

Extraordinary Engineering: Impacts on Society

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NATIONAL ACADEMY
OF ENGINEERING



This work was supported primarily by the Science of Science Program of the National Science Foundation under award # 1926494. Any Opinions, findings and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect those of the National Science Foundation

We have global challenges

Climate Change
Inequality
War
Pollution
Privacy
...



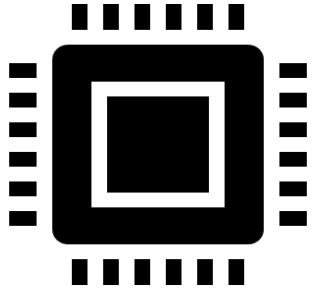
dreamstime.com

Engineering is part of the solution

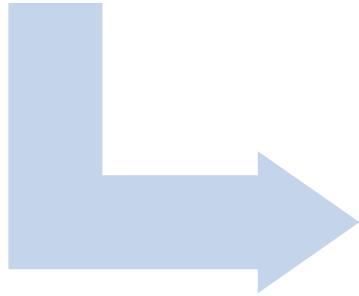
Inclusive Innovation

We cannot solve
global challenges with
solution created
in wealthy countries,
by wealthy scientists
for wealthy people.

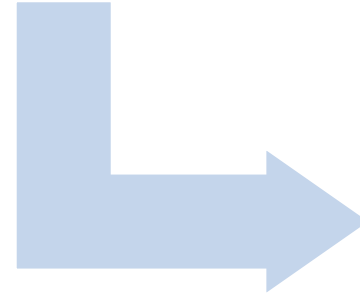




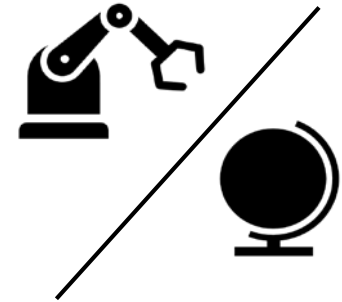
Electrical
Engineering



Public Policy

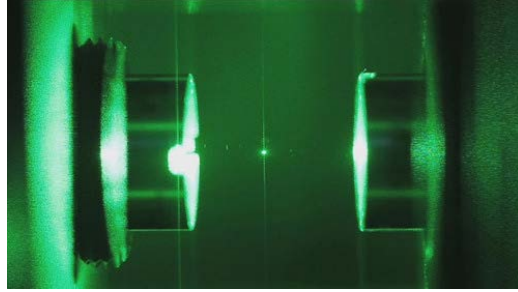


My Career Path

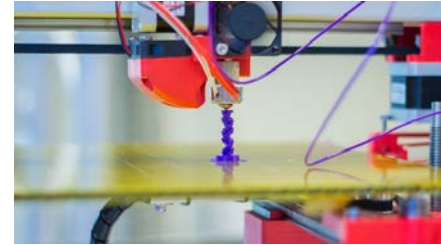


Technology
and Society

NANOTECHNOLOGY



SCIENCE



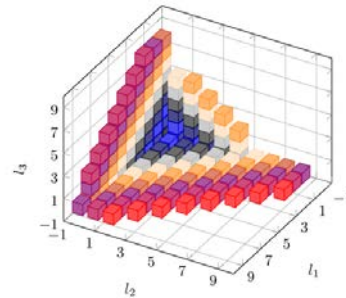
FUNDING

INCLUSIVE INNOVATION



BIG

DATA



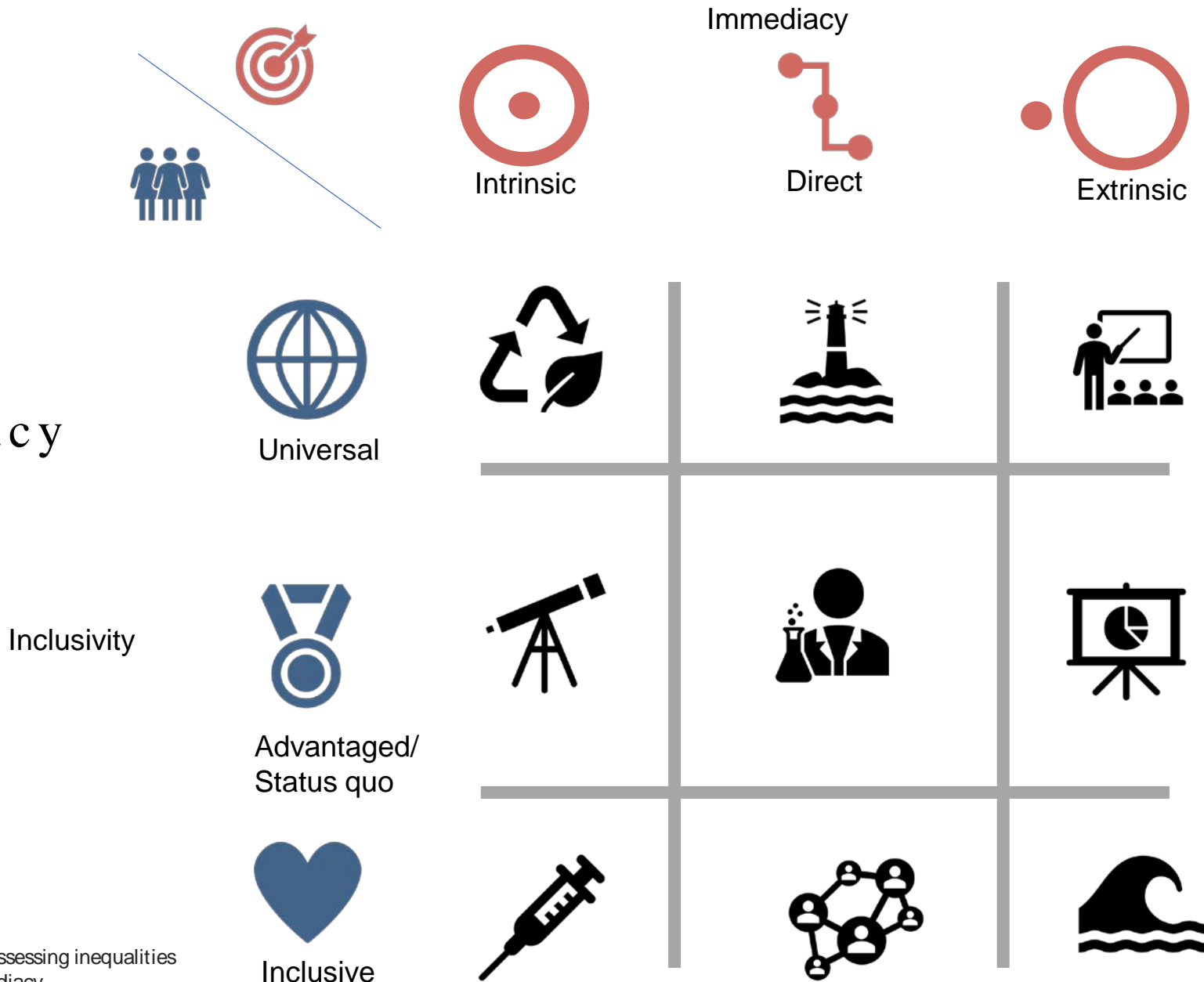
STEM

DIVERSITY



Broader Impacts

Inclusion-Immediacy
Criterion (IIC)



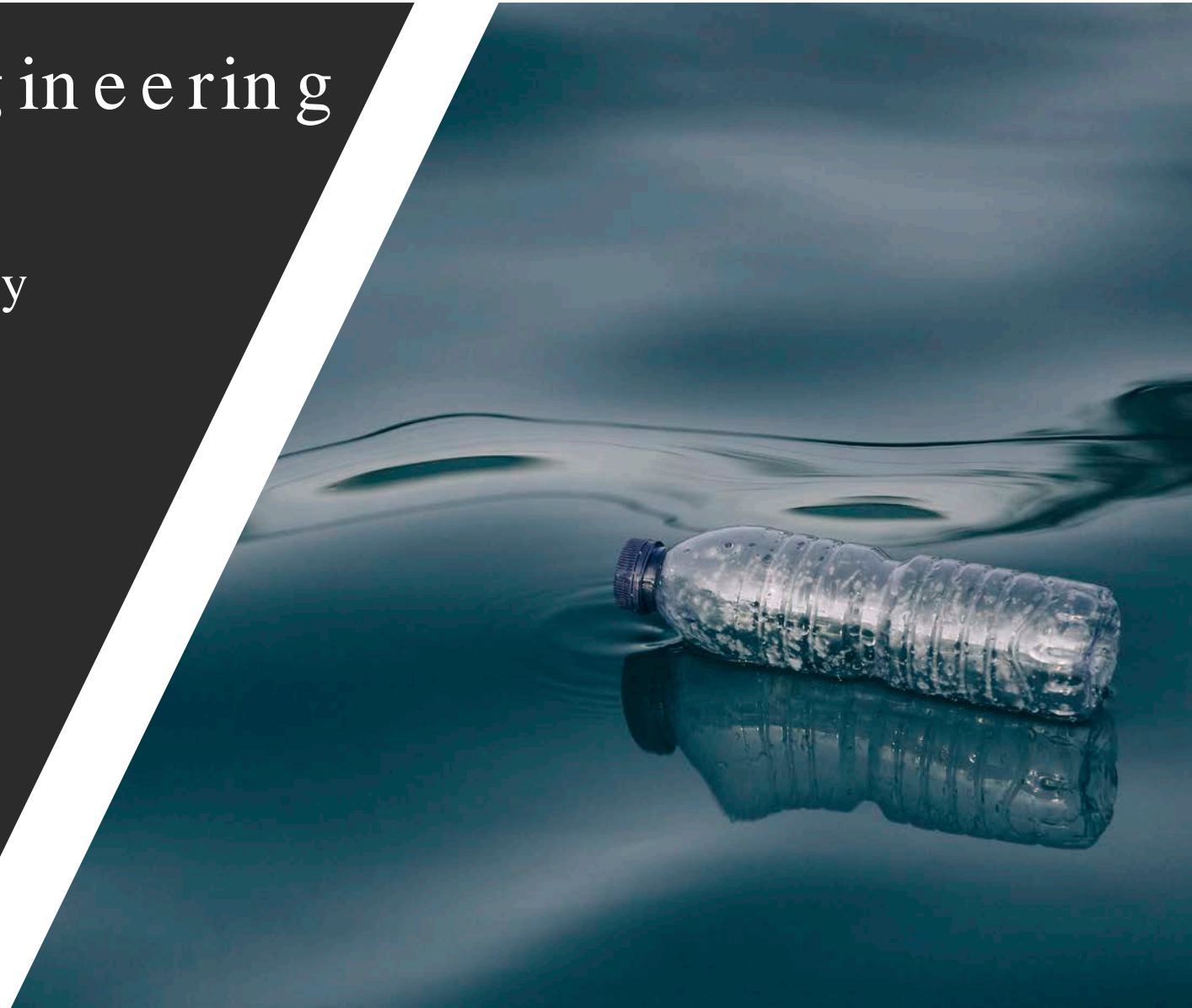
Broader Impacts of Engineering

NSF Division: Environmental
Engineering and Sustainability

“Nature-Based Solutions for
Restoring Rivers and Streams”

Xiaofeng Liu, Penn State Univ.

Award # 1935243



Broader Impacts of Engineering



NSF Division: Electrical,
Communications and
Cyber Systems (ECCS)

**“CAREER: Reliability and
Resilience Assurance of
Cyber-Physical Energy
Systems”**

**Mohammed Ben-Idris
Univ. of Nevada, Reno
Award # 1847578**

Overlooked impacts

Teaching

Collaborations

Training students

Science infrastructure



Caution with Engineering



**BBC
NEWS**

“Google apologises for
Photos app's racist
blunder”
July 1 2015

Women engineers trace tech gender gap to childhood

JUNE 4, 2012 / 12:36 PM / CBS NEWS

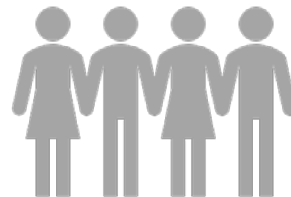


Now what?



Become an
engineer

- Understand engineering
- Systems thinking



Inclusive
Innovations

- Positive and negative impacts of technology
- Diverse Inputs

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Questions?



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