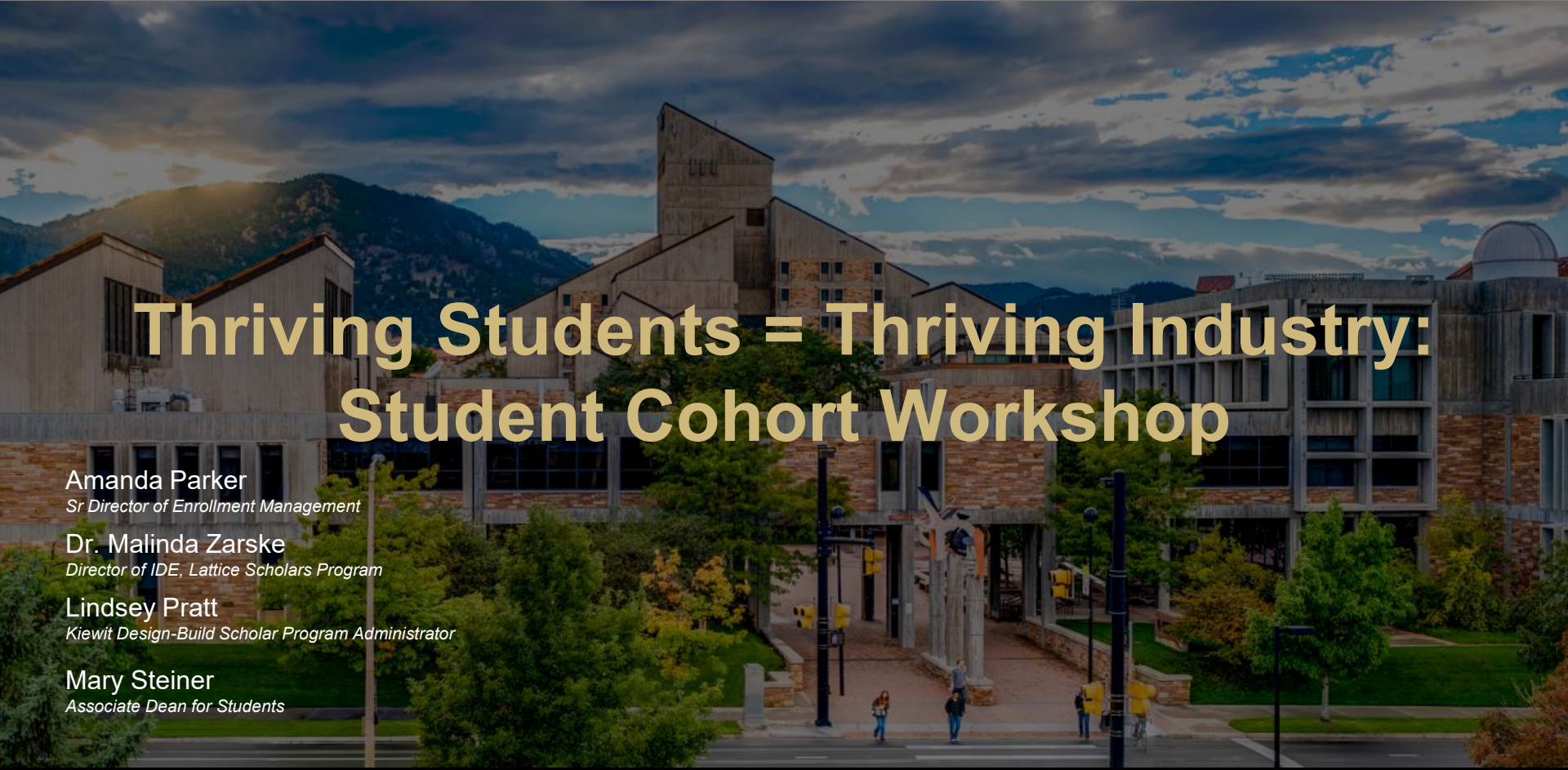
engagement. We invest in serving first-generation, underrepresented and historically marginalized students and support their academic and career success. We recruit and develop undergraduate and graduate students who become the next generation of leaders in industry, academia and public service.

To enable this vision, we will:

- Improve student retention rates across all student demographics to the top quartile of our national peers and close our existing equity gaps.
- Enhance our co-curricular opportunities, such as residential experiences, mentoring, leadership, study abroad, research and internships to improve student belonging and career affinity.
- Develop and grow innovative educational offerings through various modalities to increase access to all undergraduate and graduate students.

BOLD Center Strategic Plan

- "BOLD Scholars will have higher internship participation rates."
- "Increase the number of BOLD Scholars pursuing undergraduate research experiences."



Thriving Students = Thriving Industry: Student Cohort Workshop

Amanda Parker
Sr Director of Enrollment Management

Dr. Malinda Zarske
Director of IDE, Lattice Scholars Program

Lindsey Pratt
Kiewit Design-Build Scholar Program Administrator

Mary Steiner
Associate Dean for Students

Student Cohort Workshop

1. **Welcome & Framing (5 min)**
   - Quick overview of session purpose and instructions
2. **Breakout Group Discussion (35 min)**
   - Small groups with 4–6 participants (mix of EAC members, students, and staff)
3. **Report-Out & Large Group Debrief (15 min)**
   - Each group shares key insights and action ideas

Session Outcomes

1. **Deeper Understanding of Student Needs**
   - Gain insights into how students define “thriving” at CU Boulder and what supports or barriers they experience across academic, social, and career domains.
2. **Mutual Awareness of Strengths and Gaps**
   - Students and EAC members share perspectives on what’s working well and where there are still gaps.
3. **Collaborative Idea Generation**
   - Groups generate suggestions for how the College and its partners can better support student success—both during college and as they transition to industry.

Student Cohort Discussion

GROUP A:

BOLD Society Leaders

Facilitator: Mary Steiner

Bhavna Chhabra

Mike Gazarik

Terry Hogan

GROUP B:

Lattice Scholars

Facilitator: Mindy Zarske

Amy Karmer

Jiong Ma

Robert Sawaya

Ed Ward

GROUP C:

Lattice Mentors

Facilitator: Amanda Parker

Mark Matossian

Mina McCullom

Steve McLaughlin

Steve Smith

GROUP D:

Kiewit Scholars

Facilitator: Lindsey Pratte

Karen Furlani

Dennis Pretti

Jon Goldsmith

Prompts

Choose one prompt from each section to get started.

Prompt Set A: Thriving at CU Boulder

- What does 'thriving' mean to our students today?
  - Are there particular academic, social, financial, or emotional supports that help them thrive?
- How are programs like Lattice, BOLD, and Kiewit Scholars creating pathways for students to thrive?

Prompt Set B: Thriving in Industry

- From the student perspective, what experiences, skills, or exposures make you feel ready for the transition to industry?
- From the industry perspective, what do recent graduates often seem underprepared for?

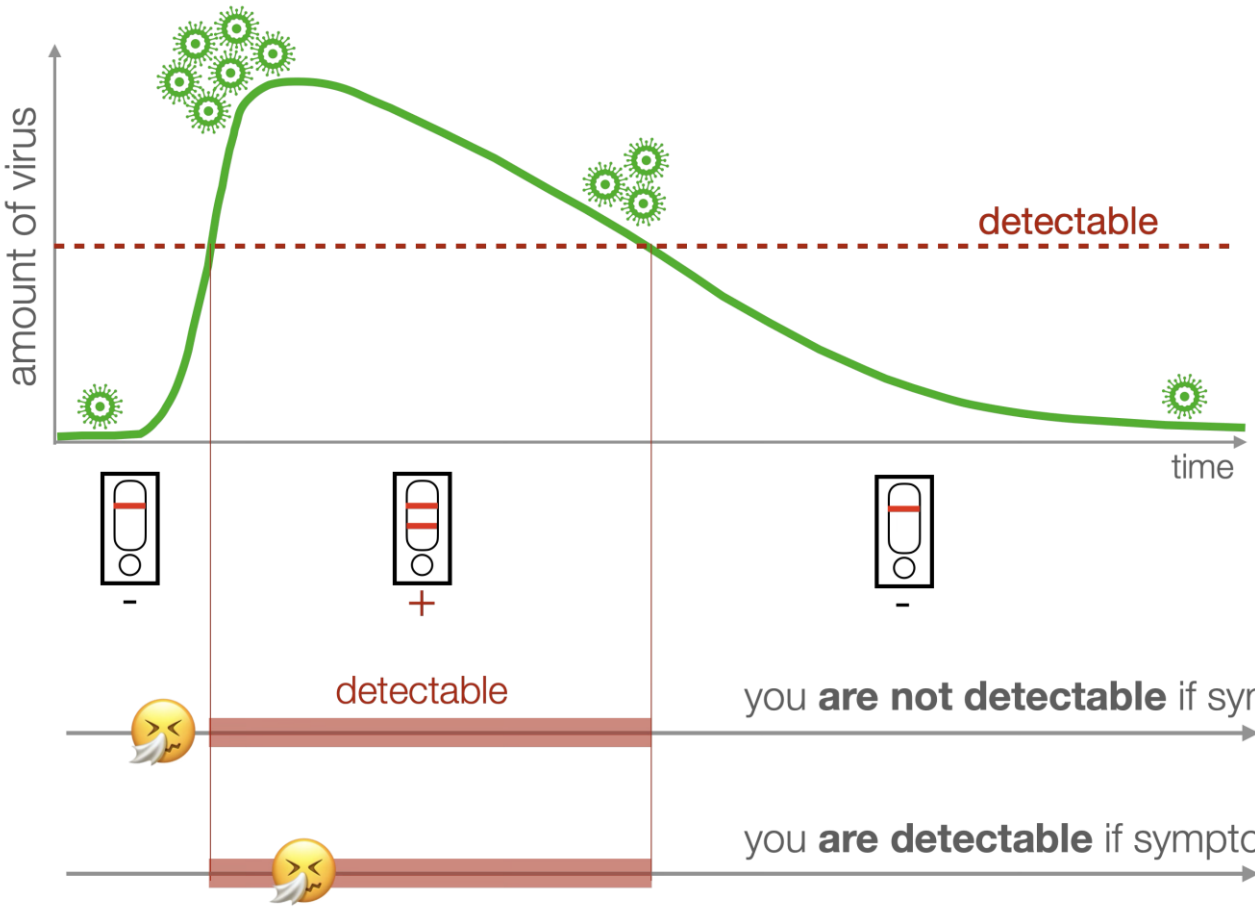
Report Out & Discussion

Each group to share key takeaways with the room:

1. What was surprising or enlightening?
2. What ideas should we explore further?

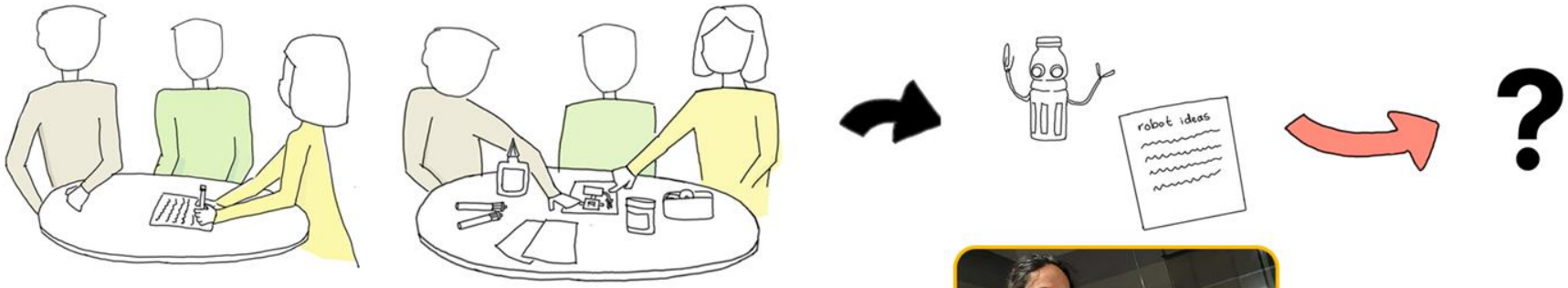
Three-minute Thesis Presentations

An infection may look like:

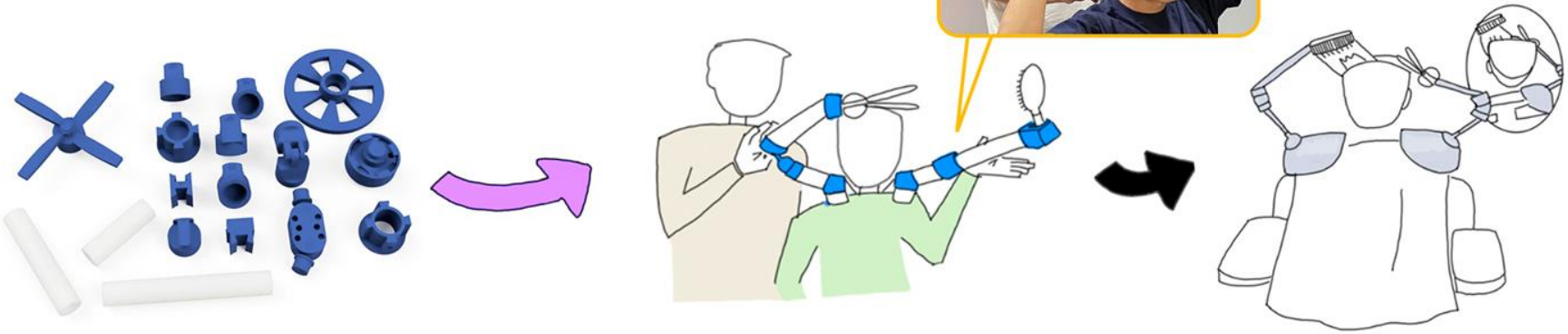


3 key ingredients

- Amount of virus
- Symptom timing
- Test detection limit



Traditional Techniques for Stakeholder-Driven Robotics



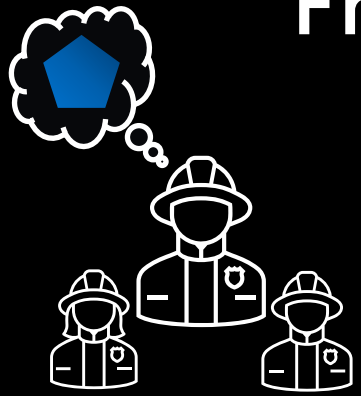
My Research Introduces a Novel Approach

TLAS

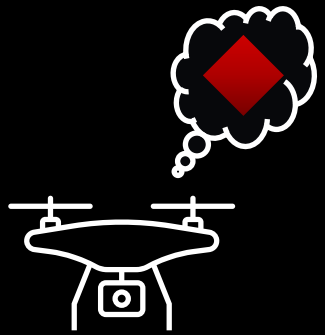
Drones to the Rescue: From Tools to Teammates in Public Safety

Hunter M. Ray
PhD Candidate, Aerospace Engineering

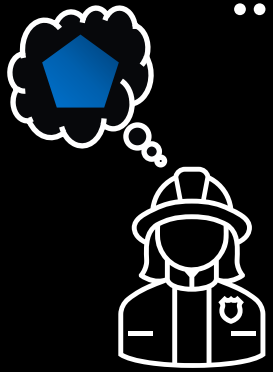
From Tools...



Commands

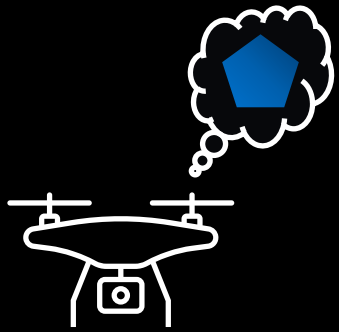


... to Teammates



Commands

Response



Directing Wind Turbines with Foresight

The Sheepdog and the Shepherd find a Crystal Ball


Crystal Ball
=
Forecaster
Shepherd
=
Me
Sheepdog
=
Controller
Sheep
=
Turbines

Professional Degrees

ONLINE EDUCATION PARTNERSHIPS

Professional Degrees

Sriram Sankaranarayanan
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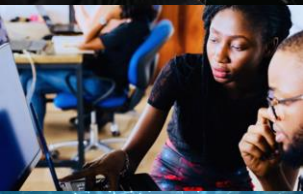
Engineering Management Program

Exploring Partnerships

- **Offering online degree programs and certificates to employees.**
  - Structured to organizational needs.
  - Learning credit and university accreditation for internal training.
- **Certificate programs in partnership with your organization.**
  - Novel educational experiences for professionals around the world.
  - Example: Siemens + Engineering Management Program partnership.

SIEMENS



MS in Computer Science

MS in Data Science

MS in Electrical Engineering

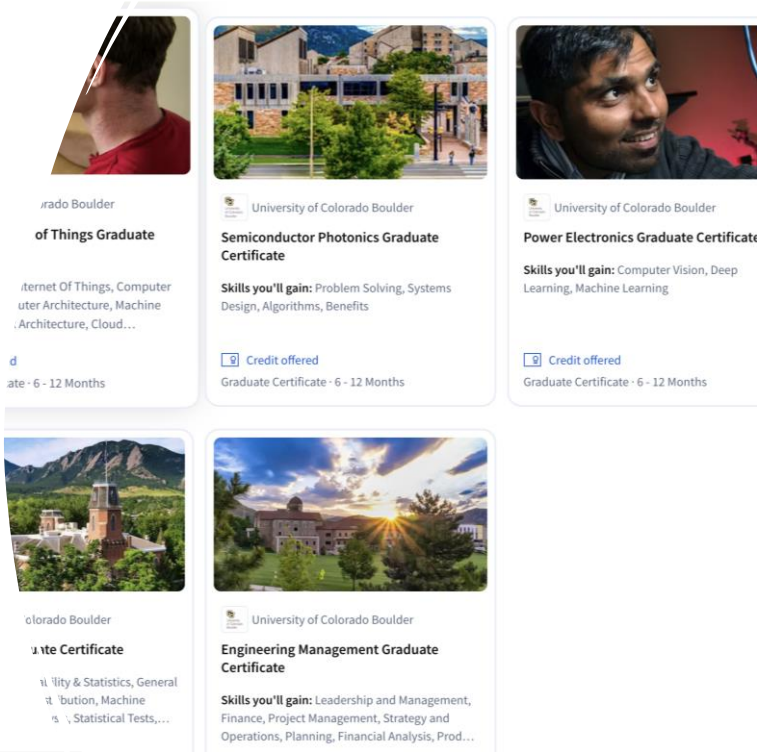
ME in Engineering Management

MS in Artificial Intelligence
STARTING FALL 2025

coursera

Coursera by the Numbers

- **Four degree programs.**
- **>= 350 credits of coursework.**
  - 89 “specializations”
- **Multiple graduate certificates.**
- **~6,000+ enrolled students.**



Performance-based Admissions

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Students take a designated pathway course.

Any student who gets a B+ or above on the pathway is automatically admitted.

We do not ask for letters of recommendation or transcripts from previous degrees.

CU Student Demographics

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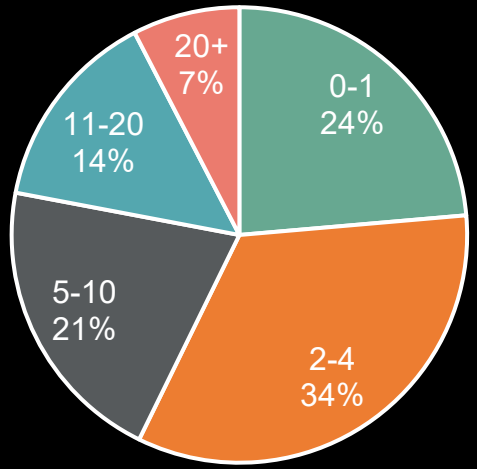
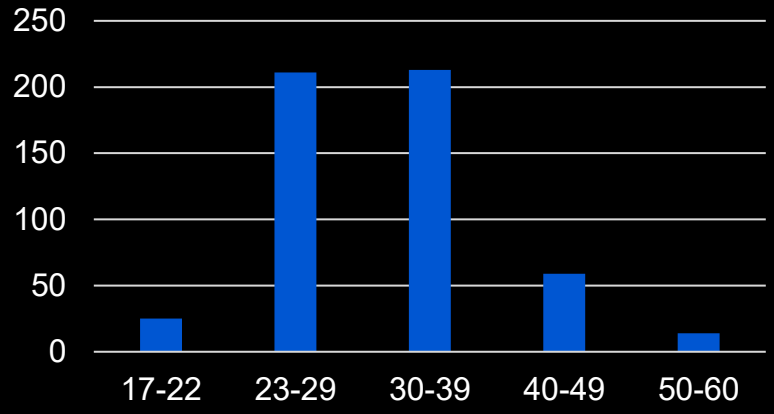
Citizenship	Count
United States	307
China	42
Canada	35
India	24
Taiwan	11
Vietnam	8
South Korea	7
Germany	6
Russia	5
Singapore	5
Japan	4
Other	68

Work Experience
(years)



Student Age
(years)



CU on Coursera Benefits

REPUTATION
Leadership in online education.

- Impacts our research and on-campus education missions.

REACH
Impacts far outside the state of Colorado.

- Students taking our classes in Ulaan Bator!

ACCESS
Market for advanced classes.

- From faculty who are subject experts.

Design for the Circular Economy

Lockheed Martin
Engineering Management Program
UNIVERSITY OF COLORADO **BOULDER**

In partnership with

SIEMENS

coursera

College of Engineering & Applied Science
UNIVERSITY OF COLORADO **BOULDER**

Be confident. Be inspired. Be a leader.
Be Boulder.

Design for the Circular Economy Overview

- 4 specializations developed by EMP Faculty in collaboration with Siemens Digital Software Industries
- Certificate launched in January 2025
- ABET recognized program (first of its kind!)
- Digital badges for course and specialization completers
  - Accepting the badge and creating a Credly portfolio will place learners in the Siemens Talent Directory
  - This directory is available to Siemens clients to hire potential candidates with Siemens software skills

Moving Forward

Let's be partners!

Create exciting learning opportunities.

For your organization.

For learners around the world.

Logistics: working group during summer.

Goal: design a curriculum and a master agreement.