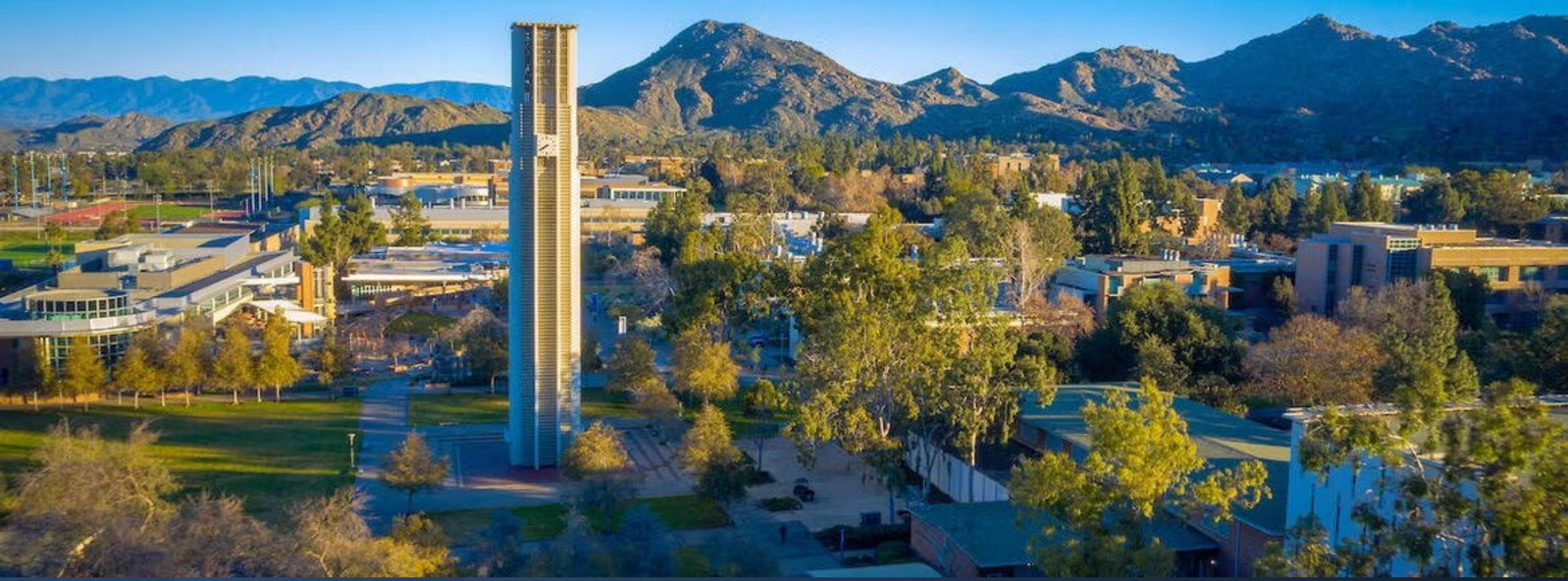
Dean of the Marlan and Rosemary Bourns College of Engineering Vision Seminar

Dr. Jamie Phillips

Thursday, November 19, 2026

UC RIVERSIDE



Engineering Opportunity

A Vision for the Marlan and Rosemary Bourns College of Engineering

Jamie Phillips

Today's Conversation

1

Background

My journey, experience, and why UC Riverside

2

Higher Education

Key opportunities and challenges over the next several years

3

BCOE

Specific opportunities and challenges for the College

4

Vision

Where BCOE can go, and how we get there together

My Path: Early Years





- Born and raised in Michigan
- Plymouth-Canton (large) Public Schools
- Surrounded by “Big Three” in Auto Industry
- Thought of becoming an engineer, but what do they actually do?

REFLECTION

Environment, role models are among the most influential in determining your path

My Path: Undergraduate



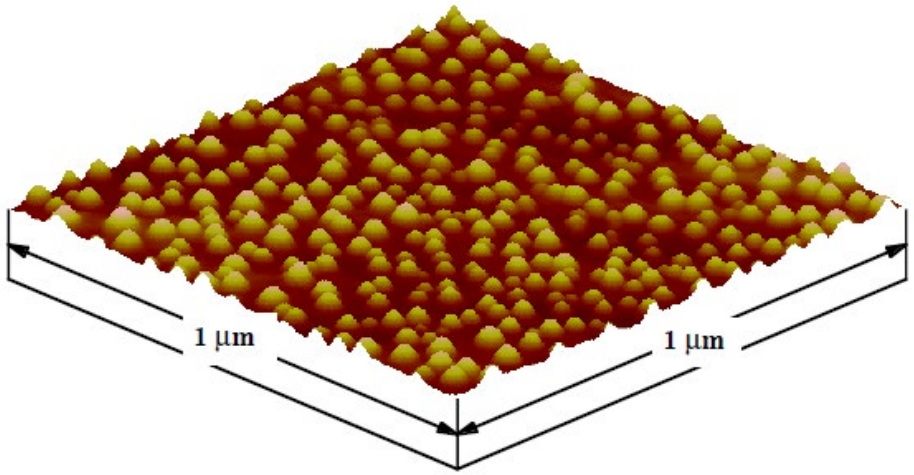


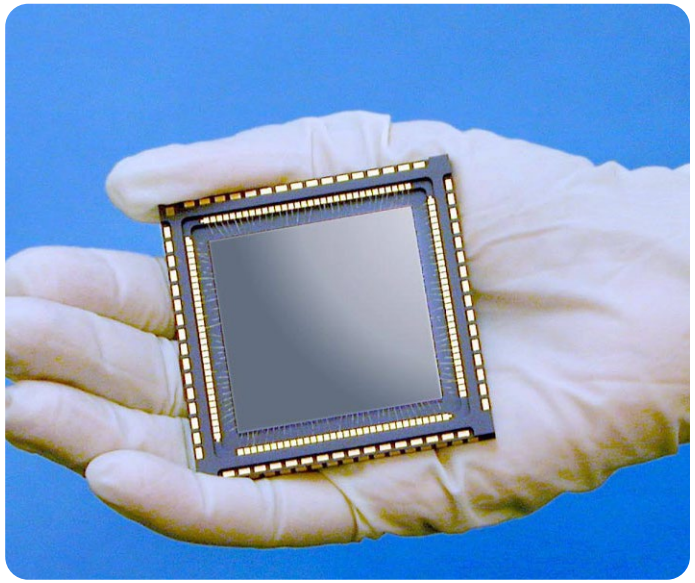
- Attended University of Michigan
- Chose Undergrad EE – Intrigued by Semiconductors
- Faculty Mentors inspired path to graduate school

REFLECTION

Opportunities offered by public R1 universities are amazing!

My Path: Graduate School and Beyond



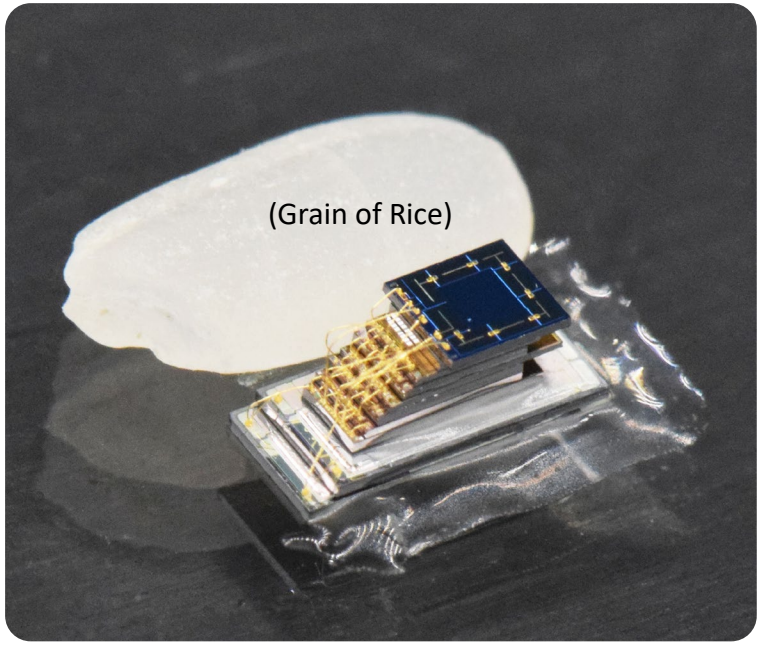


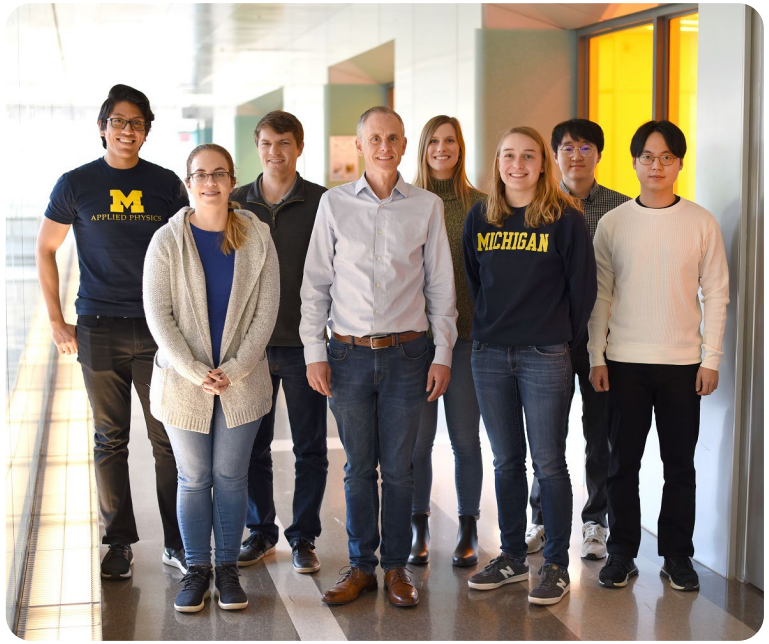
- MS/PhD at University of Michigan in Semiconductor Optoelectronics
- Postdoctoral Researcher, Sandia National Labs, Albuquerque, NM
- Research Scientist, Rockwell Science Center, Thousand Oaks, CA

REFLECTION

Investment in Research/Infrastructure → High-Impact

My Path: Faculty at Michigan



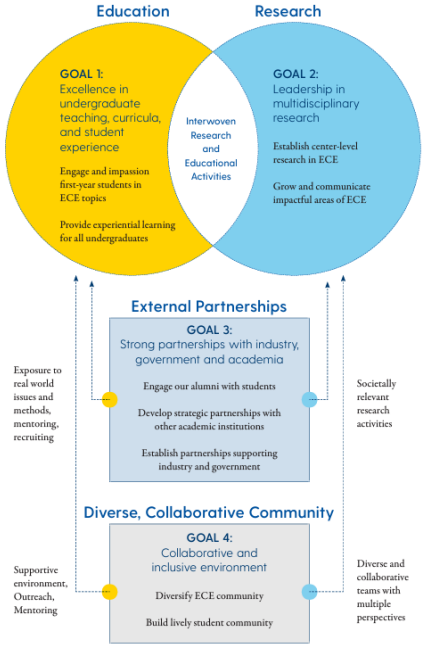


- Research on infrared detectors, thin film electronics, photovoltaics
- Engineering education and SoTL
- Leadership roles as Associate Chair, LNF Director

REFLECTION

Mentoring, University initiatives critical for faculty development

My Path: University of Delaware





- ECE Chair: Developed and executed strategic plan; first-year enrollment +70%, undergraduates +24%
- Interim Dean: 178 faculty, 3,500+ students, $126M research
- Associate Dean: Faculty development and support

REFLECTION

People, community you build are your most valuable resource

Why UC Riverside?

WHAT SHAPED ME	WHAT I SEE AT UC RIVERSIDE
Environment and role models influenced my path in engineering	**#1 in the nation for social mobility, with 49% first-generation and 48% Pell undergraduates, providing pathways broadly**
Opportunities offered by public R1 universities support diverse pathways for student exploration	**An R1, AAU public university proving that excellence and access go together**
State-of-the-art infrastructure leads to high impact	**UCR has a demonstrated commitment to research, including 12 BCOE research centers, CE-CERT, new SoCal OASIS innovation park**
Mentoring and university initiatives are critical for faculty development	**UCR 2030 prioritizes investment in people, research growth, and innovation**
People and community are your most valuable resource	**A collegial, mission-driven College with real momentum**

My experiences have prepared me for this role. ***UCR's mission is why I am inspired.***

2

HIGHER EDUCATION

Headwinds and Opportunities

What are the key opportunities and challenges facing higher education over the next several years?



Converging Headwinds for Higher Education

Flat revenue	Tuition discounting and a shrinking college-age population. U.S. high school graduates peaked in 2025 and are projected to fall **13% by 2041 — 29% in California**.
Rising costs	Supporting faculty and staff amid a higher cost of living, the rising cost of doing business, research compliance, and growing student success and well-being.
Federal research funding	Reductions, terminations, freezes, and unpredictable actions. NSF faced a **proposed 57% cut for FY26**; Congress held it to 3.4%, and a similar cut is proposed again for FY27.
International enrollment	Tightening immigration policies are reducing applications, especially from graduate students. New international enrollment **fell 17% in fall 2025**.
AI transformation	Changing how we teach, learn, work, and do research — and what students choose to study. Direct impact on CS: UC computer science majors **fell 6% in 2025**, the first drop in two decades.

Sources: WICHE (2024); CRS, AAS, ASME (NSF FY26–FY27); IIE Fall 2025 Snapshot; UC data via GovTech (2026).

“The Best Gift We Never Asked For”

When every headwind arrives at once, incremental change is no longer enough.

The pressure is forcing — and freeing — institutions to make bold moves that evolve higher education.

A clear case for value

Demonstrate the return on a college degree: outcomes, social mobility, and careers.

Deep partnerships

Impact of our work is strongest when in collaboration with industry, the public sector, and communities

Workforce-aligned programs

Co-design academic programs with the employers who will hire our graduates.

Personalized learning at scale

Technology and AI let us tailor learning and support to every student, at scale, to drive student success.

3

BOURNS COLLEGE OF ENGINEERING

Opportunities and Challenges

What specific opportunities and challenges do you anticipate for BCOE?



Bourns Hall

A Strong Foundation to Build On

~5,000

undergraduate and graduate students (4,000+ undergraduate, 900 graduate)

+47%

enrollment growth since 2018, with retention and graduation rates held steady

153

faculty across 5 departments and 5 interdisciplinary and professional programs

$45M

annual research expenditures (FY24), up 50% since FY18

12

research centers, including CE-CERT, the largest research center on campus

58+

NSF CAREER awards and 75+ professional society fellows in the College's history

Research breadth: clean energy · artificial intelligence · cybersecurity · robotics · air quality · precision agriculture · human health

Sources: BCOE Dean position profile; UCR announcement on BCOE leadership.

Two Distinctive Advantages

A national leader in access and opportunity

#1
in the nation for social mobility (U.S. News)

49%
first-generation undergraduates

48%
Pell Grant recipients

UCR knows how to attract and support students across the full range of backgrounds. As institutions everywhere work to broaden the STEM talent pool, BCOE is positioned to succeed, and to show others how.

A region at a transformative moment

4.7M
Inland Empire residents

Only R1
university in Inland Southern California

$68M
SoCal OASIS park, opening 2027

The Inland Empire's economy leans heavily on logistics, healthcare, and government. The region's plan calls for diversifying into advanced manufacturing, clean tech, and automation. That transition depends on engineering talent and innovation, and BCOE can be its engine.

Sources: U.S. News (2026); UCR; State of the Region 2026 (Claremont McKenna); Thrive Inland SoCal regional plan; UCR News (2025).


BCOE Growth: Opportunity and Strain
Students:
3,077 (2015) →
3,812 (2019) →
~5,000 (2026)
Faculty:
93 (2015) →
123 (2019) →
~145 (2026)
GRANTS
Research Expenditures:
$30M (FY2018) →
$45M (FY2024)
Student Load per Faculty:
33 (2015) →
28 (2018) →
34 (now)
Since 2018:
Enrollment +47%, Faculty +20%
Mentoring
Teaching
Research
Advising
BCOE
Bourns College of Engineering
Students ↑ Research ↑ Impact ↑
MORE STUDENTS
MORE RESEARCH
GREATER IMPACT
Staff
Advising
Classrooms
Labs & Space
Research Admin
Shared Facilities
Student Support
SUPPORT INFRASTRUCTURE IS THE BOTTLENECK
OVER CAPACITY
STRETCHED RESOURCES
CONSTANT REPAIRS
STRUGGLING TO KEEP UP
Illustrative concept based on UCR BCOE public data.

4

VISION

A Vision for BCOE

What is your vision for BCOE, and how would you work to achieve that vision?



SoCal OASIS Park (rendering)

From Vision to Impact

DRAFT VISION

Define and lead what a public R1 college of engineering can be, where

- research excellence and opportunity are harmonized
- discovery and education benefit society and drive the region's economy.



Educational Excellence and Student Success

Experiential, workforce-aligned education that supports every student across the full life cycle



Research Excellence and Distinction

Areas where UCR is the undisputed leader, powered by large-scale, multidisciplinary teams



Partnerships and Regional Impact

Industry, community, and academic partners that amplify our education and research

ENABLED BY **People • Resources • Shared Governance and Trust**

Student Success Across the Full Life Cycle



Pathways	Foundation	Experience	Career Launch	Lifelong Learning
K-12 outreach and community college transfer partnerships that bring talent to UCR	Strong student support and personalized learning at scale	Undergraduate research, internships, project teams, and industry sponsored capstones	"Career ready" at graduation, and well versed in fundamentals for the challenges of tomorrow	Targeted MS, certificate, and online programs, and an engaged alumni network

Aspiration: every BCOE student completes at least one high-impact experiential learning opportunity before graduation

Measure what matters: retention, equity in graduation outcomes, participation in experiential learning, and career outcomes

Points of Emphasis – Academic Programs

Curriculum built on strength in fundamentals
complemented by industry-relevant skills and experiences

Experiential learning opportunity for every student
(research, internships, co-ops, projects)

Lifelong learning through programs beyond graduation
(graduate studies, industry-aligned credentials and certificates)



Vertically Integrated Projects (VIP)



NanoFab Winter Camp at UD: hands-on cleanroom training

TRACK RECORD

- Led Michigan's EE curriculum redesign, adding hands-on lab and design courses
- Launched BS Cybersecurity Engineering and BS AI Engineering at UD
- Leading UD microelectronics workforce development (NSF NNME)

Importance of Research and Innovation



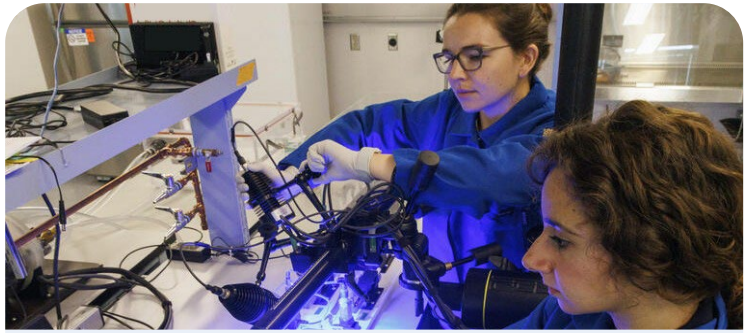
Discovery and translation

Fundamental discovery, technology breakthroughs, and translational research increasingly rely on academia



Visibility and impact

The visibility of an institution is rooted in research scholarship and the impact it has on industry and society at large



Talent pipeline

Research excellence supports the highest quality faculty and graduate students, and strengthens the local community

Research excellence, connected to the educational mission, benefits society and drives the region’s economy

Growing Research Distinction

Identify areas of distinction

A faculty-driven process to choose 3–4 thematic areas where UCR can be the undisputed leader

Invest strategically

Cluster hires, seed funding, shared facilities, and research development support

Go big, together

Multidisciplinary teams with partners across campus, aiming for NSF ERC/STC-scale centers

Connect discovery to impact

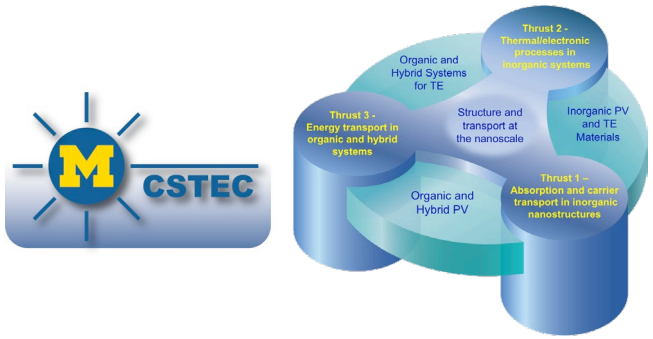
Research translation through strong industry partnerships, support from entrepreneurship to bridge from lab to market

Building on existing strengths

Illustrative — areas of distinction to be defined with faculty

- **AI and robotics**
- **Clean energy and air quality**
- **Precision agriculture**
- **Engineering in medicine**
- **Advanced manufacturing**
- **Cybersecurity**

Examples of Research Success I Have Learned From



Thrust leader, CSTEC

DOE Energy Frontier Research Center, University of Michigan

Multidisciplinary center-scale teams enable high-impact that extends beyond single-PI/small-team projects



Director, Lurie Nanofabrication Facility

State-of-the-art facility at Michigan with 400+ academic and industry users

Shared facilities uniquely enable both discovery and translation

NIMBL The National Institute for Innovation in Manufacturing Biopharmaceuticals

CENTER FOR COMPOSITE MATERIALS AT THE UNIVERSITY OF DELAWARE

CENTER FOR HYBRID, ACTIVE, AND RESPONSIVE MATERIALS CHARM at the UNIVERSITY OF DELAWARE

H_2 CENTER FOR CLEAN HYDROGEN Creating the next global energy breakthrough

Multidisciplinary centers at UD

Key to success of UD's research growth (supported as interim dean)

"If you want to go fast, go alone. If you want to go far, go together"

Expanding Partnerships to Realize Impact



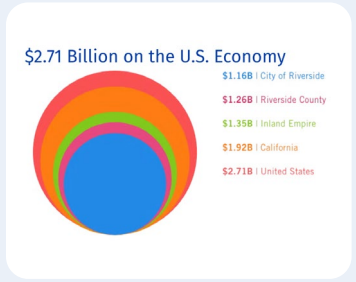
Industry

- Research consortia and translation (e.g., NSF TIP, IUCRC, ART)
- Capstones and internships
- Industry fellows; faculty industry leave



Workforce and Professional Education

- Targeted MS and certificate programs
- Doctor of Engineering for practicing engineers
- Curricula co-designed with employers



Region and Community

- Inland Empire economic development
- SoCal OASIS as a hub for innovation
- K-12 engagement and outreach

R2TEP
Student Transfer Education Program

Academic Pathways

- Community colleges and regional institutions
- Seamless pathways to a UCR degree
- Shared workforce development programs

TRACK RECORD

- Seeded and helped advance new corporate partnership strategy at UD
- Revised P&T criteria to recognize entrepreneurship and translation
- Facilitated ECE stackable graduate certificates as a pathway to the M.S.

Example Pathways for Expanding Partnerships

Spaces to catalyze activities

UD STAR Campus ↔ SoCal OASIS Park





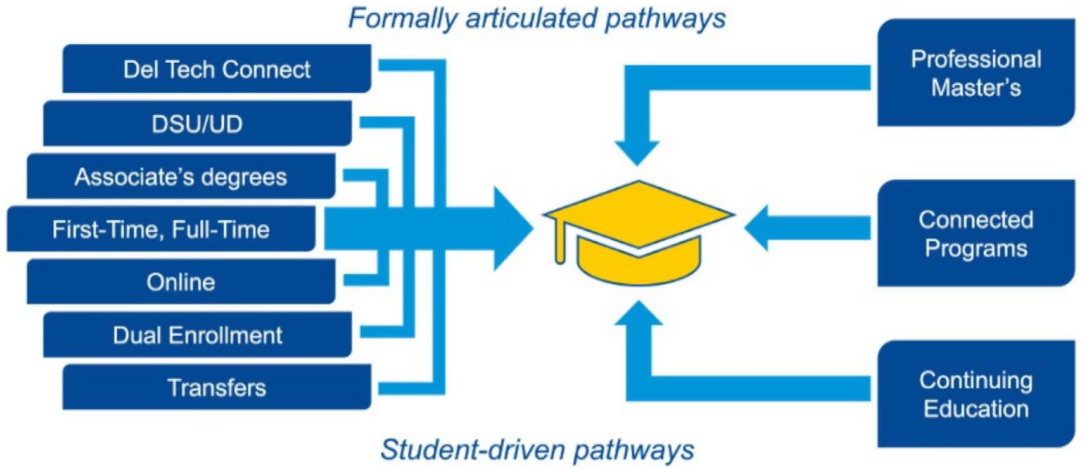
"Front Door" to Facilitate Partnerships

Streamlined channel to engage new partners, manage complex portfolios and agreements

Connect UCR degrees at many entry points and levels

Articulation agreements and workforce development programs with acacemic, government, and industry partners

"Many pathways to a UD degree"



Resources to Enable the BCOE Vision

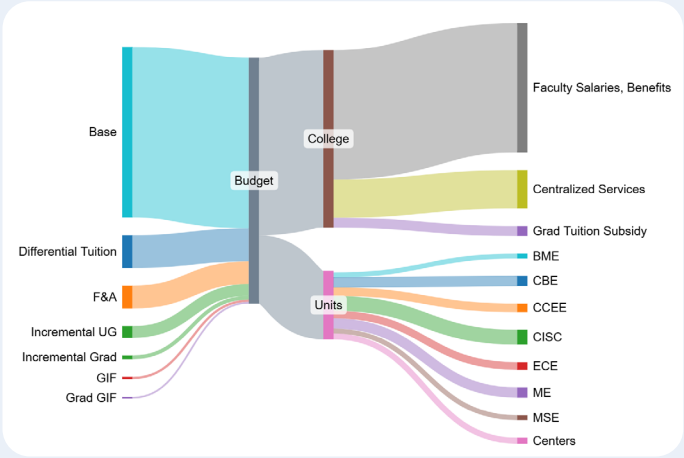
People



BCOE:
Building a Community Of Engineers

- Recruit and retain outstanding faculty and staff
- Advocate for competitive compensation and support
- Mentoring and development at every career stage
- Recognize teaching, research, service, and staff excellence

Financial Resources



UD CoE budget flow model

- Transparent budgeting tied to shared priorities
- Refine the budget model with the Provost
- Diversify revenue: philanthropy, industry partnerships, and professional master's programs
- Balance stability with growth

TRACK RECORD

- Revised college budget model as Interim Dean ($75M operating budget)
- Helped secure >$4M in philanthropy as ECE Chair and Interim Dean
- Launched new-faculty mentoring program, Staff Advisory Council

How I Lead

Students first

Every decision starts with what it means for student success

Support of educational mission is a core value

Decide together

Decisions are transparent, based on clear priorities we set together (debate, then align)

Clear vision with shared priorities · Inclusive deliberation · Shared accountability

Value every individual and contribution

Inclusive community that recognizes teaching, research, service, and staff excellence

Inclusive community · Recognition of diverse contributions · Equity, transparency, and trust

How decisions get made matters as much as what we decide.

First Days as Dean

FIRST 90 DAYS

Listen and assess

Meet every department, center, and staff unit; students, campus partners, alumni, and industry

FROM DAY ONE

Stabilize where needed

Address urgent resource, staffing, and operational needs

ONGOING

Build trust

Transparent communication, a visible presence, and follow-through on commitments

FIRST 6 MONTHS

Identify early wins

Act on shared priorities that show progress and build momentum

WITHIN THE FIRST YEAR: a strategic roadmap co-created with BCOE community and stakeholders

Looking Ahead, Together

VISION

Define and lead what a public R1 college of engineering can be

Where research excellence and opportunity are harmonized, and discovery and education benefit society and drive the region's economy

Student Success and Educational Excellence

Research Excellence and Distinction

External Partnerships and Regional Impact

An Inclusive and Collaborative Community

Students · Faculty · Staff · Alumni · Partners



I look forward to learning how this vision could be shaped together.

Thank you