Institute for Computational & Mathematical Engineering

Stanford Institute for Computational & Mathematical Engineering

ICME Admits 2017
We design

mathematical and computational models and algorithms

80 PhD students, 54 associated faculty

We advance

disciplinary fields by designing and improving computational approaches

faculty from 20+ departments across all areas of campus

We train

with focus on computational mathematics, data science, machine/deep learning, high performance computing, data visualization, and related fields

nearly 60 courses from undergrad to PhD level

and we create a strong community for interdisciplinary research and collaboration
ICME, anno 2004

9 staff
65 affiliated faculty & friends
3 joint faculty
8 instructors
3 adjunct faculty
85 PhD students
90 MS students
Optimization - statistical analysis - machine learning / AI - uncertainty quantification
HPC - matrix computations - numerical analysis - numerical simulation of anything
stochastics - financial math - CFD - visualization - computer graphics - personalized
medicine - genomics - computational surgery - design - PDEs - abstract math ……
Profile incoming students

- outstanding math/stat background
- background / interest in applications
- interdisciplinary
Where do our PhD Students go?

Close agreement expected and pursued paths

Research careers dominate

We have placed students at Harvard, MIT, Purdue, Columbia, Rice, Cornell, ....
Strong Collaboration With Industry

Strategic Partners

![Logos of Strategic Partners]

Education Affiliates

![Logos of Education Affiliates]
ICME Education Affiliate Program

• **Recruiting** - Company info night, career fair, interviews on campus, resume book, internship screening

• **Research** - invitation to ICME roundtables, workshops, seminars and symposiums on technology trends and research involving ICME faculty and students. Faculty liaison.

• **Curriculum** - Short courses for industry partners on Fundamentals of Data Science. Guest lecturer opportunities in ICME 60+ courses.

• **Facilities** – tours of ICME facilities; regular updates on what’s happening at the HIVE, HPC and Data Lab
ICME Education Affiliate+ Program

Additional Partnership Opportunities:

• **Research**: Research collaboration with ICME-affiliated faculty and students, i.e. ability to pose broad questions for investigation

• **Visiting Scholar**: Office space in ICME. Ability to audit courses, co-advise students, leverage HIVE visualization center for research, and potentially join research team

• **Student-Advisor-Mentor**: Students work with Total on real-world research problems closely related to industry

• **Curriculum**: Co-develop and pilot short courses; Train-the-Trainer sessions. Company problems incorporated into project courses.

• **Sponsorship**: of a lecture series or hackathon at Stanford

• **Theme workshop**: Total-proposed theme used as the basis for a workshop that is of common interest to ICME faculty and students
Upcoming ICME Events

Summer
• Mid August, 2017: Summer Workshops / short courses:
  Optimization, Machine Learning, Deep Learning, NLP, Optimization
  Data Visualization, Python, De-rust Linear Algebra, De-rust Statistics

Fall Quarter
• GPUniversity of Deep Learning and Beyond
• ICME Xtend Recruiting Event

Winter Quarter
• ICME Xtrapolate Roundtable
• Women in Data Science Conference
1:15-1:30  Aaron Sidford  Management Science & Engineering
1:30-1:45  Ali Mani  Mechanical Engineering
1:45-2:00  Ken Jung  School of Medicine
2:00-2:15  Mary Wootters  Computer Science, Electrical Engineering
2:15-2:30  Amin Saberi  Management Science and Engineering
2:30-2:45  Amir Zamir  Computer Science
2:45-3:00  Mykel Kochendorfer  Aeronautics and Astronautics
Facilities

HIVE Immersive Visualization Environment
• State-of-the-art facility for high resolution data visualization and collaboration; for classes and research across Stanford

Prototype Data Café
• Maker-space for data
• Open to students to explore, learn and collaborate
• Feels like an Apple store -- inviting to all
• Latest software and hardware technologies available including large touch-screen monitors, data visualization software

Genius bar for consultation in HIVE and Data Café
• Staffed by broad ICME computational consulting group, C2