

Research Excellence in Higher Education

David T. Ma, Professor and Dean
College of Engineering & Computer Science

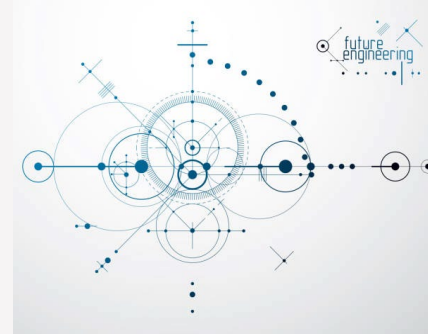
Outline

- Introduction
- Challenges in research

Naval Architecture & Ocean
Engineering (BS)

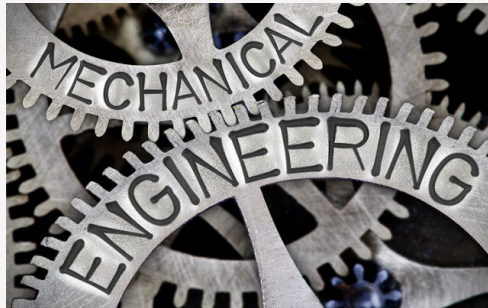


Mechanical Design
Theory (MS)

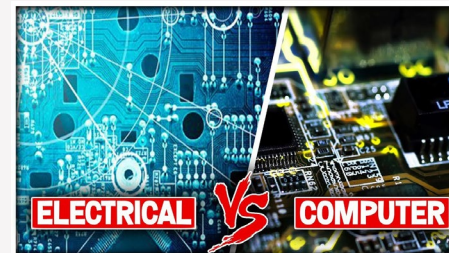


A bit about myself

Mechanical Engineering (PhD)



Electrical & Computer
Engineering (MS)





Dr. Shuji Nakamura

2014 Nobel Prize, NAE



Dr. Henry Yang

Chancellor, UCSB, NAE

My Research Journey

- Structural control and system identification (Applied math)
Structural Engineering, Nonlinear Dynamics, Earthquake Engineering ...
- Sensing and energy harvesting (Applied physics)
Applied physics letter, AIP journals ...
- Salinity gradient power extraction (Electrochemistry and materials)
RSC journals, Nano Energy, Research, Applied Materials Today ...
- Transportation engineering (Civil engineering)
IEEE Transactions, Transportation Engineering journals ...

Research – Why, What and How

- Purpose
 - Duty
 - Curiosity
 - Problem solving
- Topic
 - Impactful vs Recreational
 - Significant vs Incremental
- Approach
 - Transdisciplinary

Research – Challenges

- Challenges by nature

Slow process, grants/funding, networking, publishing in impactful venues, IP, ethics, technological advances (AI), work and life

- Other challenges

Bureaucracy, regulations, infrastructural support, ...

Research – Navigating in an ocean with rocks and obstacles

