



Normalizing inclusion by embracing difference

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SUSTAINABLE HORIZONS INSTITUTE



Who are we (in this webinar)?

POLL

• Poll:

<https://pollev.com/maryannleung407>

Notes:

- Polls are intended for everyone to anonymously interact
- Your data will remain anonymous
- Data from this session will NOT be used in the future
- No scientific conclusions should be drawn from these polls

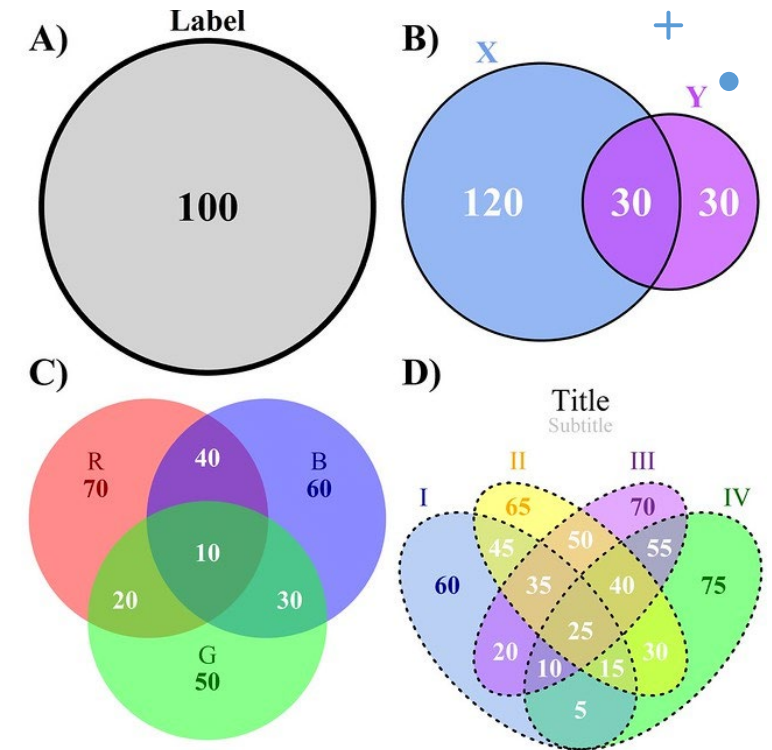
Agenda

- Diversity, Equity, and Inclusion (DEI)
- Achieving DEI in Teams
- Embracing difference to normalize inclusion
- Partner Activity: Exploring similarity and difference
- Small Group Activity: Applying the concepts
- Closing thoughts & implementation ideas



Computational Science and Engineering

- Computational Science and Engineering is highly inter- and multidisciplinary → technical diversity
- CSEs must be adept at “speaking” multiple languages,
 - Programming languages
 - Domains
- CSEs learn to navigate and exploit technical diversity to innovatively solve problems
- Translate technical diversity adeptness to other forms of diversity?



Exploring technical diversity

- Poll:

<https://pollev.com/maryannleung407>



Diversity, equity, and inclusion from Merriam Webster Dictionary

- Diversity:
the condition of having or being composed of differing elements : VARIETY
- Equity:
justice according to natural law or right
specifically : freedom from bias or favoritism
- Inclusion:
the act or practice of including and
accommodating people who have historically
been excluded (as because of their race, gender,
sexuality, or ability)





Achieving DEI within CSE Teams

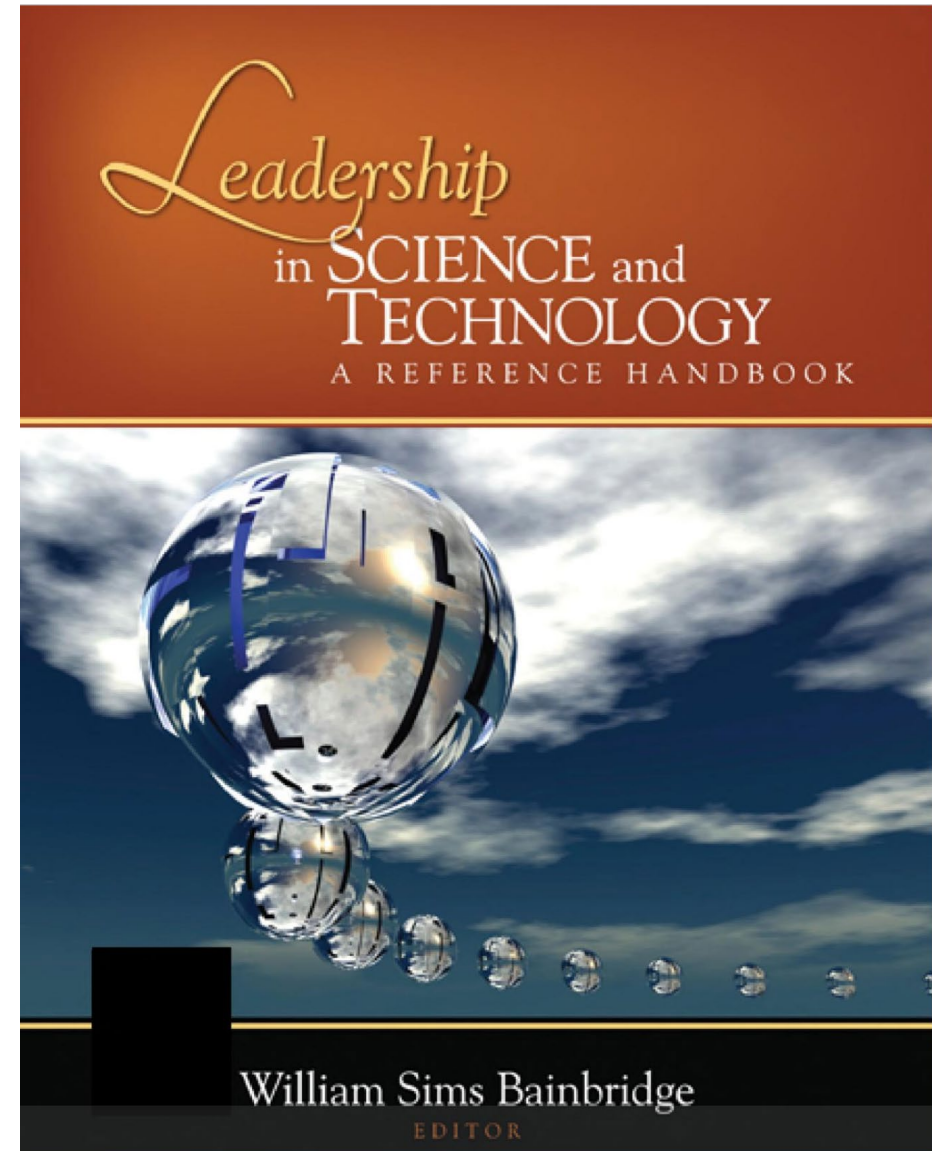
What can we do to promote productive and inclusive teamwork?



Cultivating Teams

*“It is said that the truth shall set us free; yet we need freedom to discover the truth. Thus, leaders in science and technology must accept responsibility for the results of their work and for the means they use to accomplish it. Fundamental to that responsibility is **respect** for facts, for creativity, and for colleagues.”*

Bainbridge, W. S. (2012). Leadership in Science and Technology: A Reference Handbook. Thousand Oaks: Sage Publishing.





Cultivating respect in CSE teams

*“Fundamental to that responsibility is **respect** for facts, for creativity, and for **colleagues.**”*

Cultivating respect within CSE DEI context

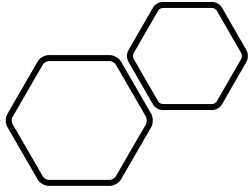
Cultivating respect for colleagues from underrepresented groups, has proven illusive given the common sources of attrition

- Stereotype threat
- Bias & discrimination
- Feelings of isolation
- Lack of role models, confidence, social capital
- Imposter syndrome
- Harassment

YOU BELONG
HERE TOO.



6/15/2022



The good news

- We CAN change things
 - As individuals
 - As leaders
 - As systems (policies, practices, etc.)

The bad news

- Change is hard



People are very open-minded about new things, as long as they are exactly like the old ones.

Charles F. Kettering

Source: <http://people-equation.com/no-leadership-title-you-can-still-influence-change>



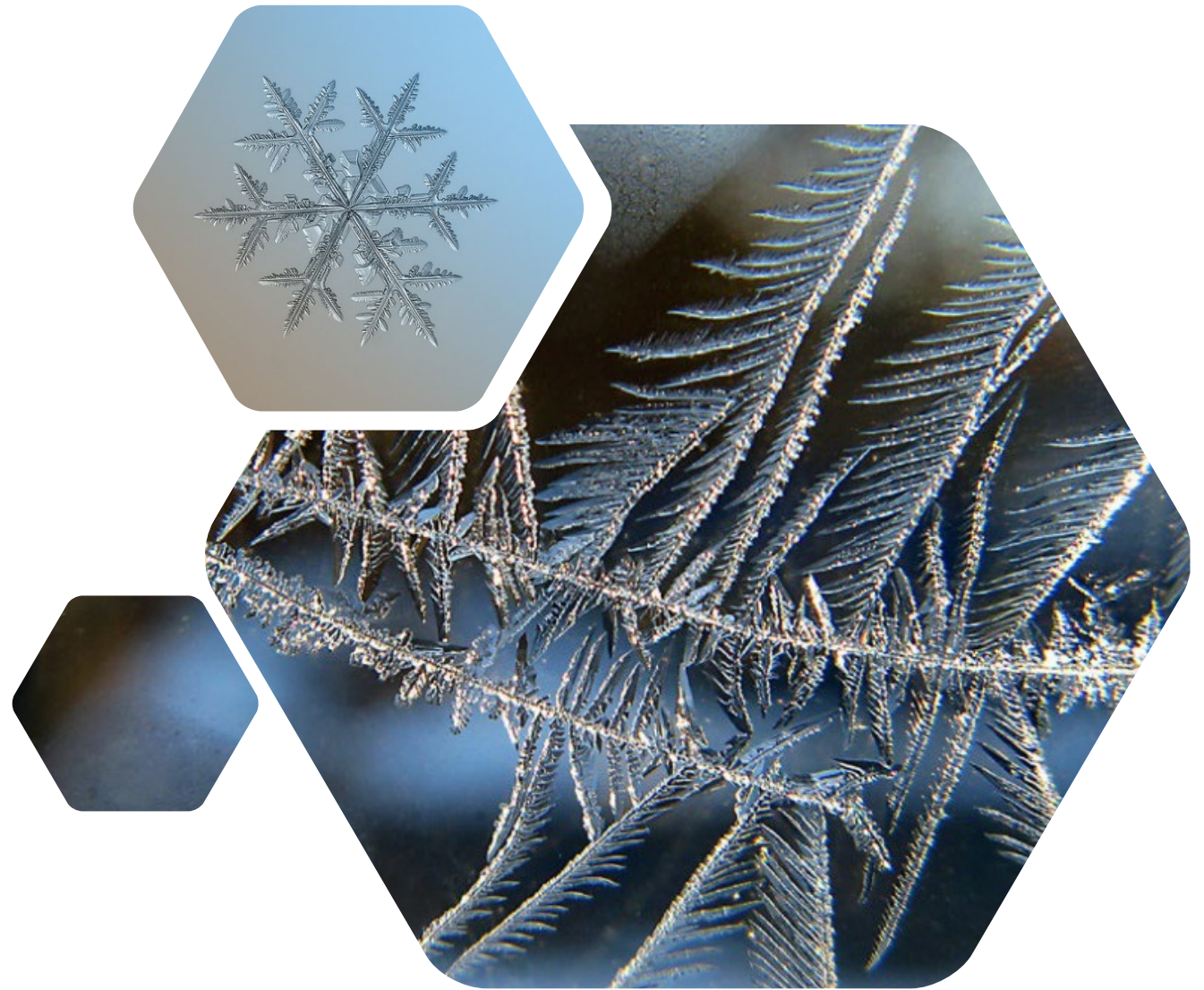
Concept/Analogy


Teamwork in CSE by
“Coordinated Self Assembly”



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Natural self assembly

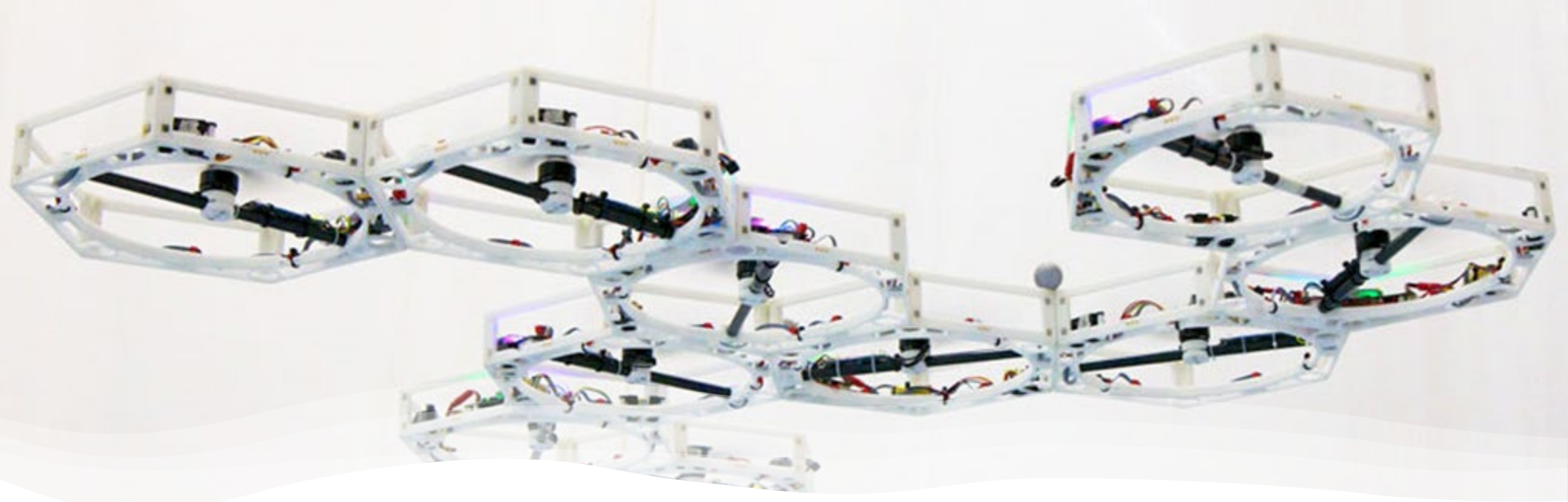




Self assembly with a nudge: Carbon nanotubes

“Coordinated Self-Assembly”

<http://www.youtube.com/watch?v=1kWApU3o6ko>



Coordinated Self Assembly in Robotics

<http://robohub.org/the-distributed-flight-array-modular-robots-that-self-assemble-coordinate-and-take-flight/>



Inhomogeneous Robots



Coordinated Self Assembly for Teams?





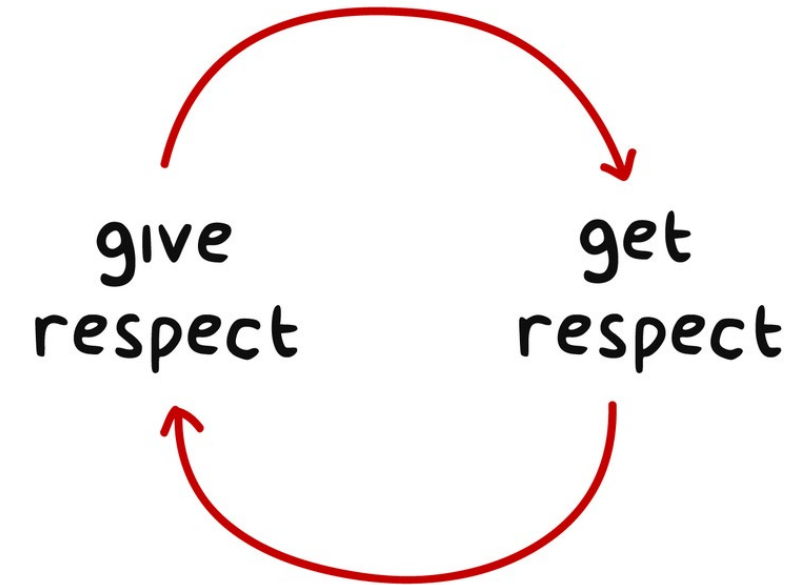
Coordinated self-assembly to achieve DEI in CSE

- Teams of people from diverse backgrounds → **Diversity**
 - All team members are fully functional and free of bias and favoritism → **Equity**
 - Take advantage of similarity and difference → **Inclusion**
 - Teams assemble naturally and all “parts” fit together
 - The sum of the parts makes a greater whole
- **Coordinated Self-assembly**



What might it take?

- Starting state
 - Numbers are low
 - “Canary in the coal mine” syndrome?
- Need for
 - Freedom
 - Respect
 - Belonging – “safe” environment
 - Bringing one’s whole self to “the job”



Creativity, Freedom,
Respect within
EDI/DEI

- Creativity requires freedom and respect
 - Freedom from bias, isolation, low self-efficacy
 - Respect for each person's background, **differences**, needs

So, what's holding us back?

- Long standing systems, practices in place
- Affinity for “likeness”
- Fear of something new...different

But, imagine the rewards

- Diversity → innovation
- Workforce demands for talent, technical skill
- Changing workforce demographics
- Increase competition for talent

People are very open-minded about new things, as long as they are exactly like the old ones.

Charles F. Kettering

Source: <http://people-equation.com/no-leadership-title-you-can-still-influence-change>



Summary: Celebrating difference in CSE

- Already know how to embrace technical diversity
- Adapt to new dimensions of diversity
- Rethink how we assemble and manage teams

Celebrating/embracing difference

Partner Activity: Exploring similarity and difference





Small group activity: Lost on a deserted island

- Imagine that you have been stranded on a desert island following a shipwreck
- Each person is allowed to bring ONE item
 - Pick an item that represents something you enjoy
 - Item does not have to be realistic, but should reflect something about you
 - For example, if you love music, you might bring a guitar
- Pick what object you want to bring and make note of it



Small group activity: Lost on a deserted island

- Join a breakout room
 - preferably with some people you don't already know
 - ideally load balance so ~same number of people in each room
- In your breakout room
 - Each person shares what they bring and why
 - Devise a way to combine your items to help the group better survive
- Try to apply some of the concepts presented in today's webinar
- We will regroup to discuss what you came up with

Breakout room discussion



What items does your group have?



How did you combine them to increase chance of survival?



What did you learn from the activity?

Some implementation ideas

- Next time you are forming a team:
 - Make it a priority to bring in more diversity
 - Its natural to call on someone you already know, but intentionally branch out
 - Expand your network, even just one node away by
 - Reach out to colleagues to identify others
 - Engage in activities where you can meet new people
 - Branch out and taking some risks
- As you onboard and work with your team:
 - Take actions to INCLUDE everyone
 - Ensure everyone is heard, even quiet shy types
 - Learn of everyone's unique attributes and explore how to utilize them
 - Cultivate respect and embrace/exploit difference





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A more diverse and inclusive future is on the horizon