

# Data for Good in Your Neighborhood:

**How Graduate Students and Local Communities Benefit from Collaborative Partnerships**

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Stephen Salerno

Statistics in the Community (STATCOM)

Department of Biostatistics

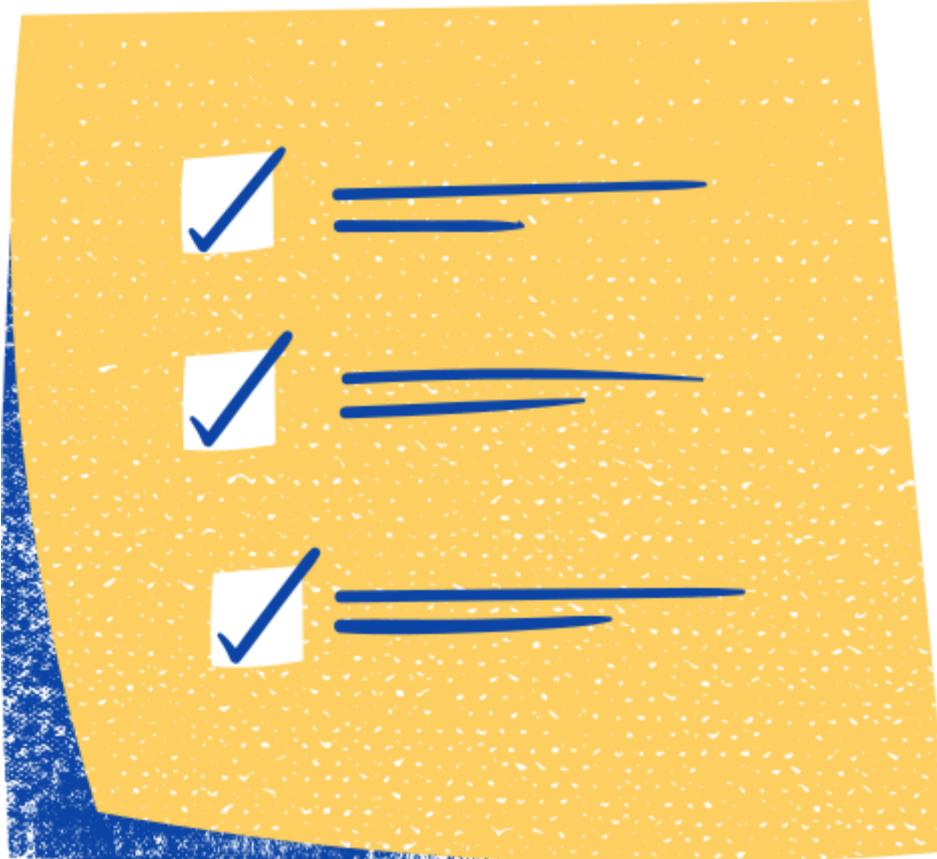
University of Michigan

JSM 2020 | August 6, 2020



# OUTLINE

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- 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

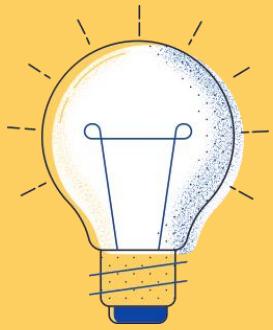


# LOCAL NEED FOR DATA

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



**Ann Arbor Area**  
Community Foundation



# STATISTICS IN THE COMMUNITY

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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

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





# OUR MEMBERS

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Our membership is comprised of students in over 10 UM departments



Emily  
Morris

Amy  
Singer

Cathie  
Spino

Emily  
Roberts

Tom  
Braun

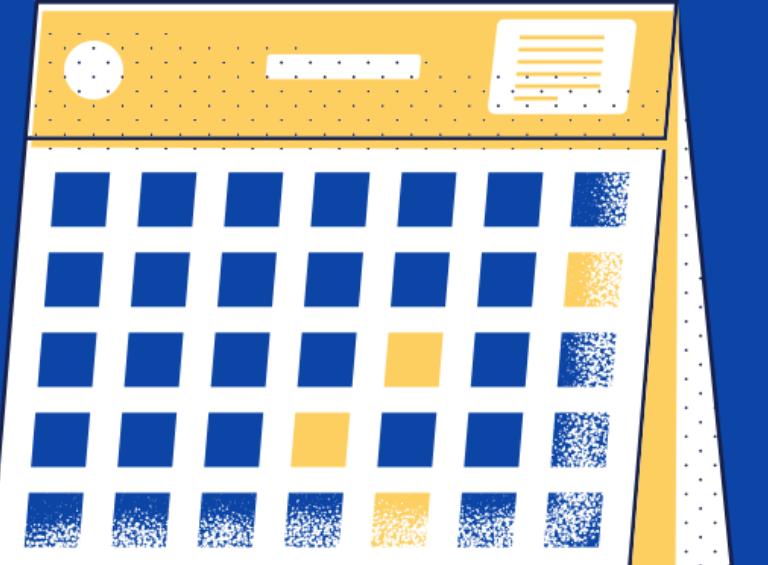
Stephen  
Salerno

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# LEADERSHIP TEAM

Not Pictured:  
Edmund Woolridge,  
Ben Brennan

# A BRIEF HISTORY OF STATCOM



2001

STATCOM was founded  
at Purdue University



2006

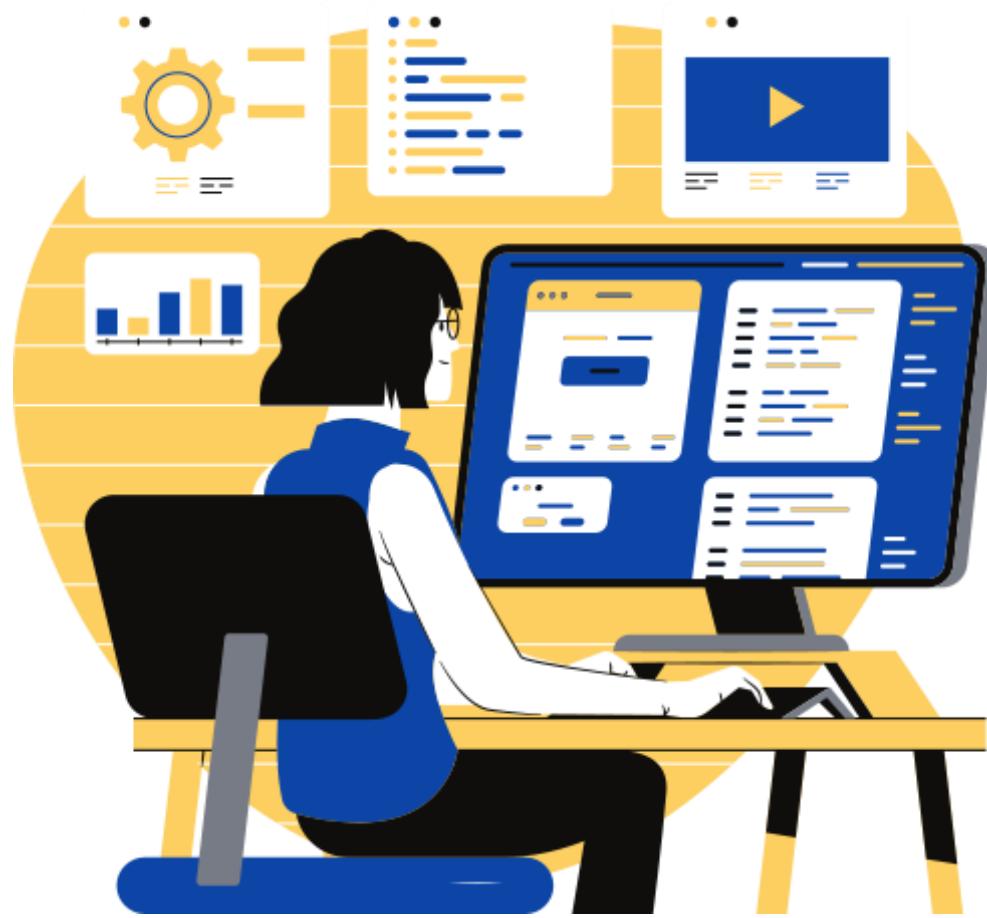
Our chapter was  
chartered at Michigan



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!

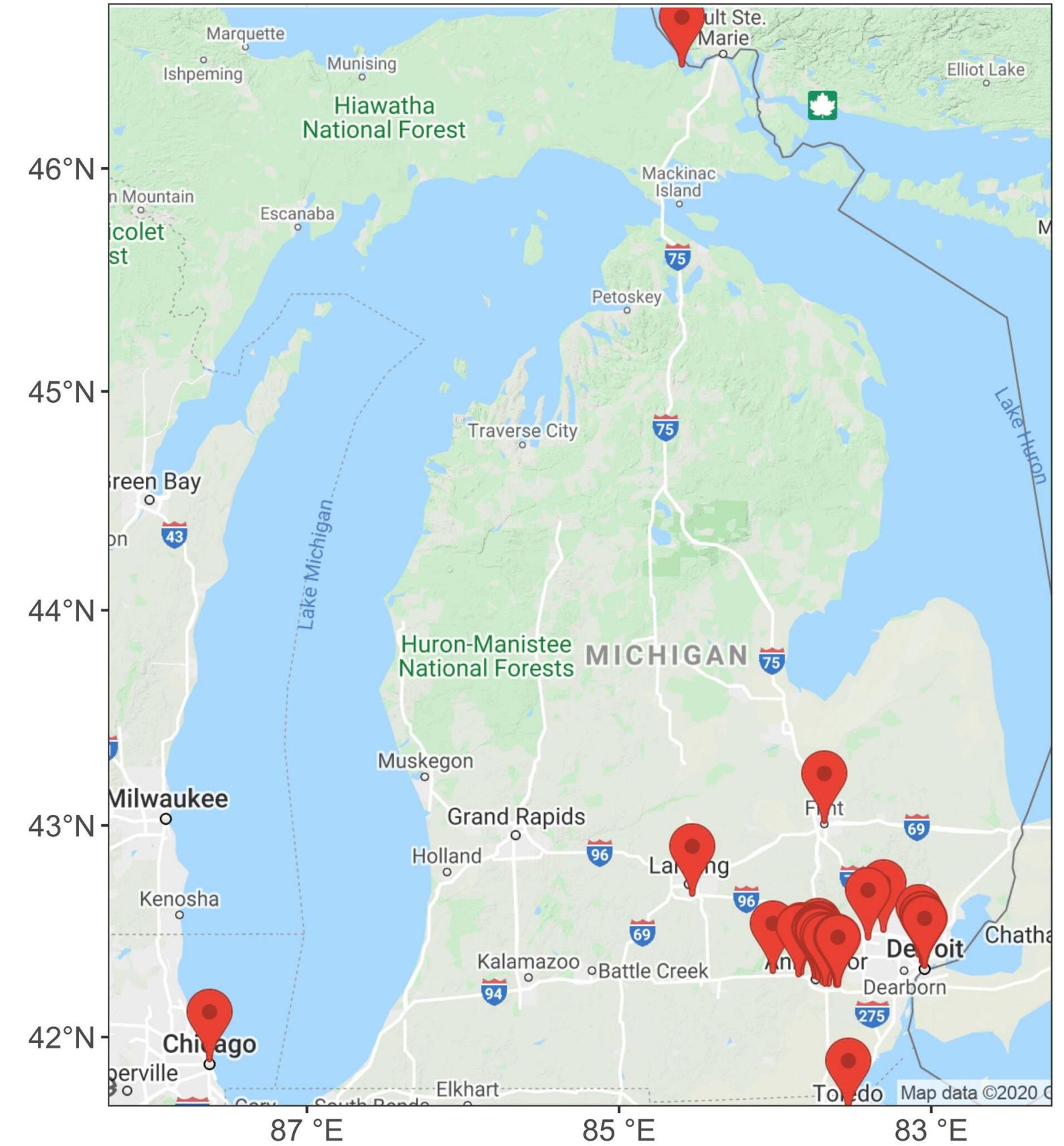
# Impact & Growth

(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

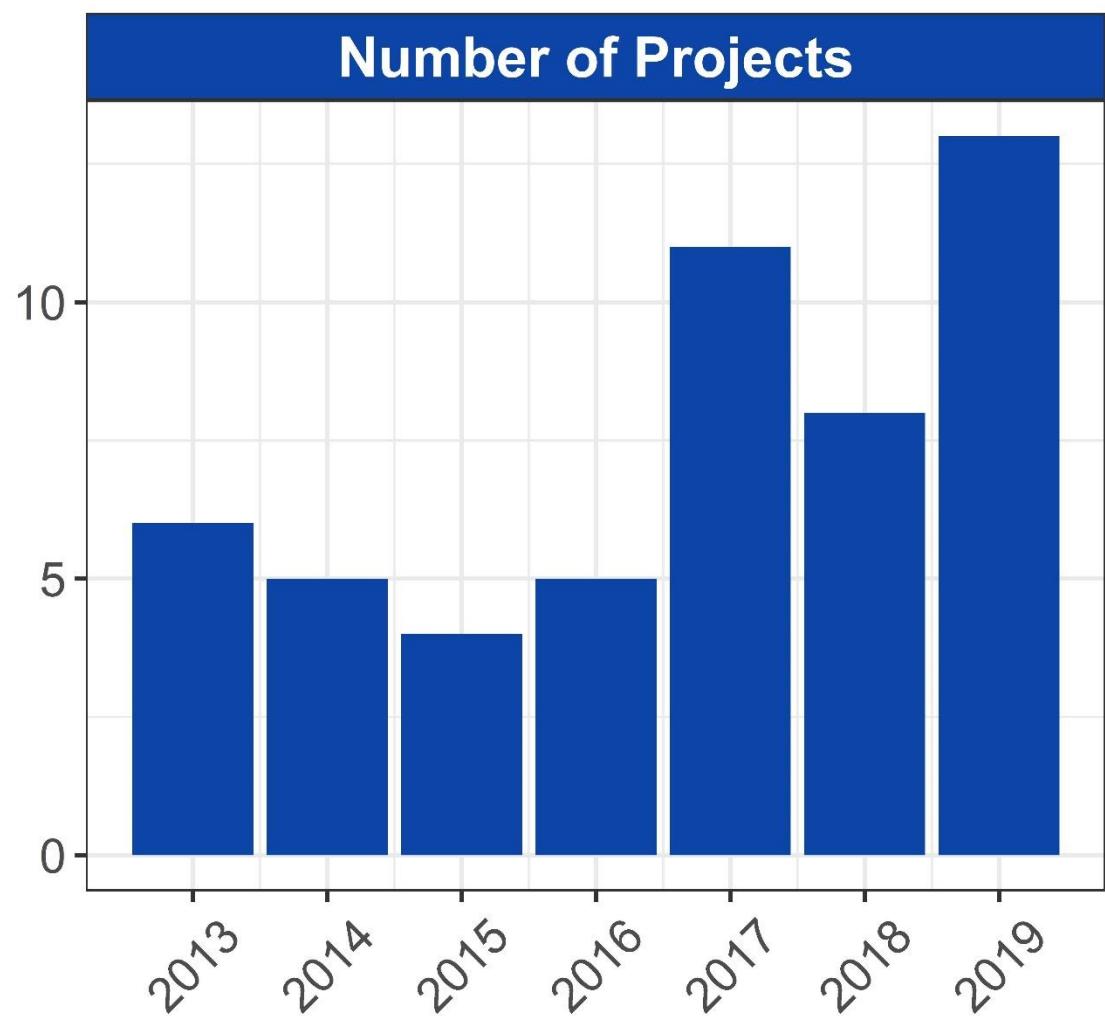
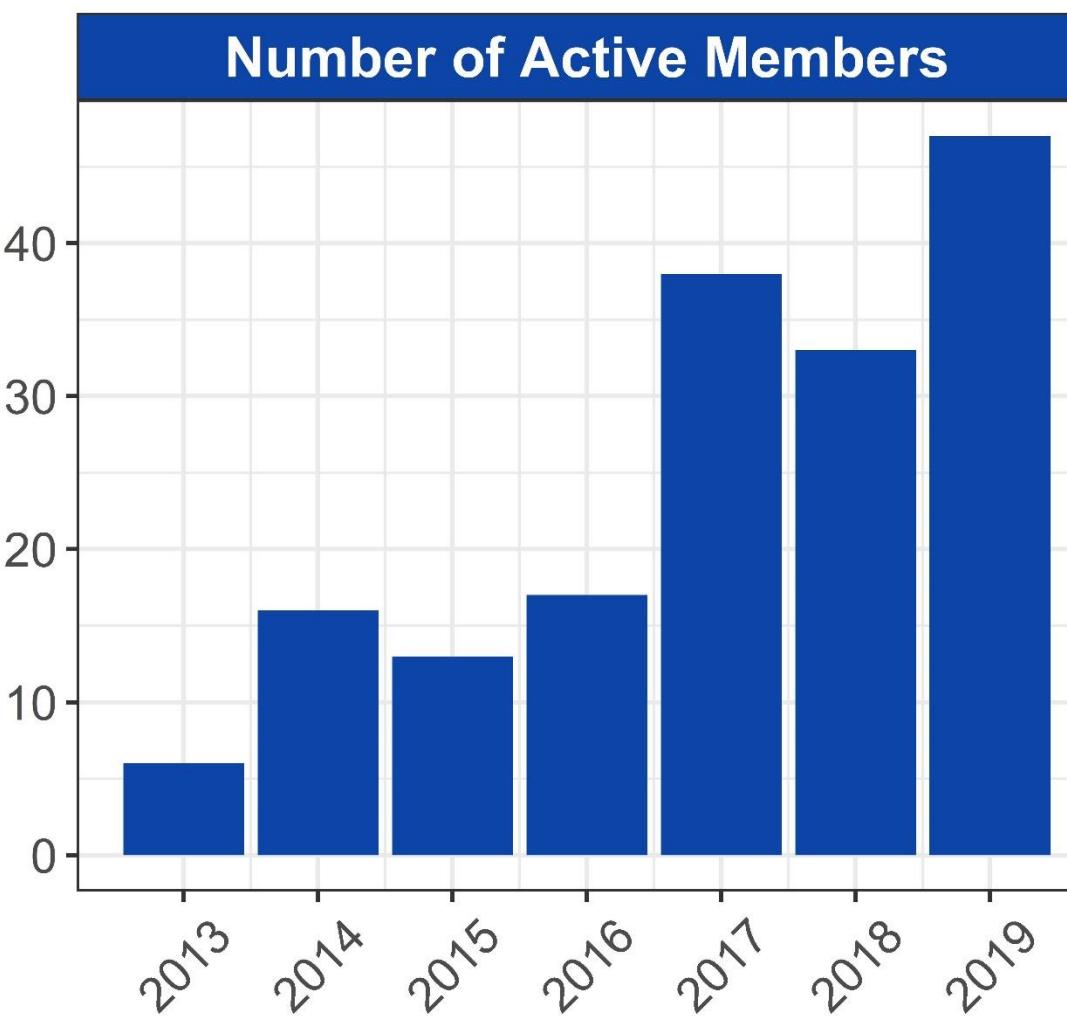
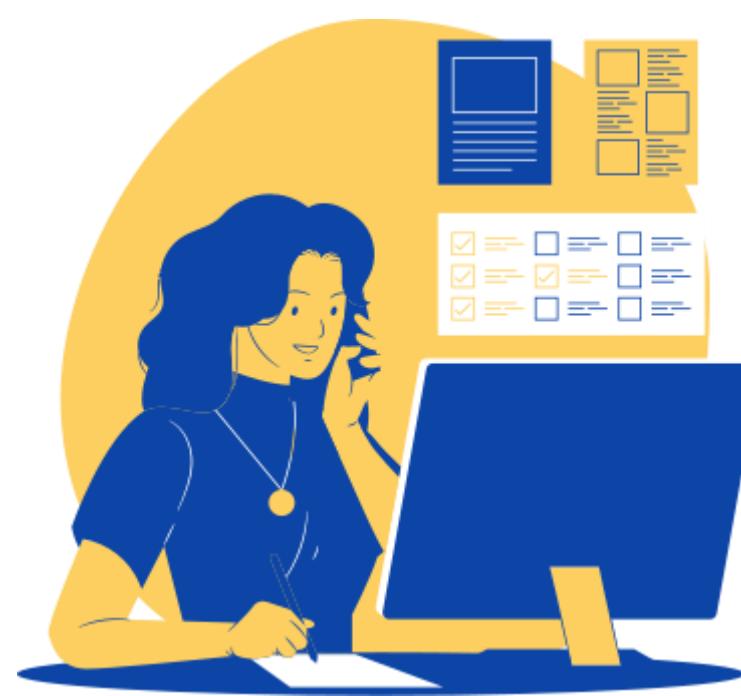


*Excluding one location in Portland, OR  
Data current as of: Sat May 16 15:04:17 2020*

# STATCOM'S GROWTH

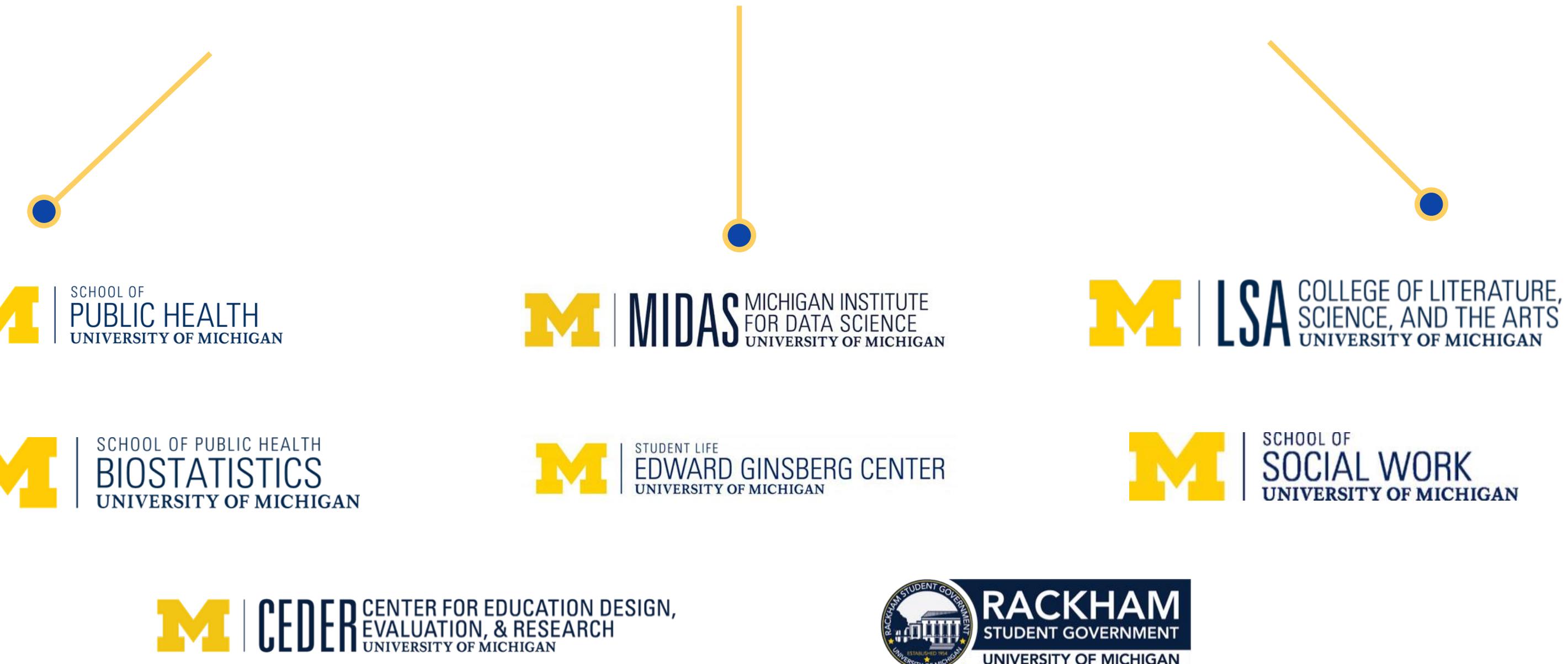
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Engagement up from 6 active members on 6 projects (2013) to 47 members on 13 projects (2019)





# statii.com



## 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/](http://magazine.amstat.org/blog/2018/04/01/statcom-universities/)
- [bloomberg.com/lp/d4gx-2018/](http://bloomberg.com/lp/d4gx-2018/)



The screenshot shows the homepage of AMSTATNEWS, the membership magazine of the American Statistical Association. The main header reads "AMSTATNEWS" with the subtitle "The Membership Magazine of the American Statistical Association". Below the header is a navigation bar with links for "HOME", "ABOUT", "EDITORIAL CALENDAR", "PDF ARCHIVES", "ADVERTISE", and "STATISTICIANS IN HISTORY". A secondary navigation bar below it includes "Home", "Additional Features", "STATCOM: Revitalization of Statistical Community Service at Universities", "1 APRIL 2018", "1,598 VIEWS", and "ONE COMMENT". The author's name, "Evan Reynolds and Timothy NeCamp", is mentioned at the bottom.

The screenshot shows a blog post titled "Data for Good In Your Neighborhood: A case study on how data can benefit your local community". The post is authored by four individuals from the University of Michigan: Timothy NeCamp, Emily Morris, Evan Reynolds, and Stephen Salerno. Their names, titles, and contact information are listed below their respective names. The post discusses the revitalization of statistical community service at universities.

**Timothy NeCamp**  
University of Michigan  
Ann Arbor, MI  
tnecamp@umich.edu

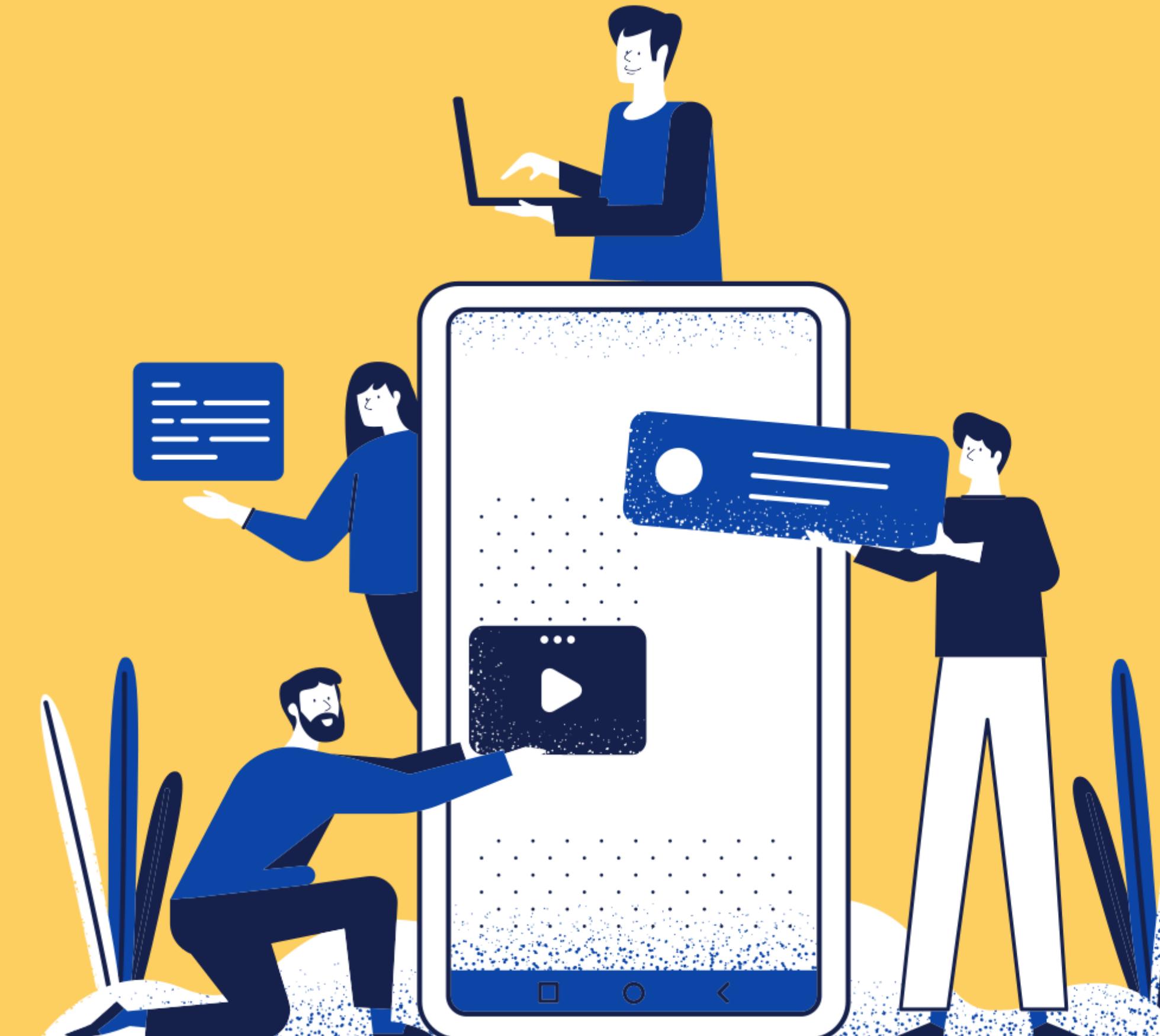
**Emily Morris**  
University of Michigan  
Ann Arbor, MI  
emorrisl@umich.edu

**Evan Reynolds**  
University of Michigan  
Ann Arbor, MI  
evanlr@umich.edu

**Stephen Salerno**  
University of Michigan  
Ann Arbor, MI  
salernos@umich.edu

# Data 4 Good Dashboard

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Many more details forthcoming!



# 60+ SURVEY



**Ann Arbor Area**  
Community Foundation  
For **good.** For **ever.**™

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

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**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 Good](#) on how governments, businesses and individuals can use quality information and analysis to nonprofit organizations, governments, businesses and individuals. The discussion will focus on how to use census data, and how to use data to benefit others.

**FEBRUARY 12, 2019**  
**U-M symposium: Where data and doing good intersect**  
by Nitya Gupta, Michigan News

**Discovering Biostatistics and Its Broad Applications**

**Catherine Hoffman, MS '18**  
Arch Biostatistician, Weill Cornell Medicine  
Mar 3, 2019, Biostatistics, Big Data, Engaged Learning, Mental Health, Professional Options, What Is Public Health?

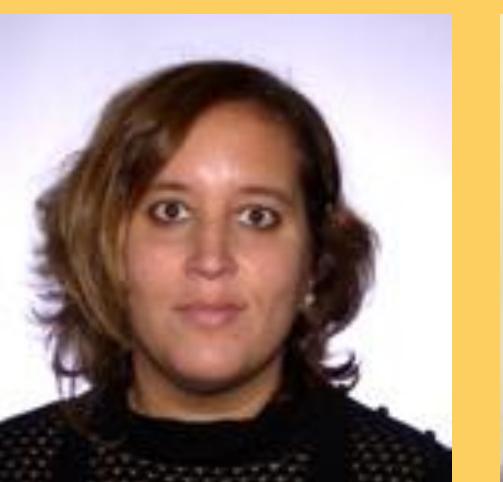
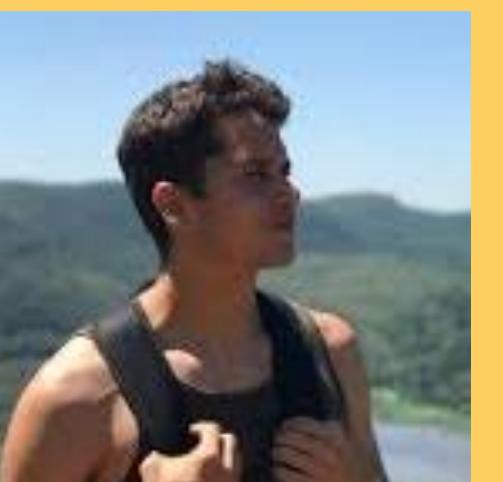
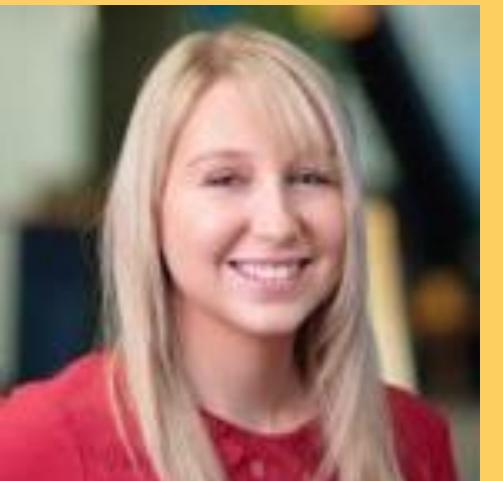
**Evan Reynolds**  
Graduate Student of the Year Award

**STATCOM members win Best Challenge**

**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**





MANY, MANY THANKS



# CONTACT STATCOM:



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# CONTACT STEPHEN:



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[sph.umich.edu/biostat/](http://sph.umich.edu/biostat/)

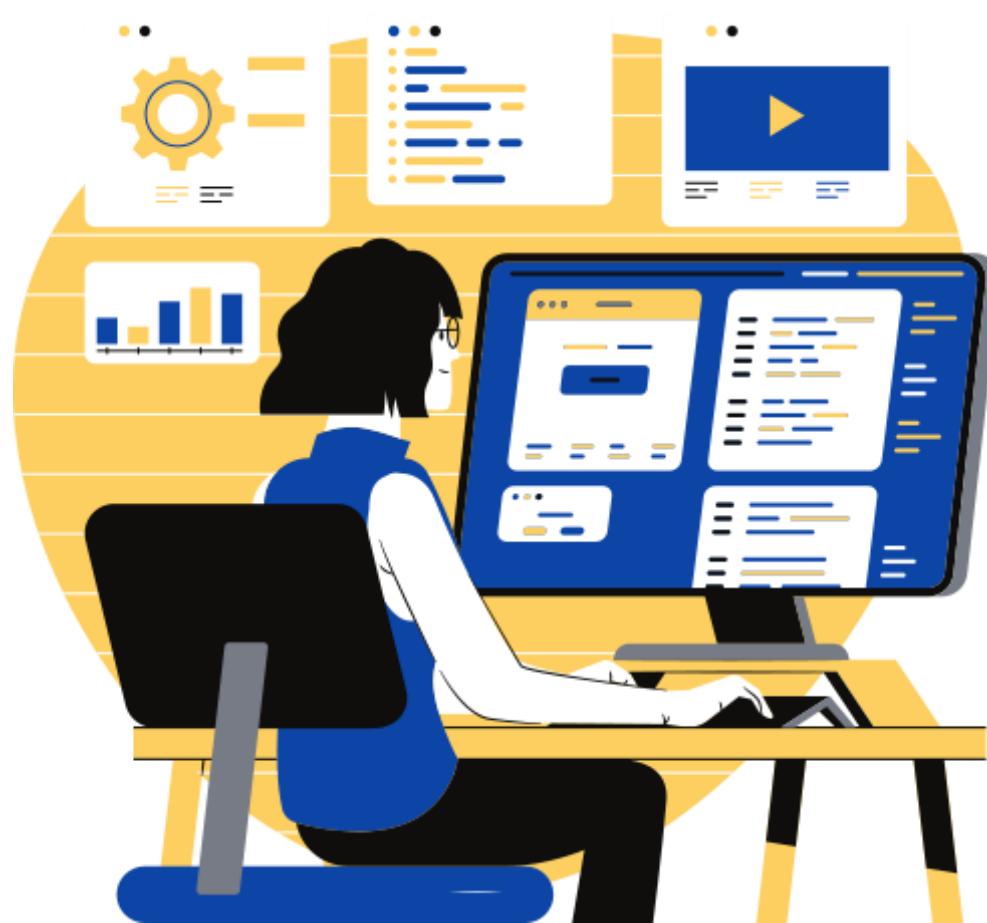


@StephenSalerno4

# **Additional References**

# SCOPE OF WORK

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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](https://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/](https://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](https://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](https://sph.umich.edu/stories/2019posts/stephen-salerno.html)
- We are Michigan Public Health (2019): [sph.umich.edu/stories/2019posts/katherine-hoffman.html](https://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/](https://news.umich.edu/u-m-symposium-focuses-on-how-data-can-be-used-in-service-to-others/)
- Chronicle Tech Press (2020): <https://chronicle.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

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- 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: Emily Morris, Tian Zheng, Jeff Leek
- My Advisor: Yi Li + many others who contribute to or support our mission and work
- Our Members, Our Members, Our Members, Our Members, Our Members