From Foundations to Forte in STEM

Kevin Meng

CIE MathComp/MathFun Seminar

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Hi there! My name is Kevin

I’m a passionate innovator, public speaker, and musician.

- Participant in MCMF, Speech Contest, Engineering Fair, LAMP, Convention, AAEOY, Symposia

- YAA Winner, 2020
- Volunteer, 2013-Present

- Intel ISEF Best in Category Winner
- ACM/CSTA Cutler-Bell Prize Winner
- Coca-Cola Scholar
- U.S. Navy Research Directorate Scholarship
- 3x First-Author Publications & 1x Patent Pending
- MIT Lincoln Labs Minor Planet Namesake
- Founder, ArcGen Technologies LLC
- Admitted to MIT, Harvard, Stanford, UT Honors

Talk Outline

Foundations in STEM

Going Beyond

Putting It All Together

My Experience

1. Foundations in STEM

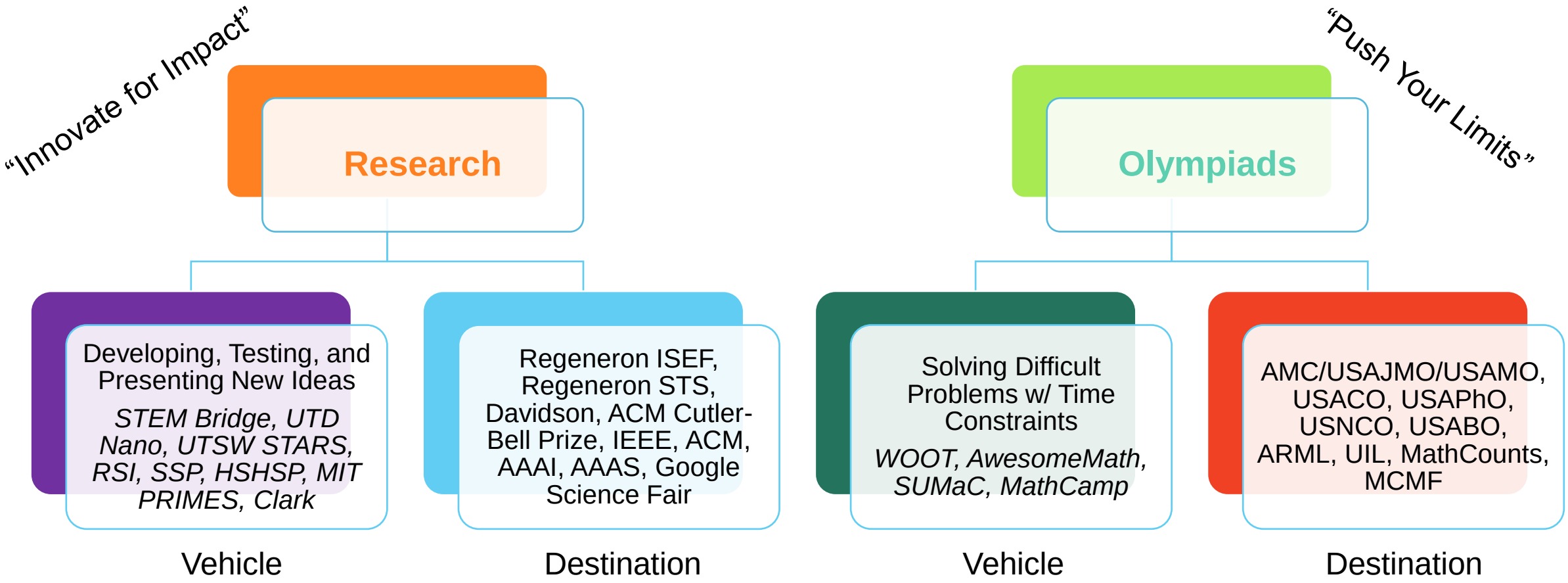
- **Objective:** Broaden your horizons
  - Middle School: General math/science courses
  - High School: AP/IB classes
- **Pros:**
  - Introduction to interesting, fundamental, and universal STEM topics
- **Caveats:**
  - You can handle bigger challenges!

2. Going Beyond

What do you think about in the shower?

- Resources to learn more & practice:
  - Math/Physics/Chem/Bio: AoPS Forums/WOOT, A* Academy, etc.
  - CS: Coursera, USACO Train, CodeForces, etc.
  - Summer Programs: Duke TIP, UTD, AwesomeMath
- Example of interest in machine learning:
  - Math: Multivariable Calculus, Statistics
  - Programming: Advanced Syntax, Data Structures, Algorithms
  - Interdisciplinary Applications: Biology, Physics, Chemistry, Politics

3. Putting It All Together



My Experience Following This Path

Foundations (Middle/High School)

7th/8th Grade: Algebra I & II, Geometry

9th Grade: Precalculus

10th Grade: AP Calculus BC, AP Chemistry, AP CSP

11th Grade: AP Physics C, AP Statistics, AP CSA

12th Grade: AP Biology

Going Beyond

1

7th Grade

AMC, MathCounts, MIT App Inventor

2

8th Grade

AMC, MathCounts, Science Fair, Gateway to Technology, Physics

3

9th Grade

C++, Java, Python, UTD Data Structures & Algorithms Course

4

10th Grade

Independent Study of Machine Learning, Data Structures, Algorithms

5

11th & 12th Grade

Putting It All Together

8th / 9th Grade: TXSEF Best in Show, USACO Gold

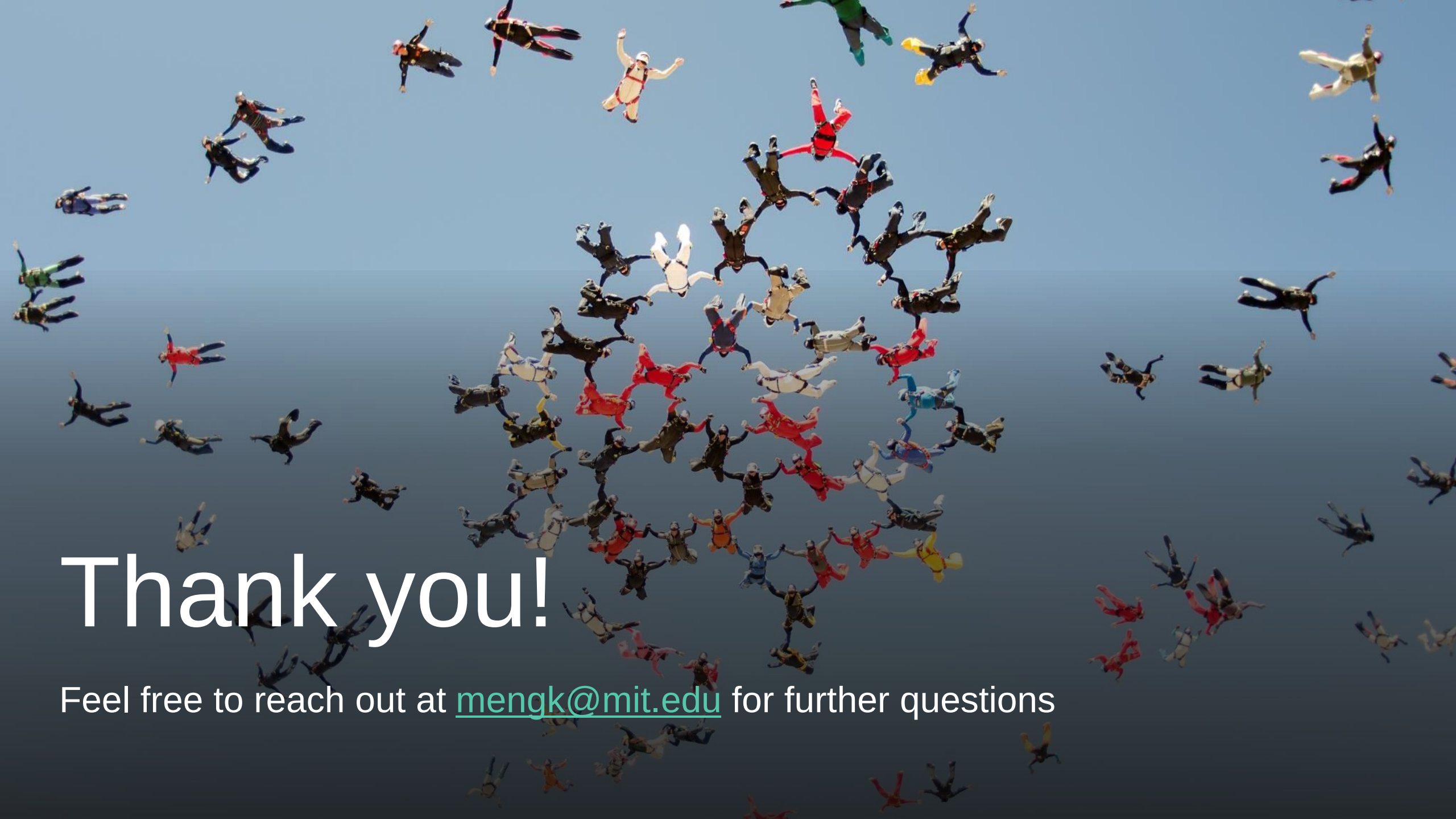
10th Grade: ISEF 3rd Grand, joined UT Arlington IDIR Lab, published 1st paper to IEEE

11th Grade: ISEF Best in Category, U.S. Navy Scholarship, MIT minor planet namesake, TXSEF Best in Show, research at UTA, published 2nd paper to IEEE, invited to NSA & 7-Eleven, AJAS Fellow

12th Grade: Invited to CES 2020, Nvidia, AAAI, research at UTA, founded ArcGen, filed first patent, ACM Cutler-Bell Prize, Coca-Cola Scholar, admitted to MIT, Stanford, Harvard, UT

Don’t Forget to Give Back!

Share your love of STEM with those in your community



Thank you!

Feel free to reach out at mengk@mit.edu for further questions