

Statistics in the Community:

Community-University Partnerships Fostering Data Science Education



Stephen Salerno
Statistics in the Community (STATCOM)
Department of Biostatistics
University of Michigan

SDSS 2020 | June 4, 2020

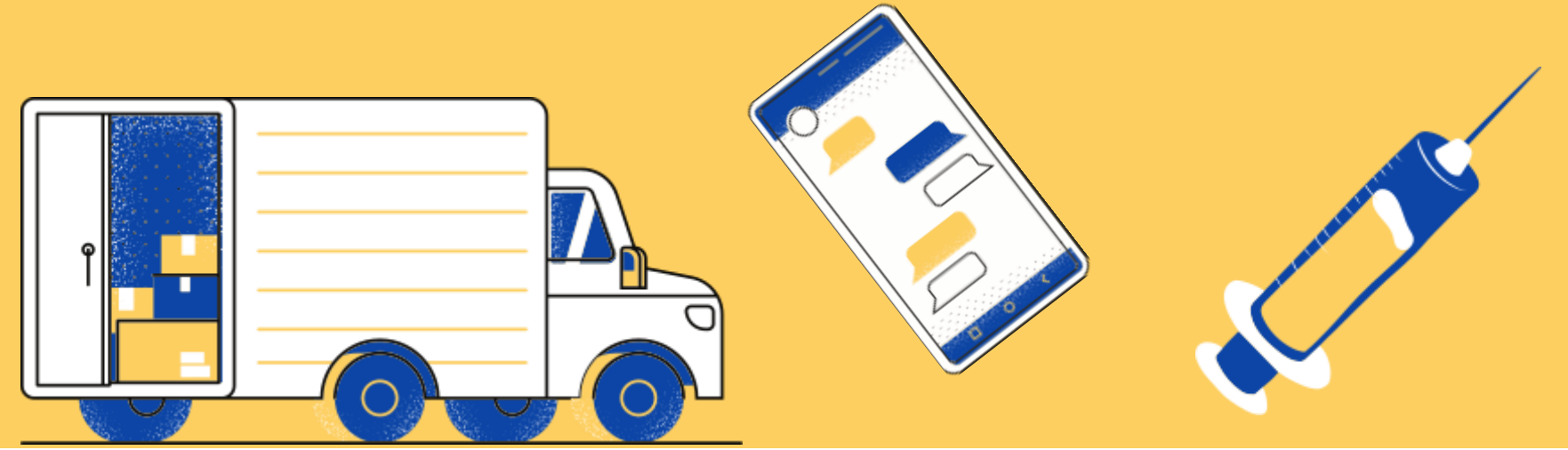


OUTLINE



-
- 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

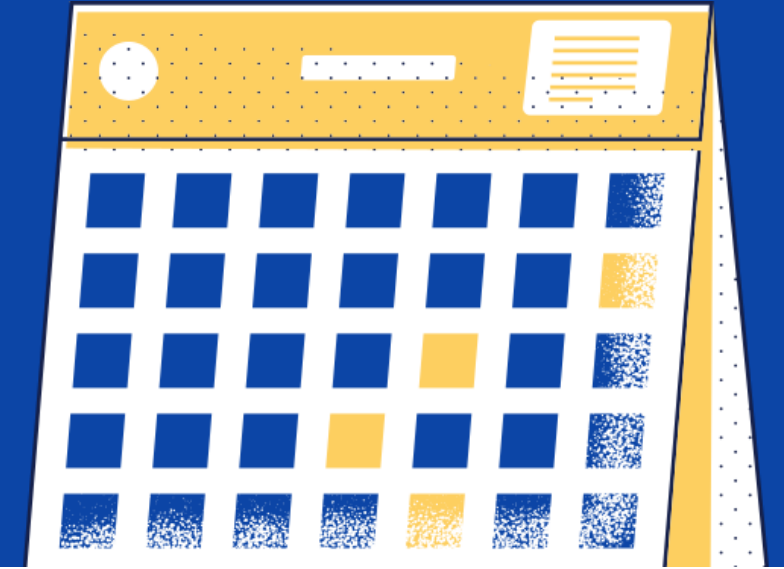
Tom
Braun

Stephen
Salerno

LEADERSHIP TEAM

Not Pictured:
Edmund Woolridge,
Ben Brennan

A BRIEF HISTORY OF STATCOM



2001

STATCOM was founded
at Purdue University



2006

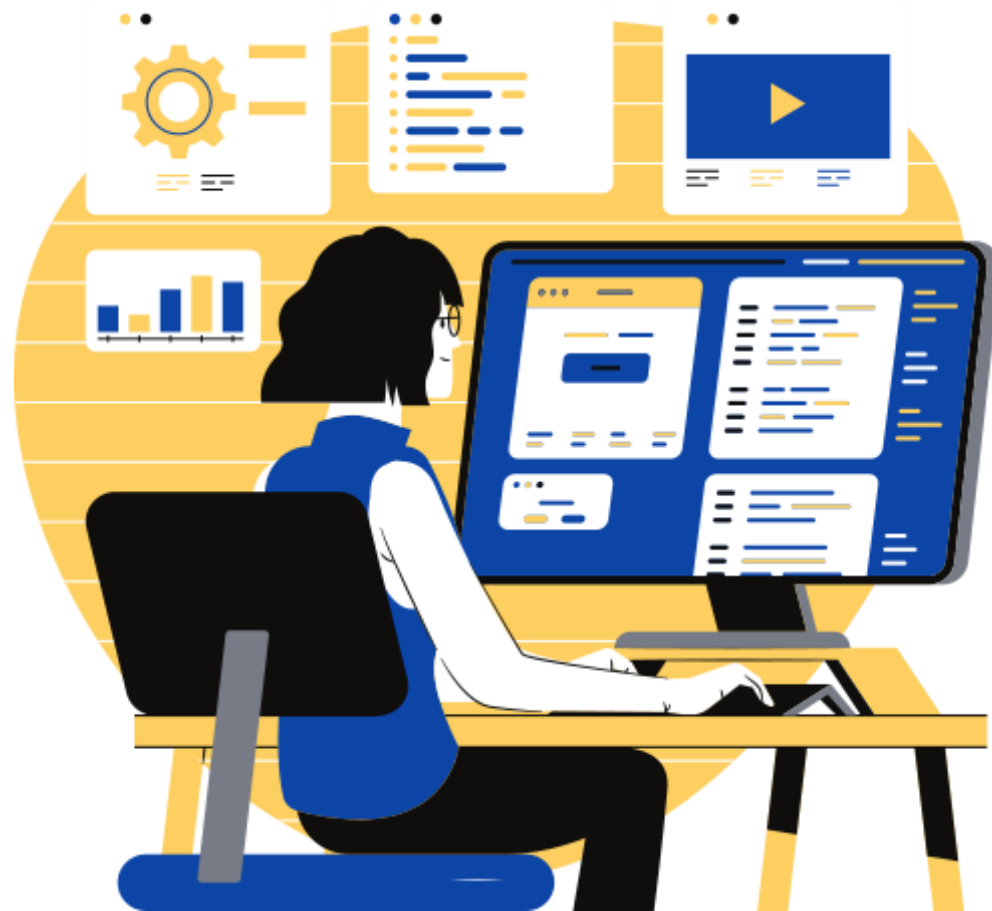
Our chapter was
chartered at Michigan



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

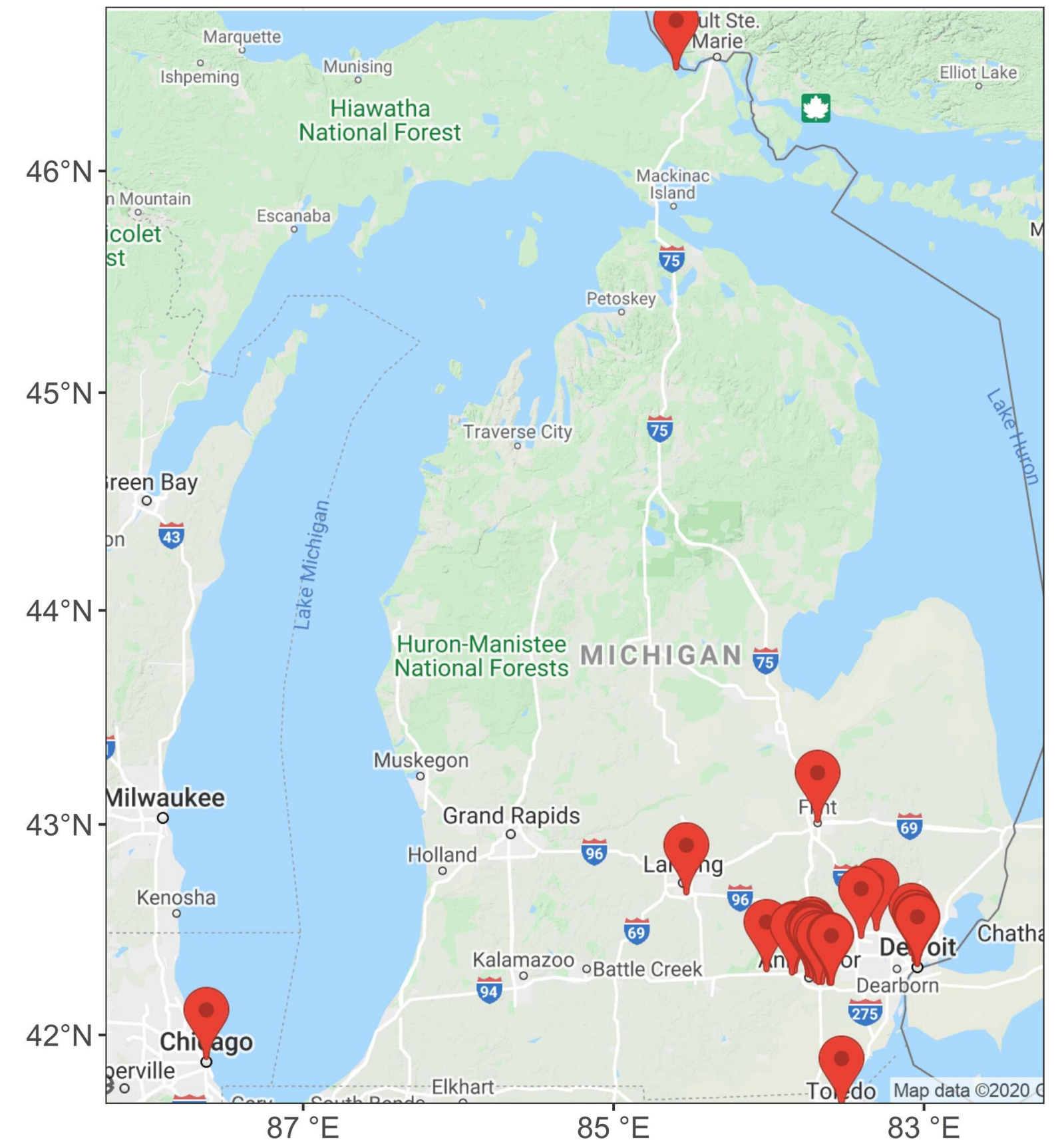
—
(This would not
be a proper
statistics talk
without tables
and figures)



WHERE ARE OUR PROJECTS?



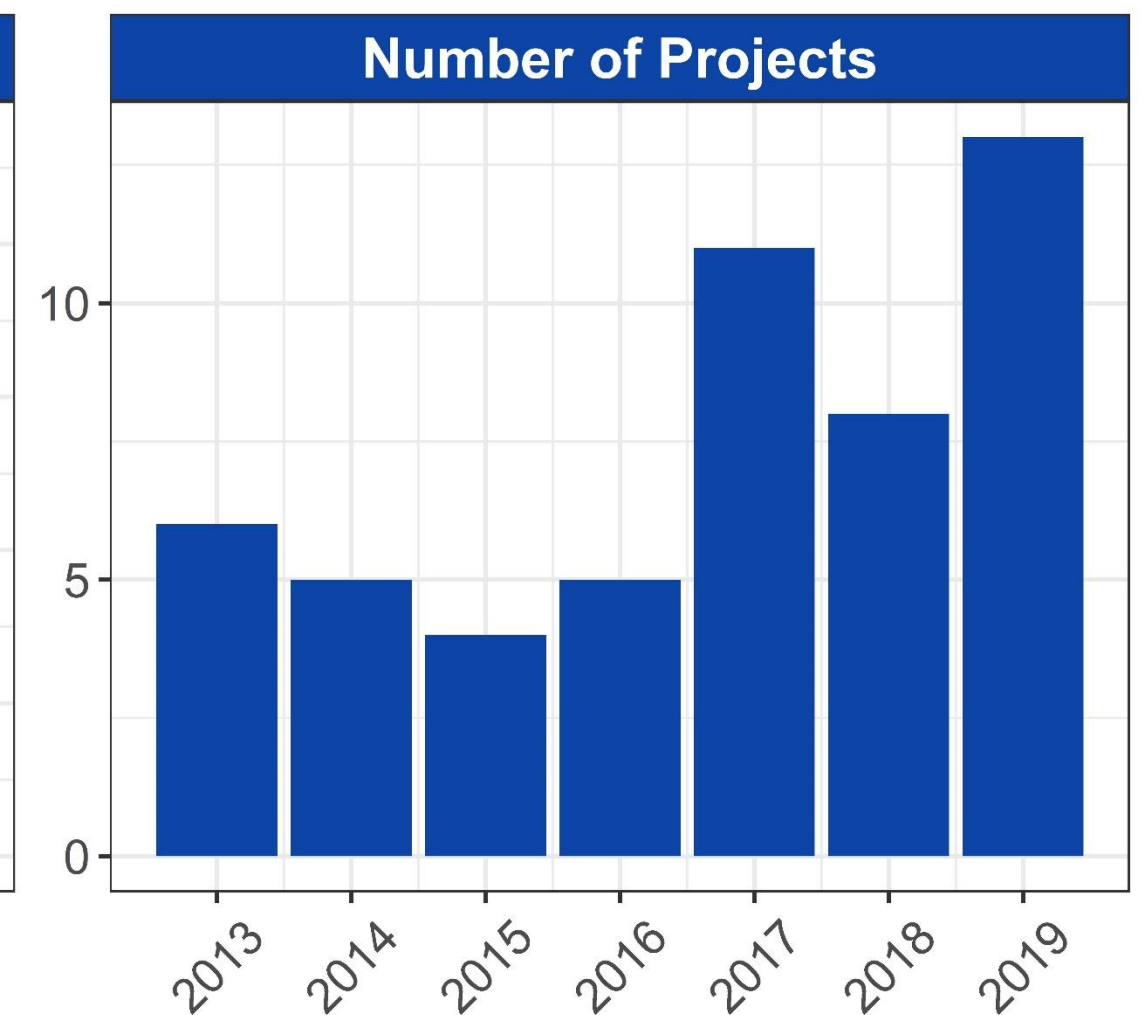
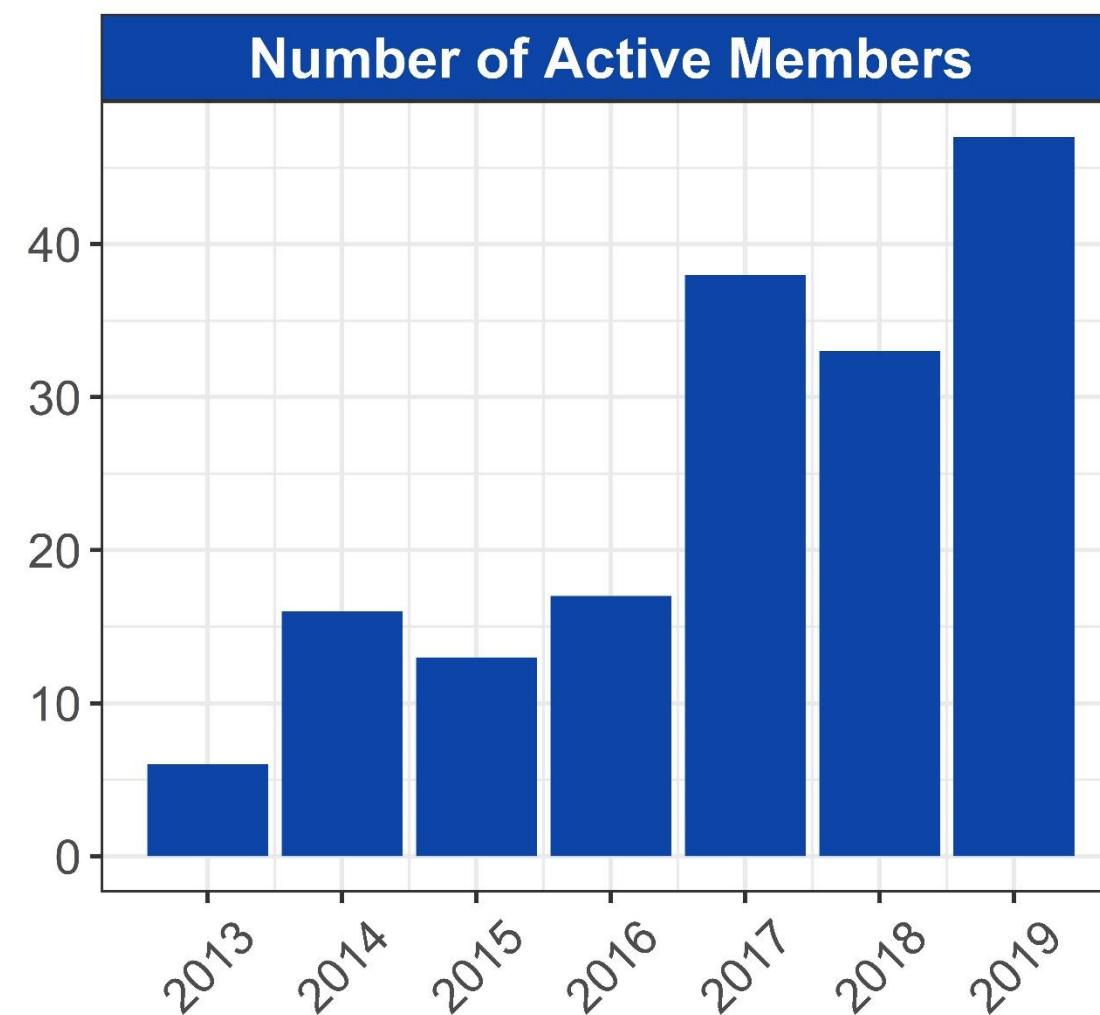
Our reach is expanding
beyond southeast Michigan
to Illinois and Ohio



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

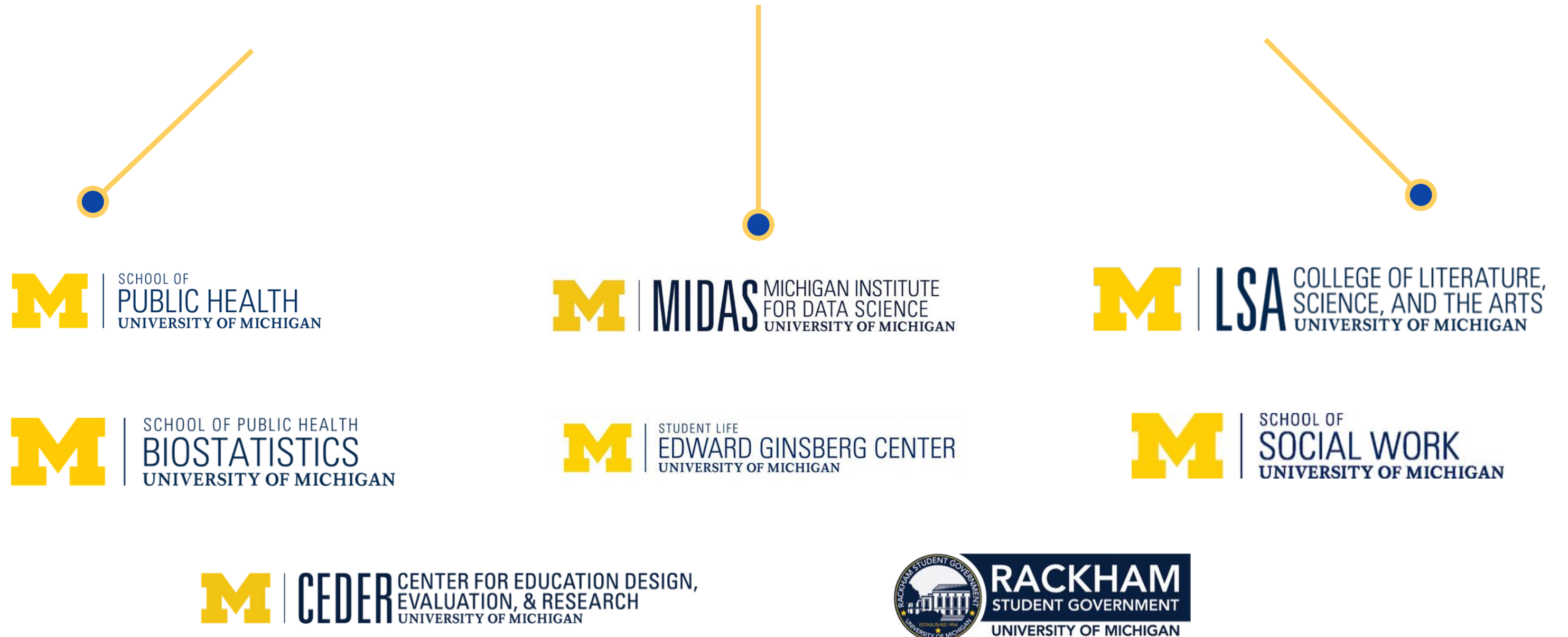
STATCOM'S GROWTH

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





stat|||com



UNIVERSITY PARTNERSHIPS



Broader Initiatives



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:

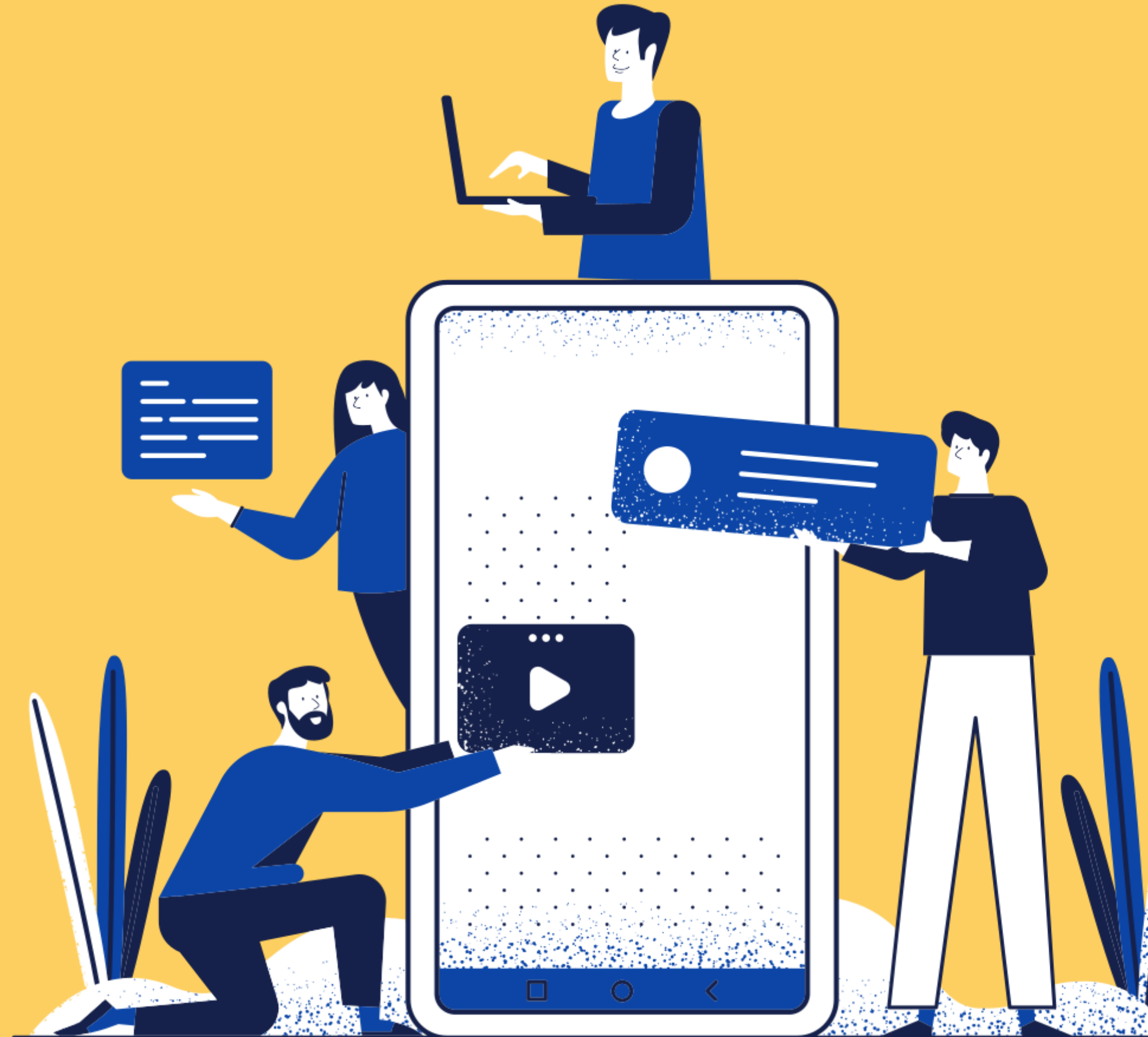
- magazine.amstat.org/blog/2018/04/01/statcom-universities/
- bloomberg.com/lp/d4gx-2018/



Data 4 Good Dashboard



Many more details forthcoming!



60+ SURVEY



Ann Arbor Area
Community Foundation

For **good.** For **ever.**TM

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

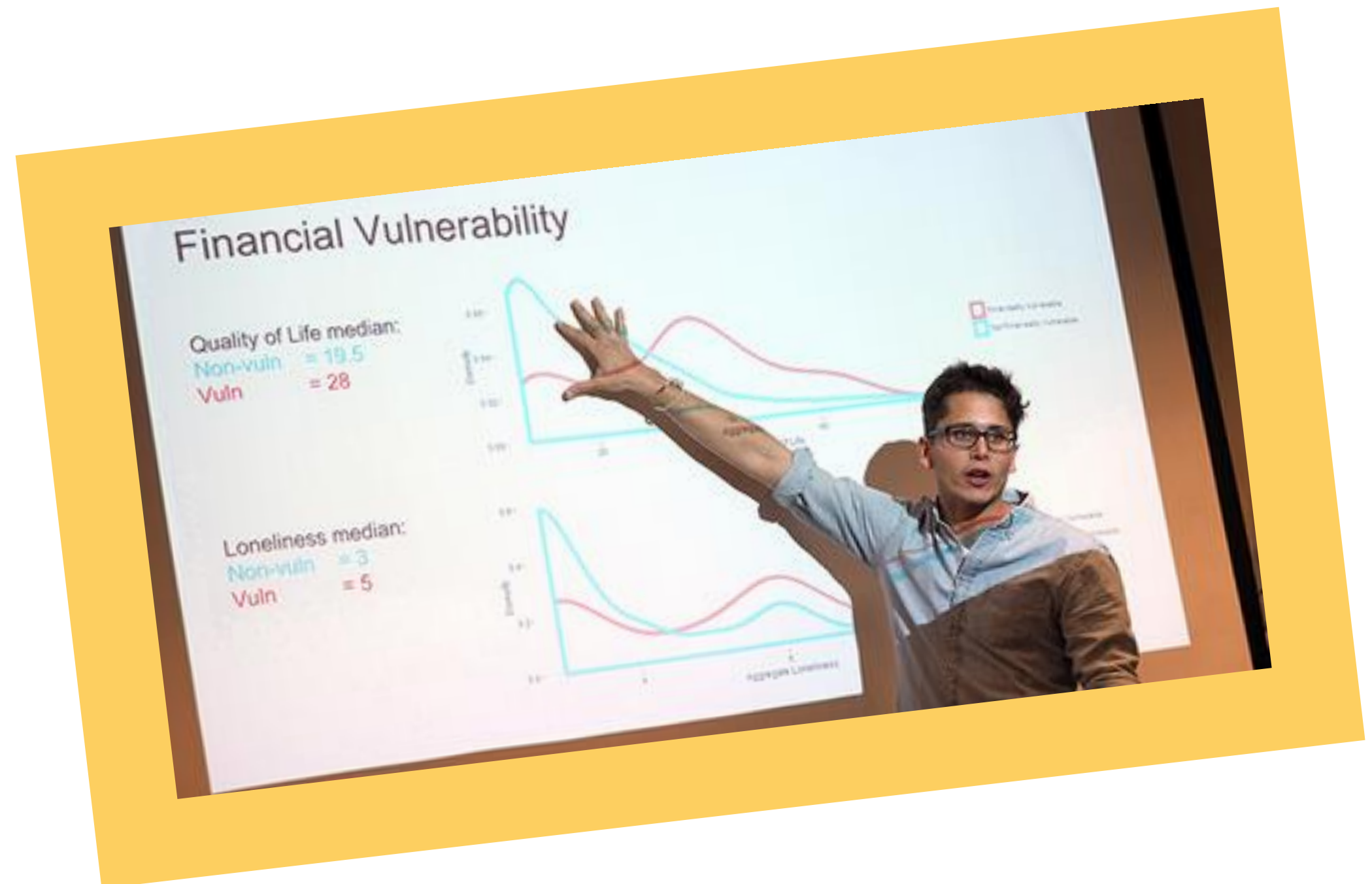
Regressed composite QOL score on three vulnerabilities of interest

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 and high-quality information and analysis to non-profit organizations. The symposium will focus on how data-driven decision-making in the community can be used to benefit others.

by Nitya Gupta, Michigan News

Community Engagement Award

This certificate is proudly presented to
Statistics in the Community (STATCOM)

in recognition of your exemplary service within the School of Public Health community.
PRESENTED ON APRIL 7, 2020

February 10, 2020

Contact: [Laurel Thomas](mailto:Laurel.Thomas@umich.edu)
ltgnagey@umich.edu

Share on: [Twitter](#) [Facebook](#) [LinkedIn](#)

By Dan Meisler
dmeisler@umich.edu

The power of big data in areas like business analytics and education is growing. The movement within data science is exploring new ways to use data to improve the quality of life in communities.

Big Data, Big Impact

Attend The University Of Michigan Data For Public Good Symposium Feb 25th

Tuesday, February 25, 2020, Weiser Hall, 10th Floor

Michigan Data for Public Good Symposium, which runs 10 a.m.-4:30 p.m. Feb. 25, 2020 in Weiser Hall, 10th Floor. The event includes a presentation by individuals from various backgrounds and high-quality information and analysis to non-profit organizations. The symposium will focus on how data-driven decision-making in the community can be used to benefit others.

Discovering Biostatistics and Its Broad Applications

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 and high-quality information and analysis to non-profit organizations. The symposium will focus on how data-driven decision-making in the community can be used to benefit others.

HOME • WE ARE MICHIGAN 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 learning centers, and organizations. In the past few years, the community chapter has seen tremendous growth with 5 projects in 2014 to 147 projects in 2019. The chapter has developed new ways to use data to improve the quality of life in communities.

Michigan Difference Student Leadership Awards

We hereby recognize
Statistics in the Community
as the recipient of the
PROFESSIONAL ORGANIZATION OF THE YEAR AWARD

Simone Himbeault Taylor
Interim Vice President for Student Life

U-M symposium: Where data and doing good intersect

HOME • THE PURSUIT

Working in Everyone's Backyard: Statistics in the Community

HOME • THE PURSUIT

Therine Hoffman, MS '18

Arch Biostatistician, Weill Cornell Medicine

March 3, 2019, Biostatistics, Big Data, Engaged Learning, Mental Health, Professional Organizations, What Is Public Health?

Evan Reynolds

Graduate Student of the Year Award

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 learning centers, and organizations. In the past few years, the community chapter has seen tremendous growth with 5 projects in 2014 to 147 projects in 2019. The chapter has developed new ways to use data to improve the quality of life in communities.

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!

Learning Through Service

HOME • MICHIGAN PUBLIC HEALTH NEWS CENTER

Financial Vulnerability

Quality of Life median:
Non-vuln = 19.5
Vuln = 28

Loneliness median:
Non-vuln = 3
Vuln = 5

Stephen Salerno

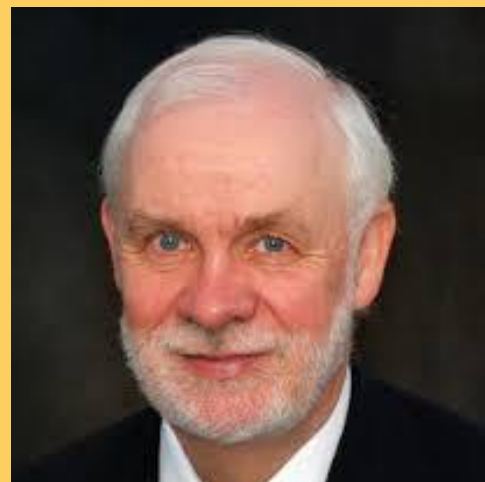
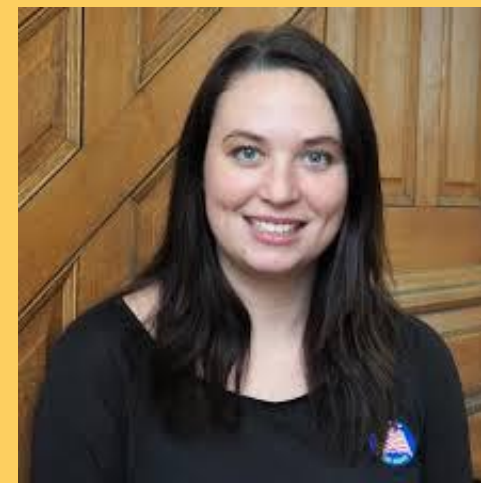
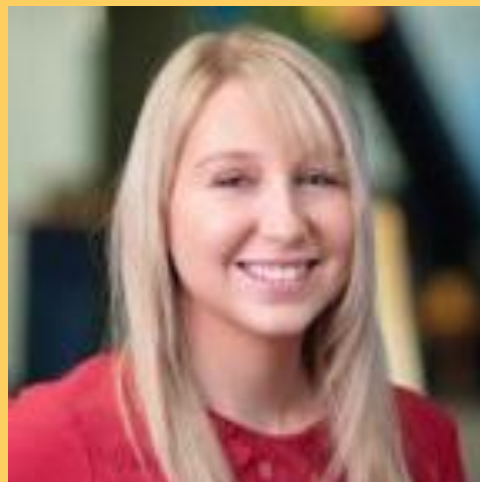
PhD Student, Biostatistics

June 7, 2018, Biostatistics, PhD Students, Advocacy, Big Data, Biostatistics, Community Partnership, Detroit, Engaged Learning, Health Disparities, Health Informatics, Michigan, Practice, Research, Statistics, Student Organizations, Teaching

STATCOM

STATCOM Provides Pro-Bono Statistical Consulting for Nonprofits

June 27, 2018, Biostatistics, MS, PhD Students, Biostatistics, Community Partnership, Detroit, Engaged Learning, Michigan, Statistics, Student Organizations



MANY, MANY THANKS



CONTACT STATCOM:



statcom-um@umich.edu



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**