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The Min Family Engineering Social Entrepreneurship Challenge (MFC)

An engineering startup competition that encourages would-be social entrepreneurs to build companies to benefit the underprivileged locally, nationally, and even worldwide with sustainable solutions.

\$50,000

MFC grand prize to launch student startups

Recent Winners Include:

BioFlare (2024)

Developing a device that would transform most organic food waste into cooking gas and reduce indoor pollution for millions

SIER Technologies (2023)

Creating specially outfitted glasses with built-in speakers that will issue warnings to the visually impaired as they near unseen objects

Social Benefit (2021)

A digital platform that brings transparency to government benefits for low-income populations and their case managers to help end cyclical homelessness and poverty

AgriCulture (2020)

Aims to improve the diets and health of low-income, urban residents via new curriculum, video games and testing kits for middle school students



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USC + Amazon Center on Secure & Trusted Machine Learning



FOUNDED 2021

DIRECTOR

Salman Avestimehr,
Dean's Professor of
Electrical and Computer
Engineering and Professor
of Computer Science

MISSION

Fundamental research on privacy, security and trustworthiness in machine learning, a crucial effort, given the proliferation of artificial intelligence across all aspects of our society.

Research

The center has supported more than a dozen research projects focused on the foundational development of new methodologies for secure, privacy-preserving, and trustworthy machine-learning solutions. The center supports more than 10 Ph.D. fellows to empower them to advance frontiers in machine learning. It also hosts various symposia and workshops devoted to trustworthiness in machine learning.

Previous work ranges from protecting patient data to taking human bias out of AI.



Indicia Here

The University of Southern California
1234 Trousdale Parkway,
Los Angeles, California 90089-1234

Dean's Report 2024

Trustworthy Engineers: Restoring Trust in Untrusting Times



USC
Viterbi
School of Engineering

Dean's Remarks

A recent Gallup poll named engineers the third most trusted profession after nurses and veterinarians.

That's still not good enough.

Theodore von Karman famously defined engineering by referring to the extraordinary impact they can have: *scientists discover the world that exists, engineers create the world that never was*. Human history, with an ever-accelerating rhythm many decades since his passing, has demonstrated the profundity of his statement. Today, we are witnesses to the potential of its even stronger manifestation. Singularly talented historian Yuval Noah Harari has captured this power in his intellectually audacious book *Homo Deus*, one of his enlightening series of thought leadership treatises. The current policy discussion on AI is another reminder that the view of a *world that never was* is about to unfold.

This exceptional power of engineers to shape the ever nearer future of humanity brings up a gigantic moral demand to all of us who are

involved in the formation of the next generations of engineering graduates. This almost existential demand requires us to help endow them with *trustworthiness*: the grand sum of *outstanding technical competence and outstanding character*. In the past, engineering education concentrated primarily on technical competence. Today, the tremendous auto-catalytic rate of increase in the power of technology requires that our graduating students should also be trusted for their outstanding character as well. And this should be an integral, essential part of our curricula.

The Greek etymology of the word character comes from *etching*, suggesting integrity and trust. It is fascinating that a crucial current topic for AI research is *trustworthy AI*, which in many ways alludes to the etching ingrained in its software. But I would venture to endow this element of *trustworthiness* to all technology and engineering, not simply AI. And to combine it with the *purpose* that our engineering graduates should have to help our vision to *engineer a better world for all humanity*, a task more urgently needed than ever before.

We should be preparing students with outstanding technical competence and with outstanding character, which together spell trust.

At USC Viterbi, we aspire to create such a model engineering education combining these two important and complementary attributes for our times, thus leading to the creation of trust, sorely needed in today's world."

— Yannis C. Yortsos, Dean, USC Viterbi School of Engineering



Engineering in Society (EiS) Program

PURPOSE

Distinguish the USC Viterbi engineer by purposefully connecting a student's technical work with its societal impact. Through courses, co-curricular activities, and other learning opportunities that blend humanities with engineering education, EiS cultivates engineers to be critical thinkers and responsible professionals. Our focus is on developing the Engineer in Society - inside and outside of the classroom.

1244

USC Viterbi students
in courses by EiS Faculty
(UG and Grad)



Viterbi Conversations in Ethics

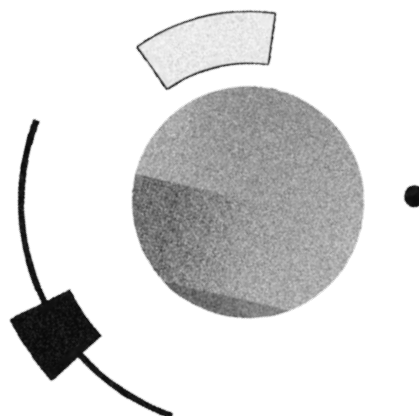
Launched in 2019, this USC Viterbi online publication – believed to be the first student-written and student-edited engineering ethics magazine in the country – examines some of the major issues of our day.

ETHOS live!

A symposium series fostering open discussion on the latest topics in engineering, technology, and ethics, including "Truth And Authenticity In The Age of A.I." and "Ethics In The World of Student Startups."

The Good Life

What makes a good engineer? What responsibilities to society do engineers have? How can an engineer find purpose in life? How can engineering become more inclusive? Starting in 2022, The Good Life Discussion Series allows USC Viterbi students to ask such big questions in a safe, supportive setting.



Illumin Magazine

a review of engineering in everyday life

Launched nearly 25 years ago, the first student-produced online publication that examines the intersection of engineering applications and everyday life. The site receives 30-40K monthly visitors.

FACULTY SPOTLIGHT

Dr. Katherine Brichacek

Ph.D from Loyola University Chicago in philosophy, with a special emphasis on social and political philosophy and ethics

- Started and coordinating Viterbi team for Intercollegiate Ethics Bowl
- Designed EiS 300
- Provided ethics modules for CS capstone, developing modules for other courses



New and Existing Courses

ENGR 270

Ethics in Global Engineering and Scientific Innovation (2 units)

PHIL/ENGR 265

Ethics, Technology, and Values (4 units)
Co-taught course with the USC Department of Philosophy

EiS 103G

Information Literacy: Navigating Digital Misinformation (4 units)

EiS 300

Technology & Society (4 units)

EiS 320

Sociotechnical Visions of the Future: Japan's Society 5.0 (2 units)

EiS 370

Ethical Issues in Artificial Intelligence (4 units)
Required course in joint business-engineering degree, AI for Business.

EiS 430

German Sustainability Discourse and Engineering Communication (2 units)

Afghan Pathways Program

15 Million

Afghan women and girls facing draconian new restrictions on their freedoms and their ability to participate in public life, since the August 2021 Taliban takeover. They were banned from attending university or having jobs. After two decades of democracy, countless female workers —pilots, doctors, engineers, public servants — were forced to abandon their careers.

A New Partnership: USC Viterbi's Technology and Applied Computing (TAC) Program and non-profit HerFuture Afghanistan

Through the Afghan Pathways Program, USC Viterbi professors Trina Gregory and Nayeon Kim meet remotely with students over 12 weeks, teaching them how to create websites and code in Python.

Female Afghan students have earned 161 certificates in web development and Python programming so far.

“USC WAS THE MAIN ORGANIZATION THAT WAS BRAVE ENOUGH TO START HELPING WOMEN AT THE MOST SENSITIVE TIME.”



— Naheed Farid, HerFuture Afghanistan executive director and the youngest-ever elected politician and lawmaker in Afghanistan, taking office in the Afghan Parliament in 2010. After 2021, the Taliban refused to recognize her elected role, and Farid was forced to flee the country.

WHAT AFGHAN WOMEN ARE SAYING

“Everything about this course is wonderful and extraordinary.”

“Before starting this class, I was sitting at home, unemployed and depressed. I was thinking about my future. What is going to happen? When do schools open? After the class, I was completely changed. I had no knowledge of coding because, in Afghanistan, coding is rarely taught. This made me focus on my studies all day, so I completely forgot about my pain.”

“This program has changed my life in an incredible way. It was a very useful and effective program for us Afghan girls in this difficult situation. We can have a bright future by learning coding.”