

Statistics in the Community:

Community-University Partnerships Fostering Data Science Education



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Department of Biostatistics
University of Michigan

SDSS 2020 | June 4, 2020

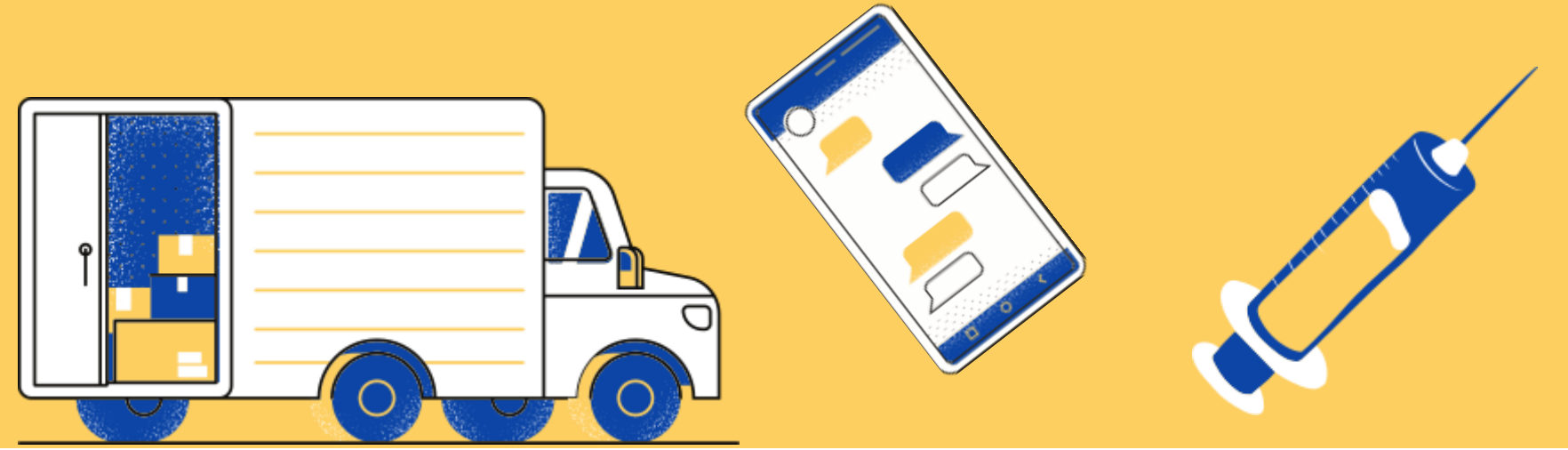


OUTLINE



-
- The Need
 - Who We Are
 - Our Approach
 - Impact and Growth
 - Broader Initiatives
 - Future Directions
 - Many, Many Thanks

CONSIDER...



Allocating \$18 million to improve quality of life services for a senior population

Determining optimal placements of mobile food pantries in low-income areas

Predicting crisis of calls from high-risk, runaway, and homeless youth



LOCAL NEED FOR DATA

Local non-profits and small governmental organizations could benefit from answering data-driven questions.



Ann Arbor Area
Community Foundation



STATISTICS IN THE COMMUNITY

A community outreach program for data organization, analysis, and interpretation

Offers the expertise of students, free of charge, to non-profit organizations

Provides a valuable link between the university and surrounding community

OUR MISSION: WHY IT MATTERS

Community partners can use their data to allocate resources, understand target populations, and improve their efficiency





OUR MEMBERS

Our membership is comprised of students in over 10 UM departments



Emily
Morris

Amy
Singer

Cathie
Spino

Emily
Roberts

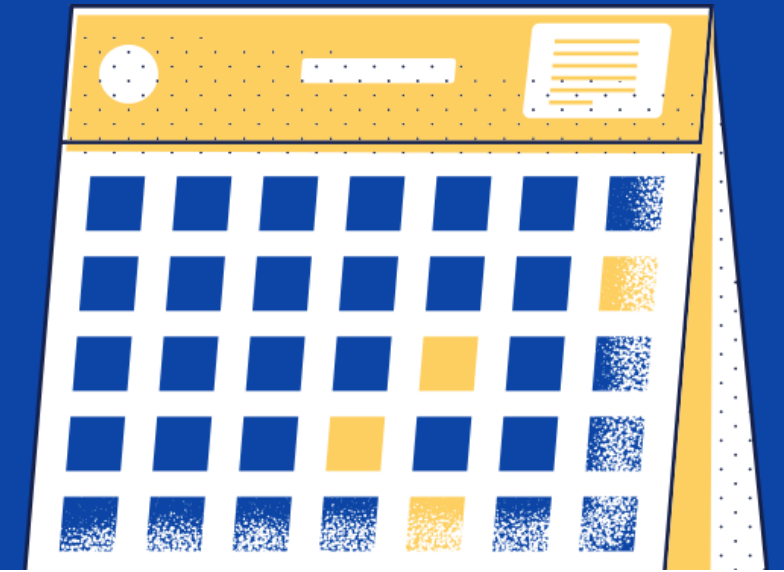
Tom
Braun

Stephen
Salerno

LEADERSHIP TEAM

Not Pictured:
Edmund Woolridge,
Ben Brennan

A BRIEF HISTORY OF STATCOM



2001

STATCOM was founded
at Purdue University



2006

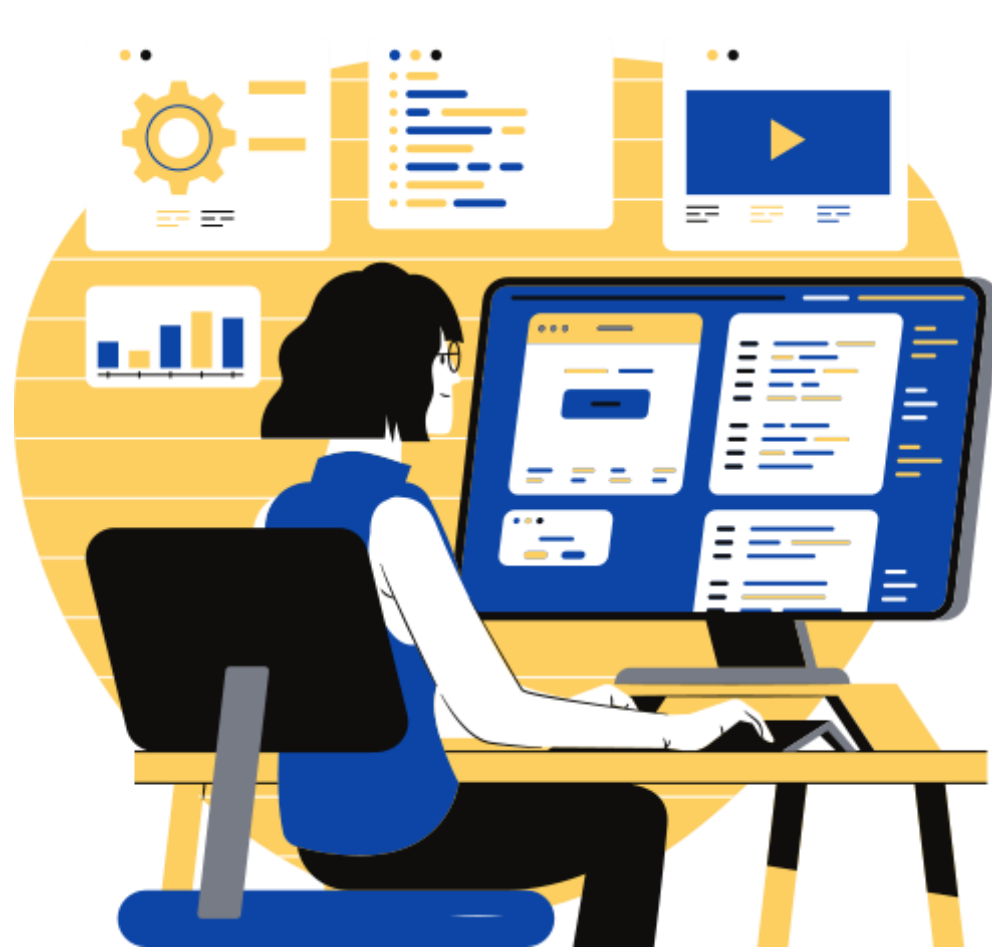
Our chapter was
chartered at Michigan



Today

100+ members from
10+ departments

SCOPE OF WORK



60+ Survey of Washtenaw County
Genesee (Flint) County Health Department
Myeloproliferative Neoplasms (MPN) Research Foundation
Area Agency on Aging 1-B, Washtenaw County
Washtenaw County Water Resource Commission
United Way of Washtenaw County
The Detroit Children's Center
Catholic Social Services
Ozone House of Ann Arbor
Michigan Broadband Access Network
Food For Thought, Toledo
Stand with Trans
Food Gatherers of Washtenaw County
Detroit College Access Network
Ann Arbor Public Schools Education Foundation
Adolescent Health Initiative
University of Michigan Health System
... and many more!

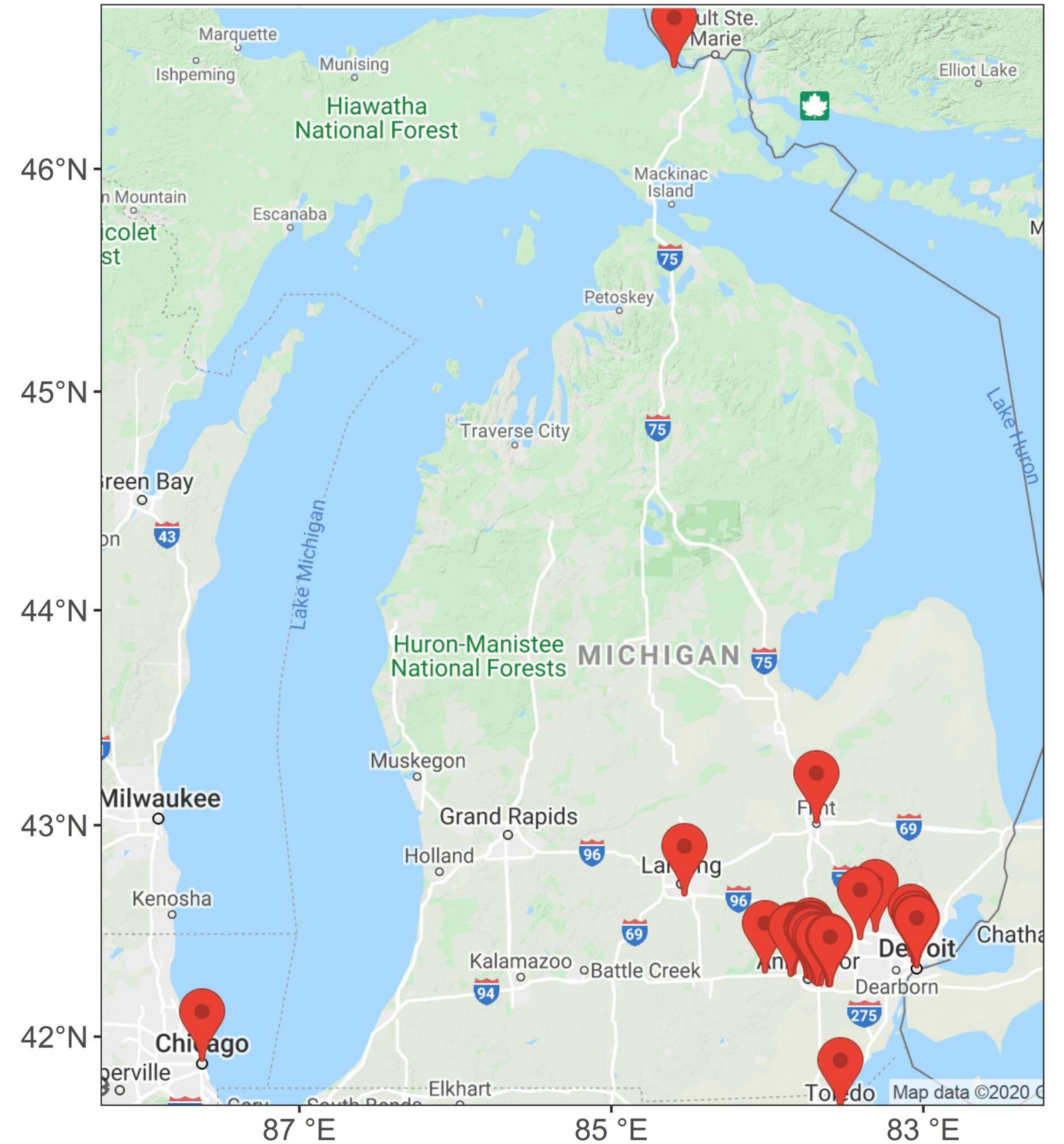
Impact & Growth

—
(This would not be a proper statistics talk without tables and figures)



WHERE ARE OUR PROJECTS?

Our reach is expanding beyond southeast Michigan to Illinois and Ohio

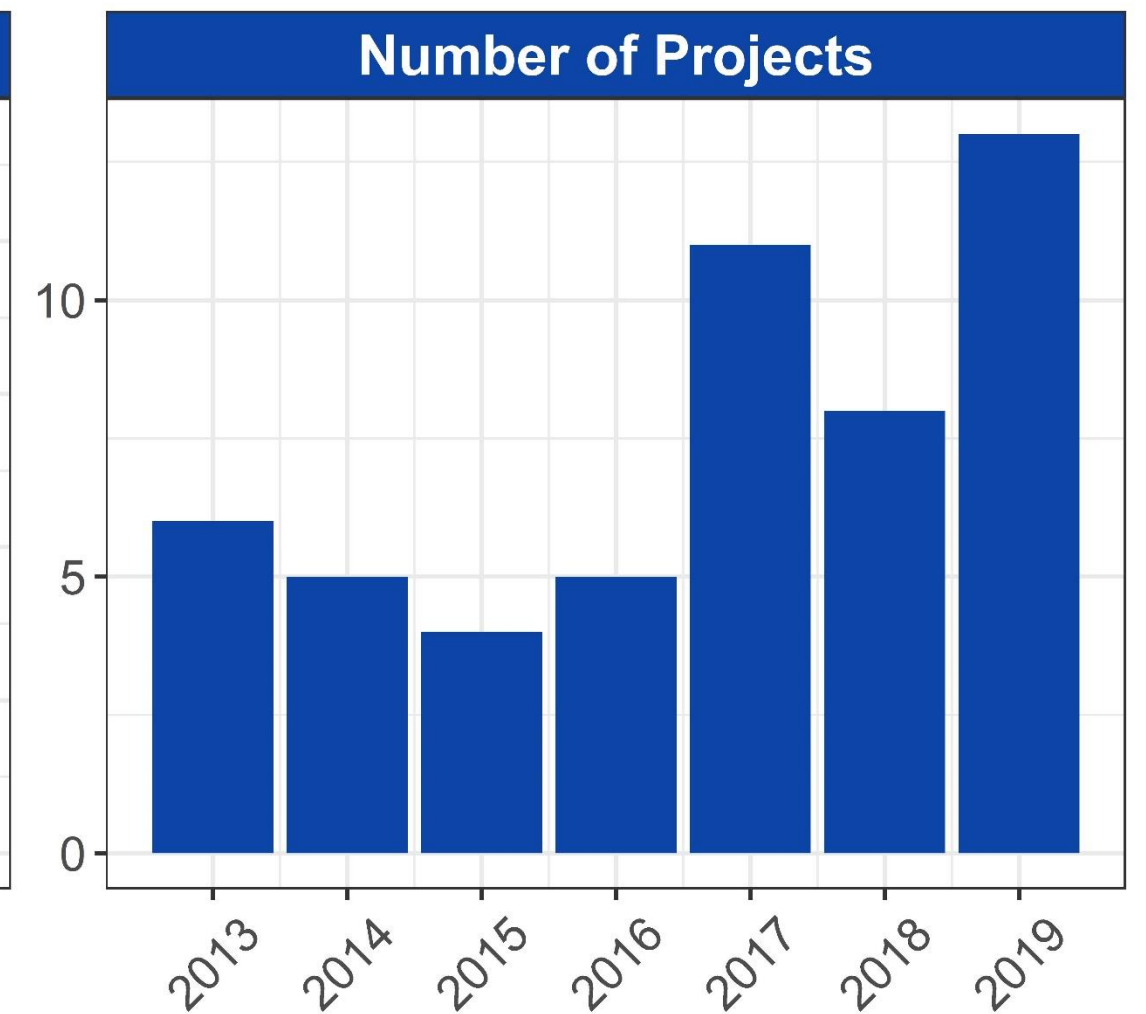
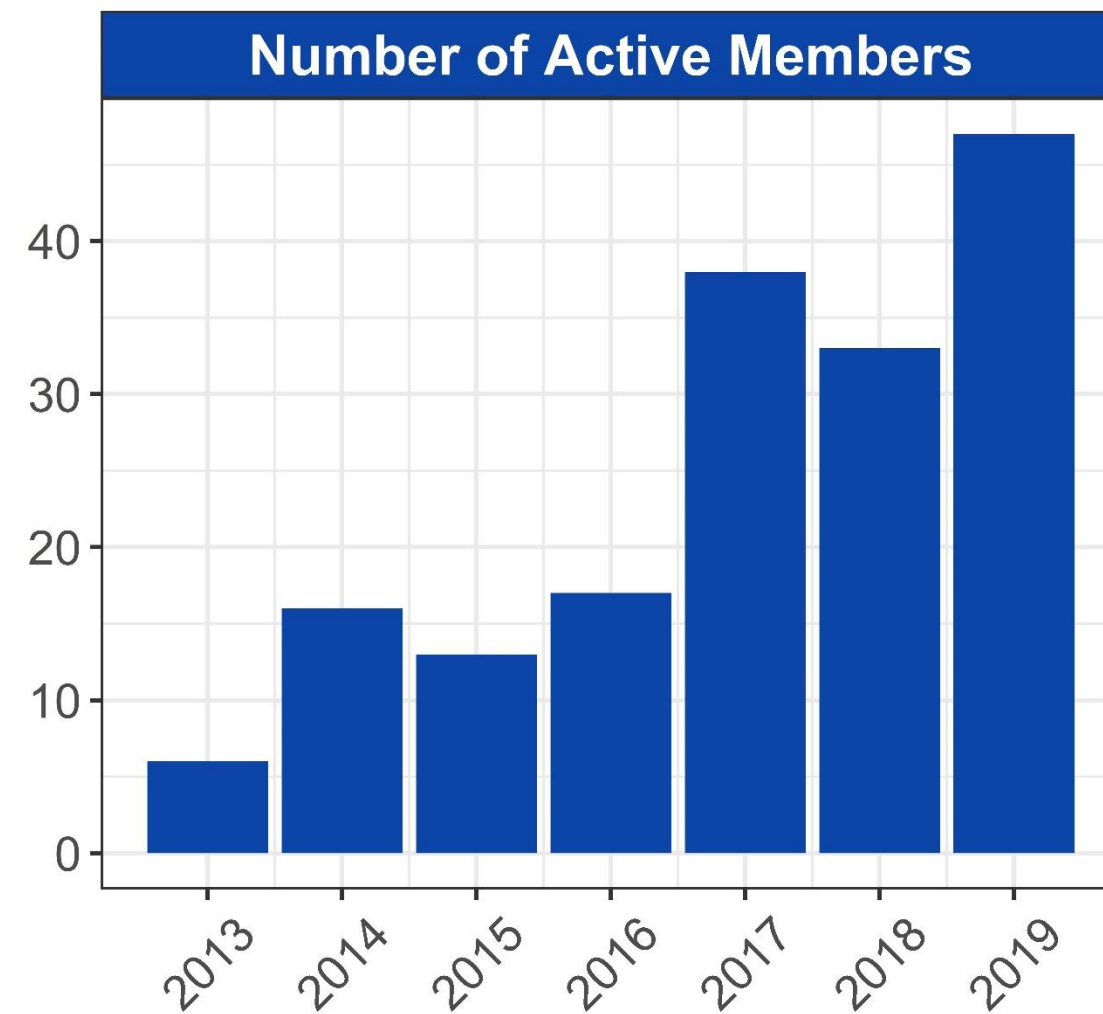


*Excluding one location in Portland, OR
Data current as of: Sat May 16 15:04:17 2020*

STATCOM'S GROWTH

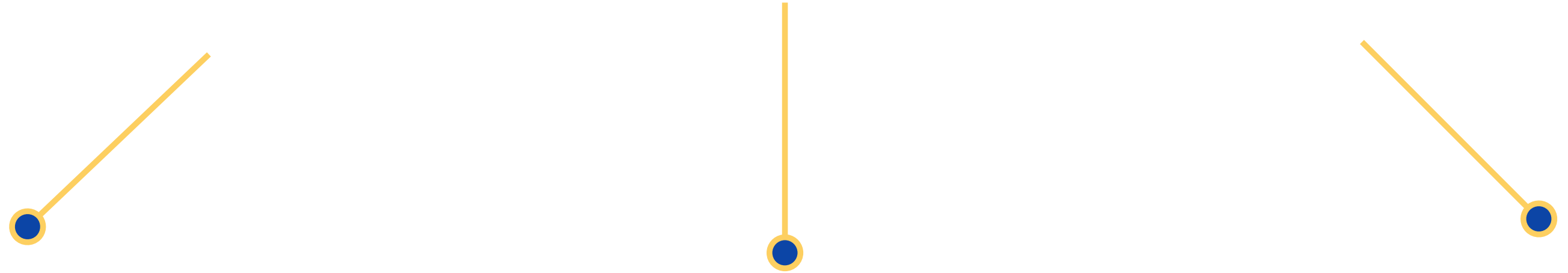


Engagement up from 6 active members on 6 projects (2013) to 47 members on 13 projects (2019)





stat|||com



M | SCHOOL OF PUBLIC HEALTH
UNIVERSITY OF MICHIGAN

M | MIDAS MICHIGAN INSTITUTE FOR DATA SCIENCE
UNIVERSITY OF MICHIGAN

M | LSA COLLEGE OF LITERATURE, SCIENCE, AND THE ARTS
UNIVERSITY OF MICHIGAN

M | SCHOOL OF PUBLIC HEALTH BIostatISTICS
UNIVERSITY OF MICHIGAN

M | STUDENT LIFE EDWARD GINSBERG CENTER
UNIVERSITY OF MICHIGAN

M | SCHOOL OF SOCIAL WORK
UNIVERSITY OF MICHIGAN

M | CEDER CENTER FOR EDUCATION DESIGN, EVALUATION, & RESEARCH
UNIVERSITY OF MICHIGAN



UNIVERSITY PARTNERSHIPS



Broader Initiatives



R WORKSHOPS

STATCOM developed a series of workshops in R syntax, exploratory data analysis, data visualization, and reproducible research with RMarkdown/Projects:

- > Offered semesterly to the School of Social Work and CTAC
- > Expanded last year to included the School of Education and CEDER

DATA FOR PUBLIC GOOD SYMPOSIUM

Year	Attendees	Disciplines	Talks	Posters
2018	50	12	6	10
2019	75	32	10	12
2020	139*	48	10	14

*92 In-Person Attendees + 47 Live-Streaming

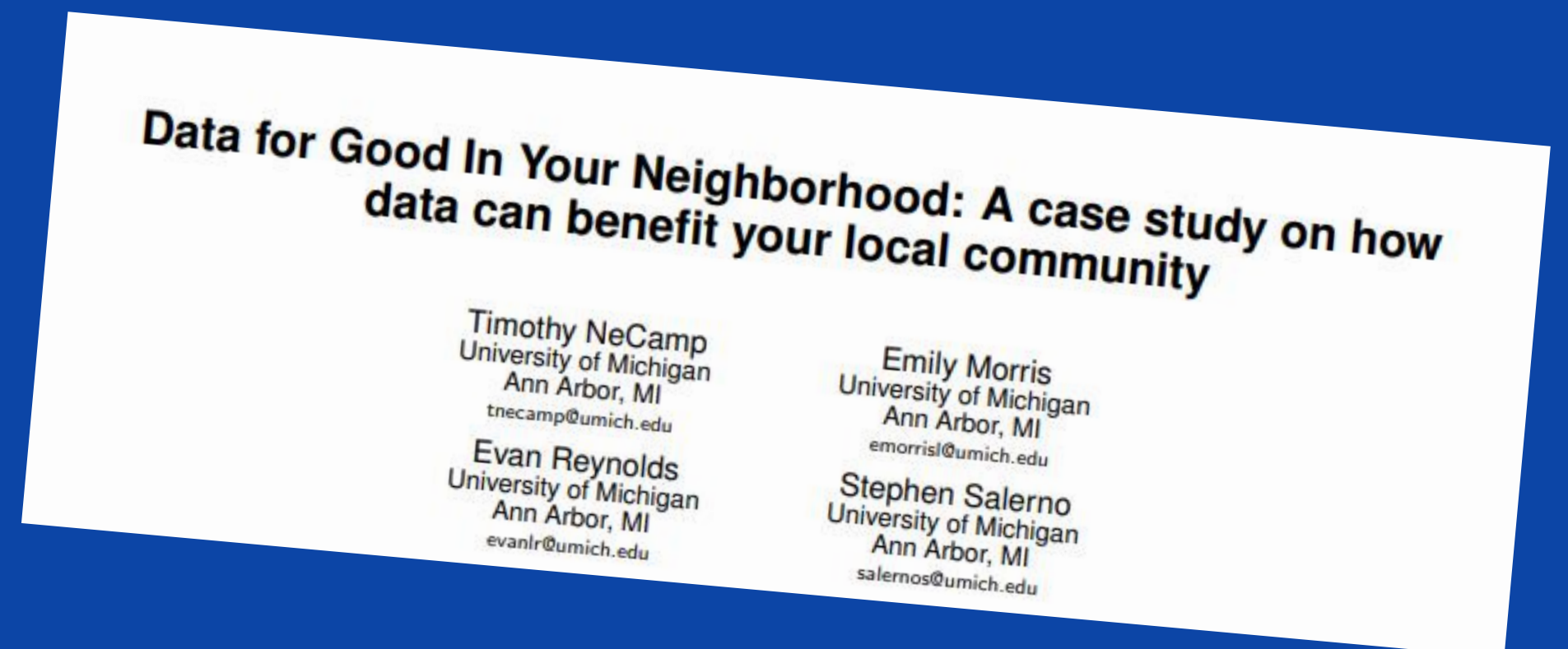
STATCOM, CTAC, CEDER, and MIDAS host a university-wide symposium to showcase research efforts and community-based partnerships at the university that improve humanity by using data for good.



NATIONAL OUTREACH

Our chapter has begun several outreach initiatives:

- magazine.amstat.org/blog/2018/04/01/statcom-universities/
- bloomberg.com/lp/d4gx-2018/



Data 4 Good Dashboard



Many more details forthcoming!

60+ SURVEY



Ann Arbor Area
Community Foundation

For **good.** For **ever.**[™]

Background: \$18 million to improve quality of life for older adults, focusing on those with lower life expectancy and socioeconomic status

Goal: Inform funding allocation by developing, administering, and analyzing a survey assessing the quality of life of older adults



60+ SURVEY

Utilized a validated questionnaire to assess quality of life (QOL)

Administered 750 surveys through other community organizations

Regressed composite QOL score on three vulnerabilities of interest

60+ SURVEY RESULTS

Financial vulnerability was associated with lower QOL

Presented AAACF with community reports

Information is being used to allocate funding for services





WHY THIS WAS A GOOD PROJECT



Oversaw from conception to interpretation



Findings used to inform policy decisions



Leveraged many community partnerships



Students directly impacted this population

"STATCOM fills such an important gap in data management and analysis for community-based organizations."

LESLI HOEY, PHD, ASSISTANT PROFESSOR,
URBAN AND REGIONAL PLANNING

"This connection between classroom knowledge and real-world practice has been invaluable to me in furthering my understanding of applied statistics."

ADAM PETERSON, PHD CANDIDATE,
BIOSTATISTICS

"It's been incredibly beneficial having highly trained and knowledgeable STATCOM representatives help us."

SHELAGH SAENZ, DIRECTOR OF CAREER DEVELOPMENT,
SCHOOL OF PUBLIC HEALTH



MEDIA & RECOGNITION



U-M symposium focuses on how data can be used in service to others

EVENT ANNOUNCEMENT
DATE: 10 a.m.-4:30 p.m. Feb. 25, 2020
EVENT: The 3rd annual University of Michigan Data for Public Good Symposium will highlight the unique ways in which students, faculty, staff and community members have worked together to analyze and assess data to benefit others.
The event also includes a presentation by Data for Public Good, which provides access to data on ways in which students, faculty, staff and community members have worked together to benefit others. The event includes a presentation by individuals from various backgrounds, including high-quality information and analysis to non-profit organizations, businesses and individuals. The discussion will focus on how data-driven decision-making in the public sector can be used to analyze and assess data to benefit others.



Michigan Data for Public Good Symposium

Michigan Data for Public Good Symposium, which runs 10 a.m.-4:30 p.m. Feb. 25, 2020 in Weiser Hall, 10th Floor, will highlight the unique ways in which students, faculty, staff and community members have worked together to benefit others. The event includes a presentation by individuals from various backgrounds, including high-quality information and analysis to non-profit organizations, businesses and individuals. The discussion will focus on how data-driven decision-making in the public sector can be used to analyze and assess data to benefit others.



Discovering Biostatistics and Its Broad Applications

Therine Hoffman, MS '18
Research Biostatistician, Weill Cornell Medicine
March 3, 2019, Biostatistics, Big Data, Engaged Learning, Mental Health, Professional Development, What Is Public Health?



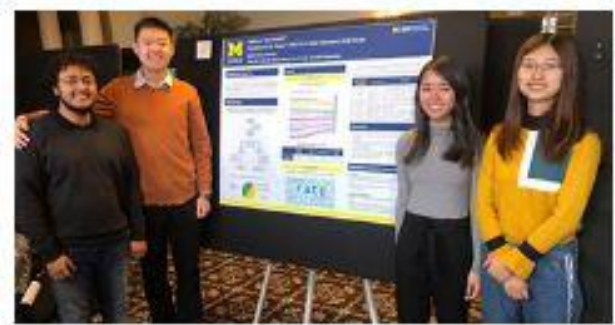
Statistics in the Community Professional Organization of the Year

Statistics in the Community (STATCOM) at the University of Michigan is a community outreach organization that offers the expertise of statistics graduate students, free of charge, to non-profit governmental and community organizations in the areas of data analysis, and interpretation. This includes schools, government agencies, homeless shelters, advocacy groups, libraries, adult day care centers, and organizations. In the past few years, the University of Michigan Statistics in the Community chapter has seen tremendous growth with 5 projects in 2014 to 147 projects in 2018. The chapter has developed new courses and programs that have had a significant impact on the lives of many in the community.



Evan Reynolds Graduate Student of the Year Award

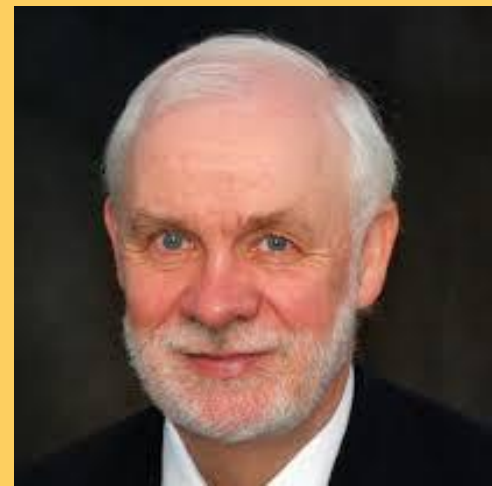
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STATCOM members win Best Presentation Award in the Student Data Challenge

Congratulations to STATCOM members Soumik Purakayastha, Lyna Truong, Mukai Wang, Tian Xie for winning the best presentation award in the MIDAS data challenge for JD Power group!





MANY, MANY THANKS



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sph.umich.edu/biostat/statcom/



@statcom_um

CONTACT STEPHEN:



salernos@umich.edu



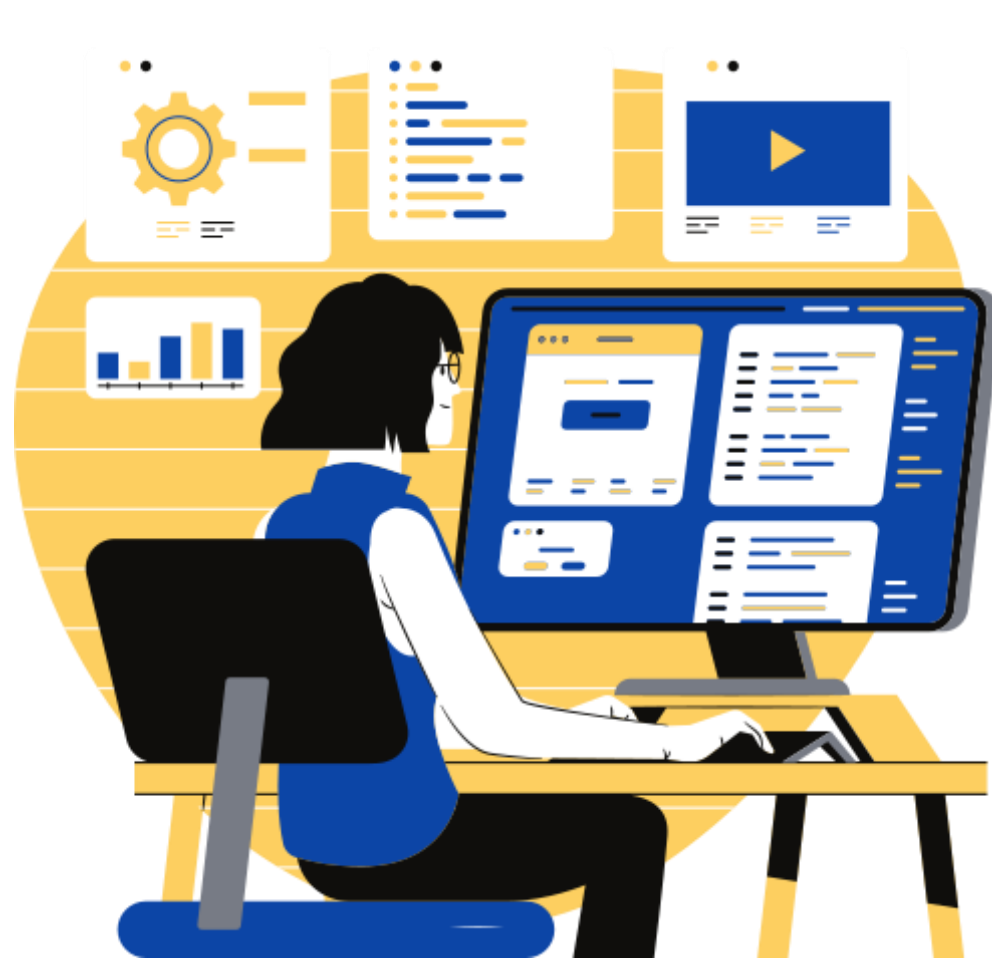
sph.umich.edu/biostat/



@StephenSalerno4

Additional References

SCOPE OF WORK



Advice and assistance are offered on a wide variety of statistical issues including:

- Use of data to improve decision making processes
- Survey/sample design and analysis
- Design and analysis of studies and experiments
- Methods of summarizing and visualizing data
- Use of data to detect trends and make predictions

STATCOM is able to assist with study design, data analysis, and the interpretation of results, but does not have the resources to collect or enter data

STATCOM was featured in several recent articles and editorials:

- The Pursuit (2018): <https://sph.umich.edu/pursuit/2018posts/working-in-everyones-backyard.html>
- SPH Findings (2018): sph.umich.edu/news/2018posts/statcom-062718.html
- Michigan News (2019): engaged.umich.edu/news-features/u-m-symposium-where-data-and-doing-good-intersect/
- Michigan Research (2019): research.umich.edu/news-issues/michigan-research/big-data-big-impact
- We are Michigan Public Health (2019): sph.umich.edu/stories/2019posts/stephen-salerno.html
- We are Michigan Public Health (2019): sph.umich.edu/stories/2019posts/katherine-hoffman.html
- Michigan News (2020): news.umich.edu/u-m-symposium-focuses-on-how-data-can-be-used-in-service-to-others/
- Cronicle Tech Press (2020): <https://cronicle.press/2020/02/18/attend-the-university-of-michigan-data-for-public-good-symposium-feb-25th/>

Listed below are recent accolades received by members of STATCOM:

- April 2018: University of Michigan Professional Organization of the Year
- April 2018: Evan Reynolds, University of Michigan Student Leader of the Year
- October 2019: Best Presentation, MIDAS Student Data Challenge
- April 2020: University of Michigan Professional Organization of the Year
- April 2020: School of Public Health Community Engagement Award

MEDIA & RECOGNITION

MANY, MANY THANKS

- **Current STATCOM Leadership:** Emily Morris, Emily Roberts, Amy Singer, Edmund Woolridge, Ben Brennan, Cathie Spino (Faculty Advisor), Tom Braun (Faculty Advisor)
- **(Recent) Past Leadership:** Evan Reynolds, Tim NeCamp, Mike Elliott (Faculty Advisor)
- **Faculty:** Bhramar Mukherjee, Rod Little, Lili Zhao, Veronica Berrocal, Josh Errickson
- **University Collaborators:** Jing Liu (MIDAS), Trisha Fountain (MIDAS), Sarah Hallum (MIDAS), Bri Christy (CTAC), Sarah Gallagher (CTAC), Sarah Beu (CEDER)
- **This Session:** Leah Jager, Lynne Steuerle Schofield, Aboozar Hadavand
- **My Advisor:** Yi Li + many others who contribute to or support our mission and work
- **Our Volunteers, Our Volunteers, Our Volunteers, Our Volunteers, Our Volunteers**