



Engineering From Day One
Ira A. Fulton Schools of Engineering
Arizona State University

Supporting Educational Partnerships



Pareesa Schulte

Education Technology Consultant

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11:45 – 12:00 CST Participant Login

12:00 – 12:05 CST Introduction

12:05 – 1:10 CST Featured Speakers - ASU

1:10 – 1:15 CST Q&A

1:15 – 1:25 CST TI Representative – Pareesa Schulte

1:25 – 1:30 CST Q&A/Closing

Fostering Identity to Promote Entry and Persistence in Engineering for First Generation Students

Engineers from Day One





Jennifer Velez
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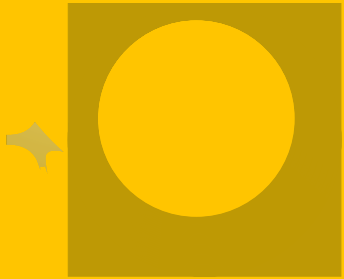
Robin Hammond
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National Science

Foundation **INCLUDES**



#1



in the U.S. for innovation

ASU ahead of MIT and Stanford
– U.S. News & World Report
6 years, 2016–2021

ASU Charter

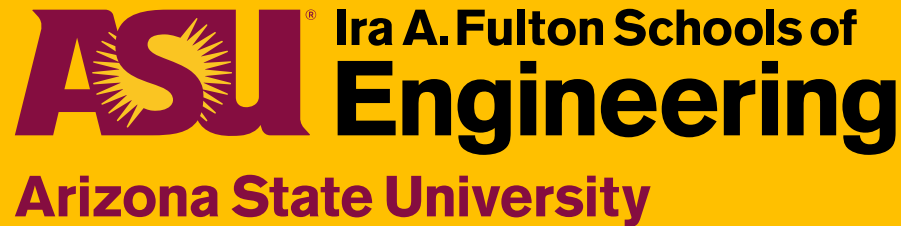
ASU is a comprehensive public research university, measured not by whom it excludes, but by **whom it includes** and how they succeed; advancing **research and discovery of public value**; and assuming fundamental **responsibility for the economic, social, cultural and overall health of the communities it serves.**

65%

of children entering primary school today will ultimately end up **working in completely new job types** that don't yet exist.

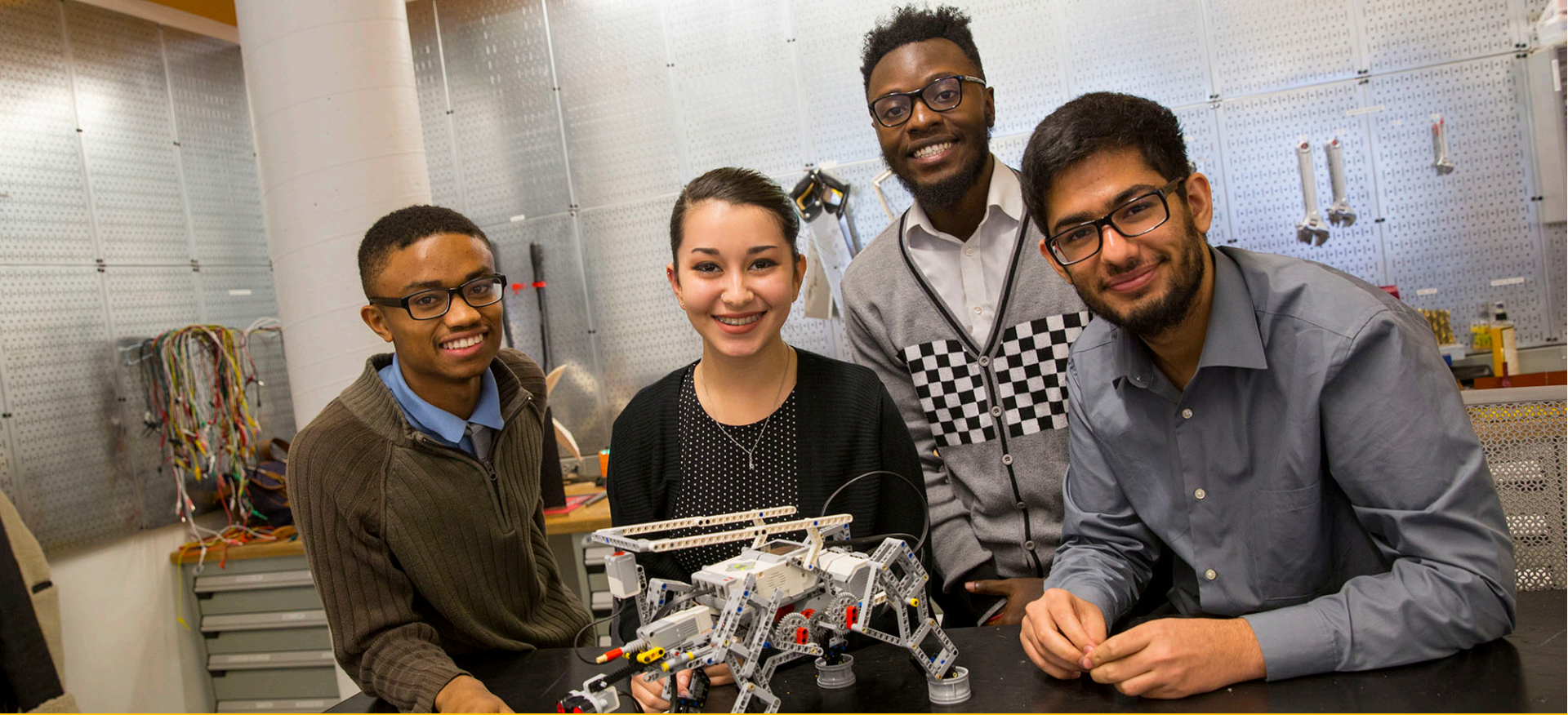


Designed to create paths to **engineering
for underrepresented populations:
first-generation students, women, those
with socio-economic need**





The biggest barrier to first-generation and under-represented youth entering engineering is not being able to see others like them doing engineering, which makes them assume that such roles are closed to them.



Leverage the benefits of **diversity**

Collective Impact Alliance: Engineers from Day One





Common Agenda
enhance: a) entry and b) persistence in engineering
of first generation students, women, underrepresented minorities,
and those with socioeconomic need

Engineers from Day One

Approach

foster engineering identity
development by enhancing

awareness,

enjoyment,

interest,

opinion formation, and

understanding
of engineering

Collective Impact

understanding



inclusion
in engineering

opinion
formation



envision
future selves

interest



develop
identity

enjoyment



enhance
social relevance

awareness



confront
stereotypes

Outcomes essential to foster Engineering Identity

awareness

about engineering

and its

social relevance

will lead to

enjoyment that could

engender a deep

interest

interest will lead to

Opinion formation

and

Understanding about

engineering that will

result in purposeful

choices to pursue

engineering

pathways

impact entry

coordination between

one of the largest

comprehensive research

public universities and

select K-12 feeder

systems



Discussion and Questions

ASU Ira A. Fulton Schools of
Engineering
Arizona State University



What are our strategies to enhance entry into engineering?



How? Design and implement long and short-term learning experiences for students, families, and teachers

Partner with schools and community organizations that serve high numbers of under-represented students in STEM



Enlist near peer engineering mentors from diverse backgrounds



Provide opportunities to visit a college campus

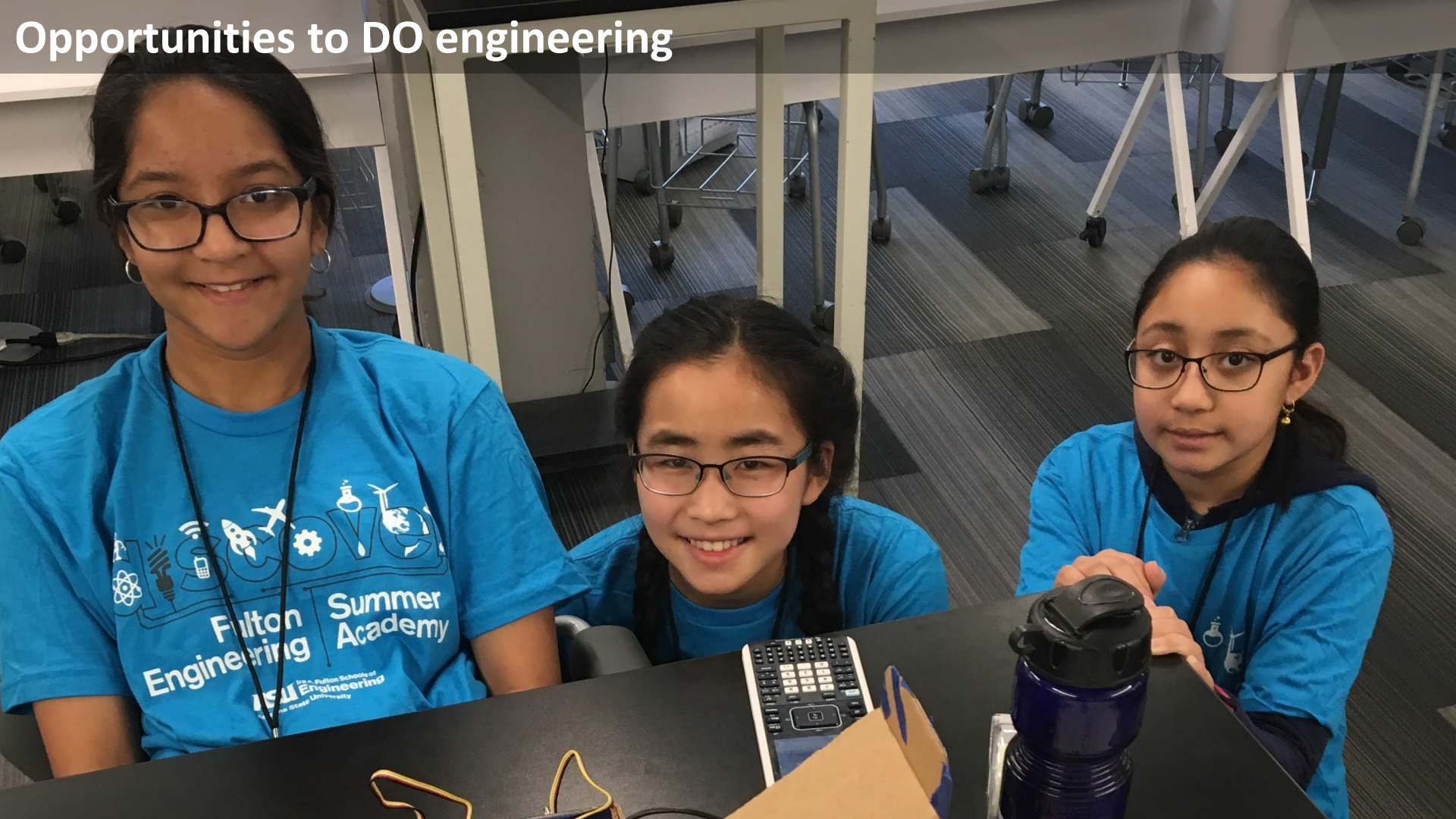


Train teachers and teacher candidates to develop engineering habits of mind in their students

eSeed Challenge



Opportunities to DO engineering



Young Engineers Invent: support first generation and underrepresented high school students to pursue engineering



Arizona Statewide Sponsor:

FIRST LEGO League Junior (ages 6-9)

FIRST LEGO League (ages 9-14)



Engineering Projects in Community Service (EPICS) High: ~30 middle and high school sites





Discussion and Questions

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What are our strategies to enhance persistence in engineering?

Engineering Futures

to foster students' engineering identity



professional identification is an essential aspect of becoming an engineer

Link to video: <https://vimeo.com/452666483>



Engineering Futures

to foster students' engineering identity



professional identification is an essential aspect of becoming an engineer

Engineering Futures

near peer-mentoring

**\$4,000 annual scholarships to fill
unmet need**

career plan support

technical skills development

develop a support network

Build self-efficacy networks



Build sense of belonging



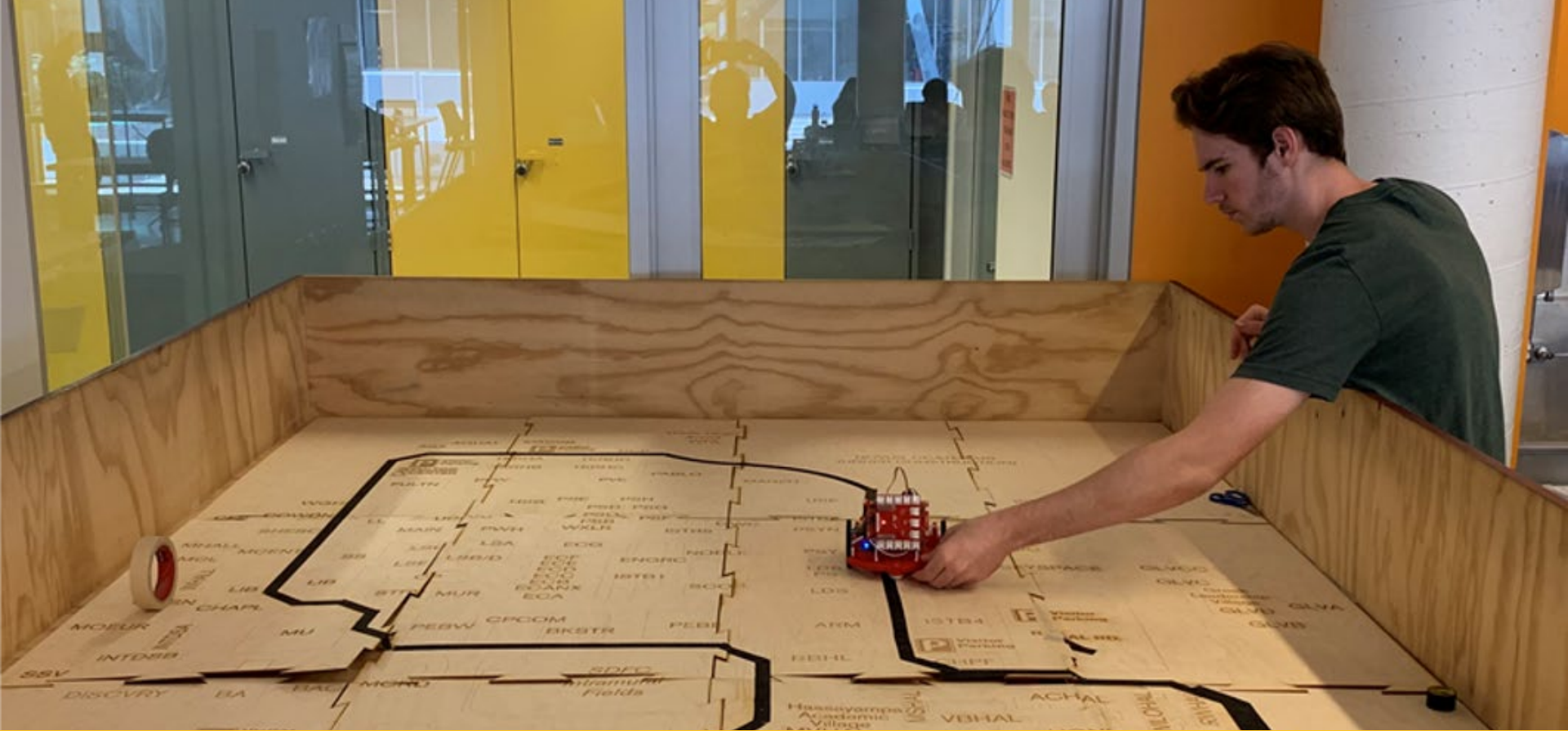
Build engineering identity by “doing engineering”



TI-RSLK
TI Robotics System Learning Kit

TEXAS INSTRUMENTS
Texas Instruments Incorporated
P.O. Box 655503
Dallas, Texas 75265
www.ti.com/rslk

TI-RSLK
TI-RSLK
TI-RSLK



- 1 Retain and support students to thrive in engineering
- 2 Ensure students find personal and social relevance

Thank you!

We appreciate your engagement with ASU's Fulton Schools of Engineering.

Your partnership helps broaden participation in engineering.

We are proud to be defined by who we include and how they succeed.

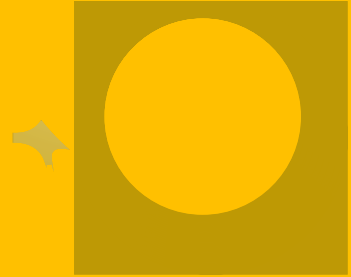


How to get involved

Stay connected to the Fulton Schools of Engineering

- **Support** [K-12 Outreach Activities](#) to enhance entry into engineering
- **Give** to the [Engineering Futures Program](#) to advance persistence in engineering
- **Share** your feedback and how you'd like to be involved by emailing tganesh@asu.edu

Acknowledgement



Ira A. Fulton Schools of Engineering Donors

This material is based upon work supported by the National Science Foundation under Grant No. 1744539 and Grant No. 1834166.

Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.




Discussion and Questions

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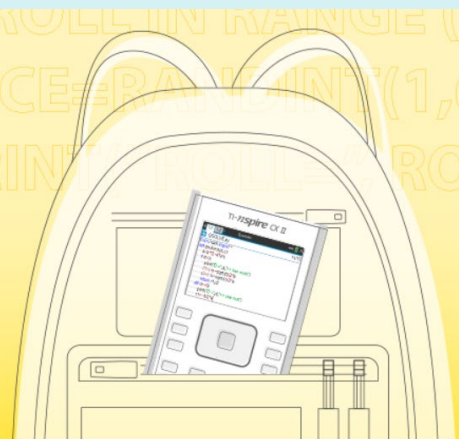




TI Codes Python: TI-Nspire™ CX II technology

Introduce students to physical computing and put coding in motion with short activities.

Note: These lessons require the use of TI-Nspire™ CX II technology with OS 5.2 and above.



10 Minutes
of Code

Python with
TI-Nspire™ CX II technology »

10 Minutes
of Code

Python with
TI-Innovator™ technology »

Teachers'
Lounge

Learn more about
TI Codes Python »



Professional Learning

Individualized Coaching

[Robyn Poulsen](#)

ME, NH, VT, MA, CT, RI, NJ, MD, DE

[Mr. Dana Morse](#)

NY, PA

[Jamila Gadsden](#)

NC, SC, VA, Washington DC

[Michelle Grooms](#)

OH, IN, MI, KY, WV, WI

[Beth Smith](#)

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TX ESCs 4, 10-13, 15, 18-20, AZ, NM

[Marco Gonzalez](#)

TX ESCs 1-3, 5-9, 14, 16, 17, OK

[Brian Dunicliffe](#)

AK, CA, CO, HI, ID, MT, NV, OR, UT, WY

[Ron Thomas](#)

IL, MO, TN, MN, SD, ND, IA, NE, KS

[Tom Steinke](#)

Canada



TI Talks

June 3, 2021: 1 – 2:30 EST/Noon -1:30 CST

Accelerating Student Engagement through Computer Science and Data Science

Join us as Elizabeth Evans, Grants Office Senior Grants Development Consultant will cover how new influx of STEM-friendly stimulus funding can be leveraged for STEM initiatives, how to position a request for funding of any source, as well as highlights of schools that are leading the way.

<https://education.ti.com/en/resources/funding-and-research/partners/ti-talks/june-event-elizabeth-evans>

Tuesday Webinars - <https://education.ti.com/en/professional-development/teachers-and-teams/online-learning>

Q & A

Closing



Thank you for joining us today!