



Engineering empowering society

THE DEAN'S REPORT | 2010

Message from the Dean



We are in a revolution in which engineering increasingly empowers society. It reflects a convergence of disciplines, stronger and faster than ever before.

Long a symbiotic partner of the natural sciences, which needs engineering tools to probe the very small, the very distant and the very complex, engineering grabs new scientific findings to create products and processes. In medicine, engineering is at the core of new imaging, implantable devices, medicines, surgical techniques and health informatics. Virtual reality, interactive games and burgeoning new forms of digital entertainment grow at the fertile intersection of engineering and the arts, which is most visible in Hollywood. And now, the latest disciplinary convergence is on communications, social networks, economics, sociology, public policy and government, where engineering's quantitative and mathematical methodologies are focusing on the complex problems of the social sciences.

The Viterbi School has been in the forefront of this revolution with its research and an Engineering+ inspired education in undergraduate, doctoral and professional programs. This report is a true graphical representation of the convergence at the school.

A handwritten signature in black ink, which appears to read "Yanniss C. Yortsos". The signature is written in a cursive style with a long horizontal line extending to the right.

Yanniss C. Yortsos

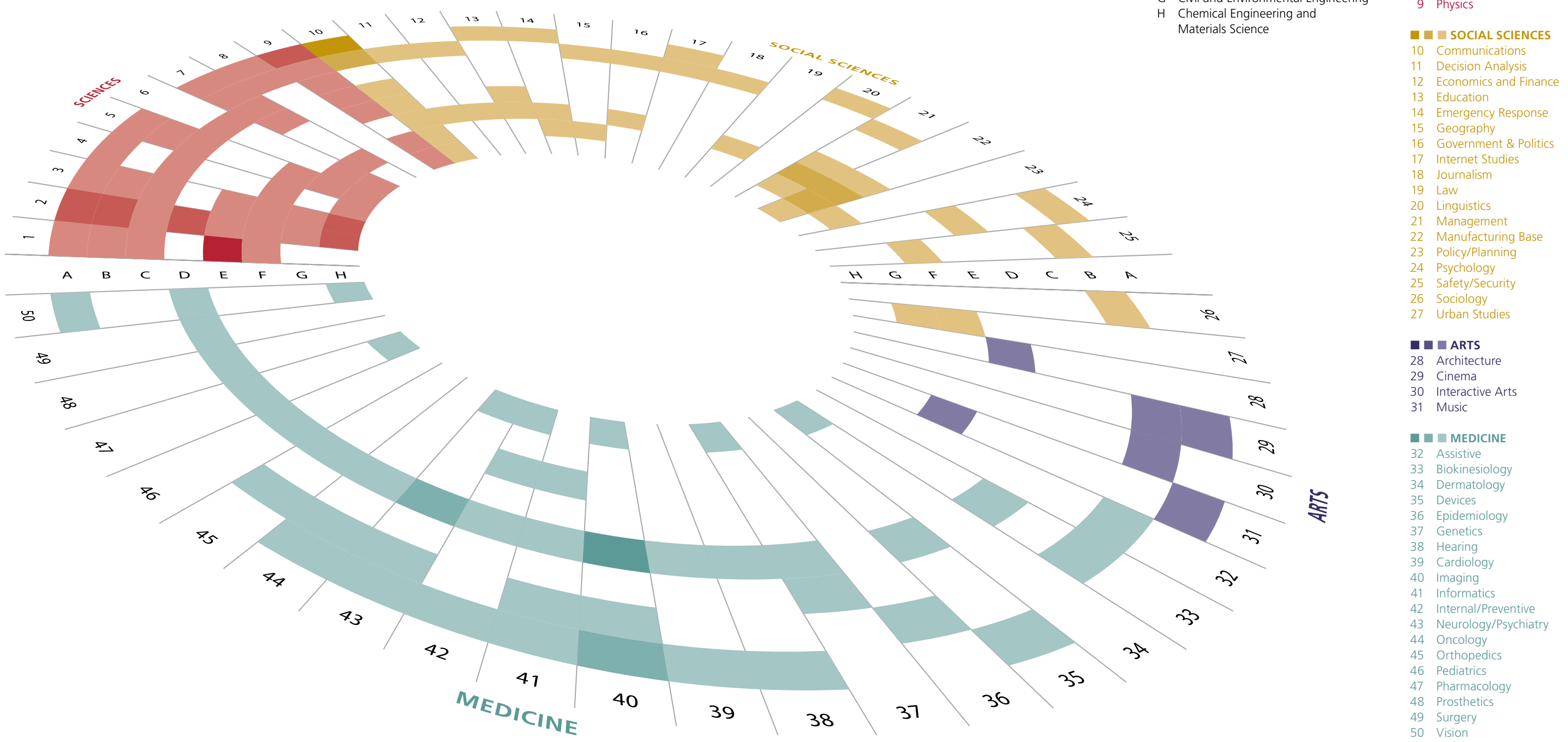
Dean, USC Viterbi School of Engineering

On the cover

Detail of original art from the USC Viterbi Museum by Italian artist Sandro Chia

Mapping Engineering+ at Viterbi

Engineering+ is simply Engineering + (subject). This radial graph charts the frequency of 50 non-engineering subjects (numbers) through the 8 departments (letters) in the USC Viterbi School of Engineering. The concentric ellipses establish rows and in each row is a letter for each department. The cells generated at the intersections of the numbers and the letters represent the presence of the non-engineering subjects in the research or teaching portfolios of tenured and tenure-track faculty in the departments. The more frequent the appearance of a subject, the more saturated the shade of the cell.



Engineering

- A Electrical Engineering
- B Computer Science
- C Aerospace and Mechanical Engineering
- D Biomedical Engineering
- E Astronautical Engineering
- F Industrial and Systems Engineering
- G Civil and Environmental Engineering
- H Chemical Engineering and Materials Science

SCIENCES

- 1 Astronomy
- 2 Biology
- 3 Chemistry
- 4 Energy
- 5 Environment
- 6 Geology
- 7 Mathematics
- 8 Neuroscience
- 9 Physics

SOCIAL SCIENCES

- 10 Communications
- 11 Decision Analysis
- 12 Economics and Finance
- 13 Education
- 14 Emergency Response
- 15 Geography
- 16 Government & Politics
- 17 Internet Studies
- 18 Journalism
- 19 Law
- 20 Linguistics
- 21 Management
- 22 Manufacturing Base
- 23 Policy/Planning
- 24 Psychology
- 25 Safety/Security
- 26 Sociology
- 27 Urban Studies

ARTS

- 28 Architecture
- 29 Cinema
- 30 Interactive Arts
- 31 Music

MEDICINE

- 32 Assistive
- 33 Biokinesiology
- 34 Dermatology
- 35 Devices
- 36 Epidemiology
- 37 Genetics
- 38 Hearing
- 39 Cardiology
- 40 Imaging
- 41 Informatics
- 42 Internal/Preventive
- 43 Neurology/Psychiatry
- 44 Oncology
- 45 Orthopedics
- 46 Pediatrics
- 47 Pharmacology
- 48 Prosthetics
- 49 Surgery
- 50 Vision

Viterbi School at a glance

Founded

USC engineering began in 1905

Student population

Approximately 2,100 undergraduate students and 4,000 graduate students

Faculty

168 tenured and tenure-track faculty, with 52 endowed chairs and professorships

Academic departments

Eight

Alumni

More than 65,000

Education centers

- Division of Engineering Education
- KIUEL (Klein Institute for Undergraduate Engineering Life)
- K-12 Center

Annual research expenditures

More than \$160 million, with more than 45 research centers and institutes

Research Centers and Institutes

Home to:

- Information Sciences Institute (ISI)
- The Ming Hsieh Institute
- The Daniel J. Epstein Institute
- Two National Science Foundation (NSF) Engineering Research Centers (ERC)
 - Integrated Media Systems Center (IMSC)
 - Biomimetic MicroElectronic Systems Center (BMESC)
- University Center of Excellence of the U.S. Department of Homeland Security
 - Center for Risk and Economic Analysis of Terrorism Events (CREATE)
- Department of Energy Frontiers Research Center (EFRC)
- The National Center for Metropolitan Transportation Research (METTRANS)
- Biomedical Informatics Research Network (BIRN)
- HTE@USC (Health, Technology and Engineering@USC)
- Smart Grid Demonstration Project
- Center for Interactive Smart Oil Field Technology (CiSoft)

Affiliated with:

- Alfred E. Mann Institute for Biomedical Engineering (AMI)
- Institute for Creative Technologies (ICT)
- USC Energy Institute
- USC Stevens Institute for Innovation

Engineering+

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