



HARVARD

John A. Paulson
School of Engineering
and Applied Sciences



HARVARD Kennedy School

BELFER CENTER

for Science and International Affairs

Technology in a Liberal Arts Environment

March 17, 2018

HAA/LMSAI opening, Imperial Hotel, New Delhi

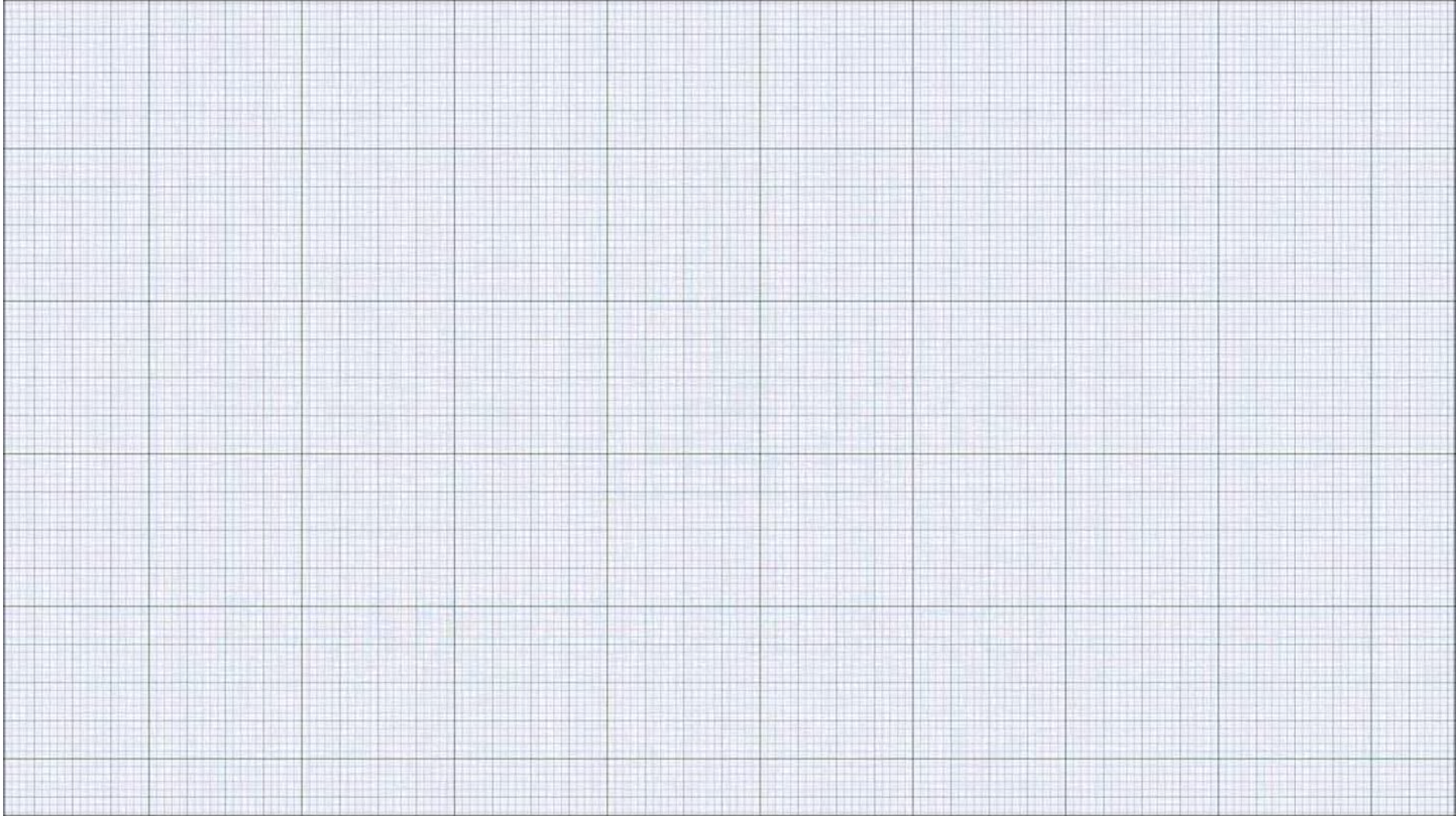
Venkatesh “Venky” Narayanamurti


Benjamin Peirce Research Professor of Technology and Public Policy

Harvard University

I want to address two questions:

- What does it mean to be a leading and societally-relevant university in an increasingly globalized world?
- What does it mean to be a broadly educated person in the 21st century?



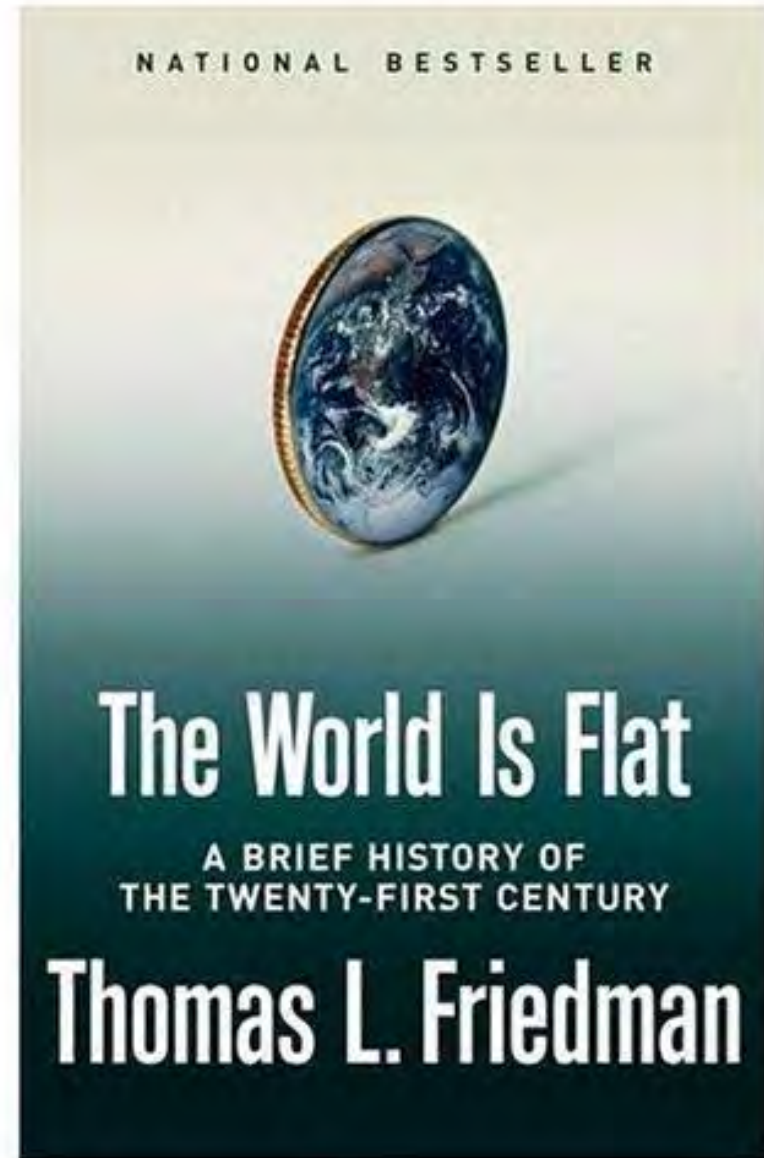


“Its in Apple’s DNA that technology alone is not enough. Its technology married with liberal arts, married with humanities, that yields us with the result that makes our heart sing.”

-Steve Jobs

“I’m not saying that every politician needs to be an engineer, but it would be helpful if they had a basic understanding of the forces that are flattening the world.”

Thomas L. Friedman
The World Is Flat (2005)



Two Major Themes

- The unique role of engineering as a linking discipline
 - to the world of science
 - to the world of technology and society &
 - as a source of innovation/economy
 - Engineering education as a “Liberal Art”



HARVARD

School of Engineering
and Applied Sciences

Finally, A School of Engineering at Harvard

V. Narayanamurti, Founding Dean

1847



NEW-YORK DAILY TRIBUNE.

BY GREELEY & McELRATH.

OFFICE, TRIBUNE BUILDINGS.

FIVE DOLLARS A YEAR.

VOL. VII. NO. 110.

NEW-YORK, THURSDAY MORNING, SEPTEMBER 9, 1847.

WHOLE NO. 1098.

From the People's Journal

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CITY ITEMS.

Wednesday, September 9

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the narrow, stony, picturesque streets, told upon our hearts as we said to ourselves that we were taking up our rest in Jerusalem.

THE LAWRENCE SCIENTIFIC SCHOOL.—The following vote was passed by the Corporation of the University of Harvard on Commencement day :

"Whereas, Hon. Abbott Lawrence of Boston, has presented the sum of fifty thousand dollars to the President and Fellows of Harvard College, as an endowment of the Scientific School in this University, and for the foundation of Professorships of Geology and Engineering in the same, it is therefore unanimously

Voted, By the President and Fellows, in token of their gratitude for this munificent donation, and in perpetual commemoration of the same, that the Scientific School be henceforth known and designated as the 'LAWRENCE SCIENTIFIC SCHOOL, in the University of Cambridge.'"

The buildings necessary to the completion of the donor's liberal intentions, we understand, are already in process of construction, and will soon be finished, under the superintendence of Mr. Lawrence himself. If his generosity fail not of its object, *i. e.* if the persons selected to carry out his views for the scientific education of the rising generation are qualified for their trust, his magnificent foundation will be of the greatest service to the interests of the Republic, Science and Humanity. For himself he has erected a monument more durable than brass or marble.

FROM THE MASSACHUSETTS REGIMENT.—The

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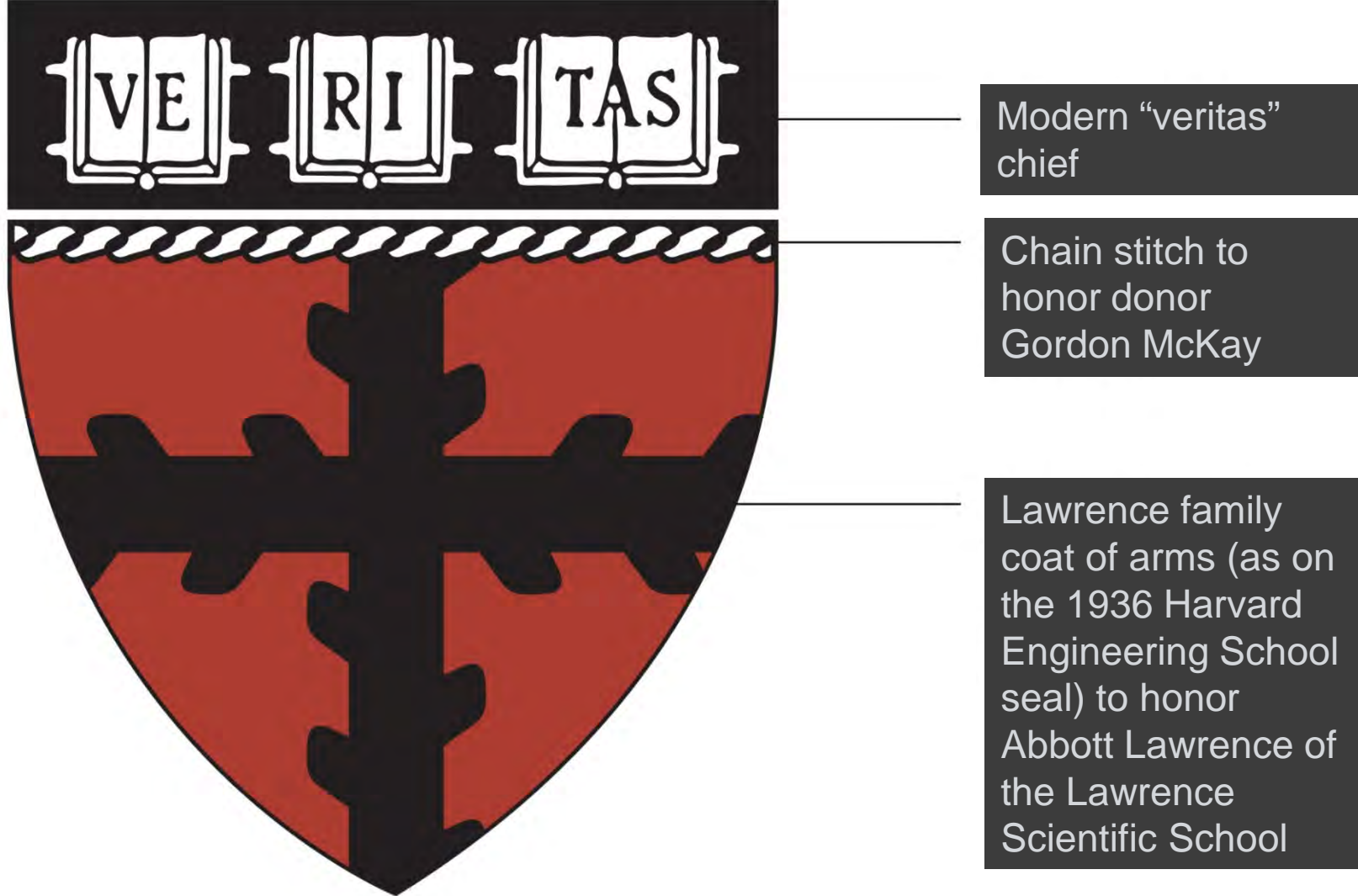
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The HSEAS Seal: Coming full circle



FEATURE

Engineering the Harvard Engineer

One man's determined quest to make Harvard a contender in engineering—after 372 years
By ERICO GUIZZO / APRIL 2008

2007



Photo: Brad DeCecco

Renaissance Engineer

Venkatesh "Venky" Narayanamurti has led Harvard's expansion in engineering

For most members of Harvard University's Faculty of Arts and Sciences, it was just another monthly meeting, the last of 2006. For Venkatesh Narayanamurti, dean of the Division of Engineering and Applied Sciences, it was one of the most important meetings of his career.

On that December afternoon, the professors gathered, as usual, at the Faculty Room, a spacious chamber in University Hall with sea-green and tan walls, lush Oriental carpets, leather-topped tables and chairs, five crystal chandeliers, and tall arched windows overlooking Harvard Yard. Dozens of oil paintings and marble busts of Harvard's past presidents and other luminaries—William James, Henry Wadsworth Longfellow, and Jean Louis Rodolphe Agassiz, to name a few—add to the aura of gravitas and tradition.

At 4 p.m., after the customary tea was served, Derek Bok, then Harvard's interim president, started the meeting. When it came time to discuss the docket items, Dean Narayanamurti stood up, glanced down at his notes, and then told his colleagues that,

following a presentation on the topic he had made early that year, he was now ready to propose that the Division of Engineering and Applied Sciences be renamed the School of Engineering and Applied Sciences:

Despite the name change, the school would remain part of the Faculty of Arts and Sciences, the largest of Harvard's 10 faculty bodies, but it would now have the freedom to grow and establish collaborations across campus. This step, Narayanamurti told his colleagues, would help to enable Harvard to meet the changing needs of the times and the challenges posed by the future.¹

As he concluded his remarks, he felt a wave of apprehension. The dean had spent the better part of the previous year working out all the details of such a move. Just a few months earlier, though, his well-laid plan appeared to be on the verge of collapse when then-president Lawrence H. Summers, who had come to accept the school upgrade, announced he would step down. Now, as the moment of judgment approached, Narayanamurti still had doubts about how some of his colleagues would respond.

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Recent “Ivy” League Schools of Engineering

- Harvard, 2007
 - Yale, 2008
 - Brown, 2010
-

“Ivy” Engineer



ENGINEERING AS A LINKING DISCIPLINE



“Science is about what is

&

Engineering is about what will be”

Engineering School at Harvard

- Graduate Education and Research which bridge the basic-applied dichotomy; no departments.
- Undergraduate education where engineering is part of the “liberal arts”.

The Renaissance Engineer and Liberal Arts Education in the 21st Century



Renaissance Engineers

- We want to educate engineers not only in how things work but also on how the world works!



Undergraduate education

We created a new course:
“Introduction to Technology and Society”

- enhance technological literacy
among the broad undergraduate
population

-Show societal connection

-“Physics for Presidents”



The Idea Translation Lab at Harvard

- Professor David A Edwards
 - Gordon McKay Professor of the Practice of Biomedical Engineering
 - Wyss Core Member
 - Founder, Le Laboratoire, Paris. The Laboratory, Harvard
 - Hugo Van Vuuren (SEAS Fellow)
 - Harvard '07

Eng.Sci. 147

Idea Projects

Guest lectures

Summer Translation

Experiences

Process

~ Artscience

~ Experiential Education

~ Open-ended Risk taking

Experiments

Interdisciplinary Learning:

** Tensegrity structures*

** Heart Fractals*

** Avian Navigation*

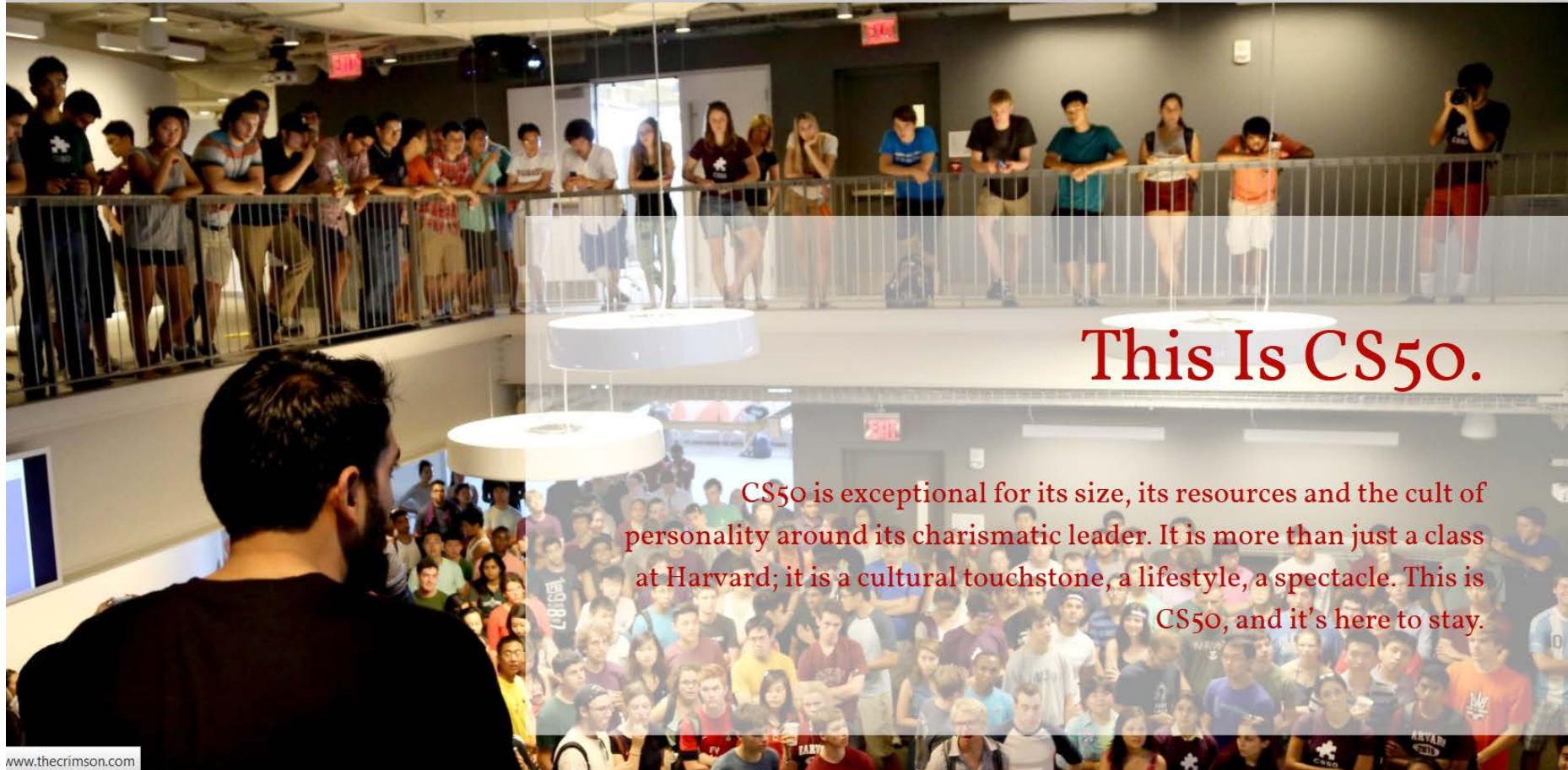
and many more

Get involved

1. Seed Ideas

2. Mentor Students

3. Join The Laboratory



This Is CS50.

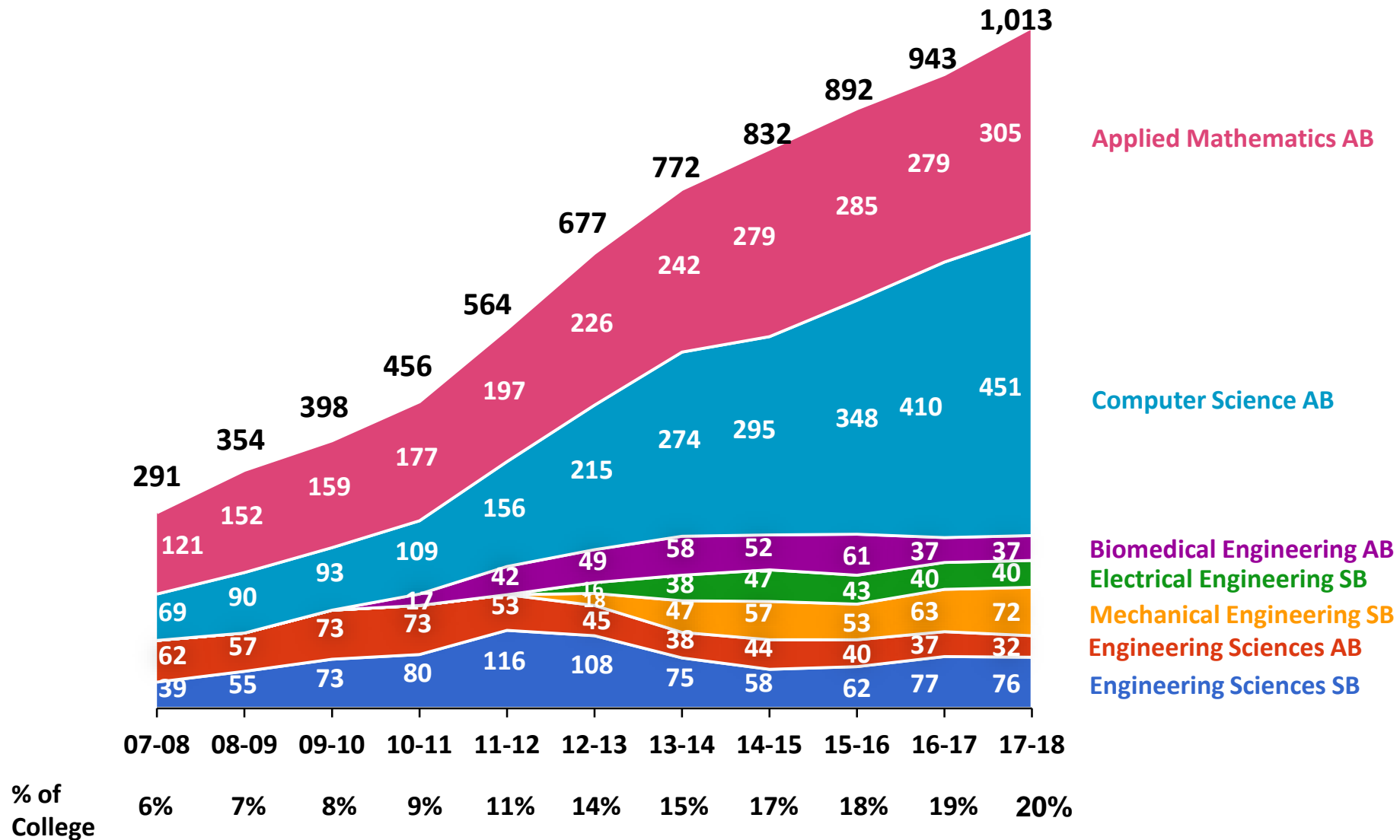
CS50 is exceptional for its size, its resources and the cult of personality around its charismatic leader. It is more than just a class at Harvard; it is a cultural touchstone, a lifestyle, a spectacle. This is CS50, and it's here to stay.

www.thecrimson.com

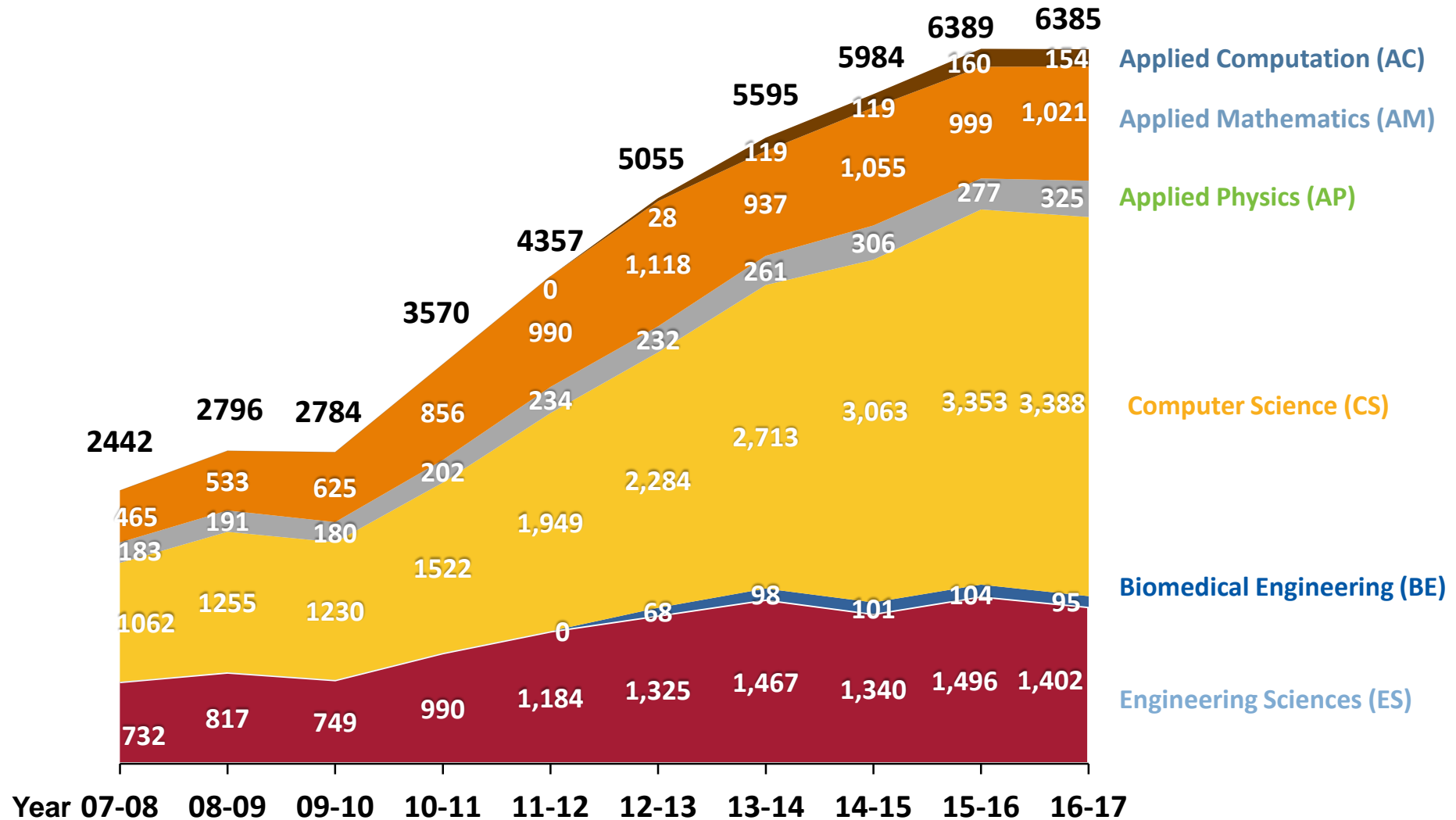




SEAS Undergraduate Concentrators



SEAS Course Enrollment



New Masters Degree Programs

- 2013 – Computational Science & Engineering
- 2016 – Design Engineering (with GSD)
- 2018 – Data Science (with FAS/Statistics)
- 2018 – MS/MBA (with HBS)
- 2018 – Certificate in Business Analytics
(with HBS and FAS/Statistics)

Belfer Center / SEAS task force

- Technology for Governance and Governance for Technology
- Wider Science, Technology and Public Policy collaboration
- Currently exploring collaboration between Belfer Center and IIT Delhi, similar to what we've already established with Tsinghua University, China.

