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3/19/2023

Lisa Ganio
Head, Department of Statistics
Oregon State University

Dear Dr. Ganio and Scholarship Committee,

This is a letter of support for Gauri Phatak's application for funding from the Department of Statistics to present her research at the International Network for Social Network Analysis (INSNA) Sunbelt Conference, which will take place June 27 – July 1, 2023 in Portland, Oregon. I co-advise Gauri's PhD work with James Molyneux.

INSNA is the professional association for researchers interested in social network analysis. This particular conference is the organization's signature conference. Gauri will present research on "Assessing relationships between wastewater testing data for infectious diseases such as COVID-19 and Flu/RSV and demographic factors within locations in Oregon using transportation network data," which ties in elements of both her PhD work and the work she has been doing for a 9 hour/term GRA position supervised by Tyler Radniecki and Christine Kelly in Chemical, Biological, and Environmental Engineering during the Winter and Spring 2023 terms. Gauri is the lead author and presenter for an accepted 20-minute oral presentation at the conference. Attending and presenting will be a great way for her to practice speaking about her research, get feedback from other experts, and grow her professional network in her area of interest. It is good exposure for the research and for OSU. Plus, the location in Portland is great because travel is easier and she has the opportunity to make some local contacts as well.

I attended this same conference when I was a PhD student and found it to be a very helpful professional development and networking opportunity, particularly for meeting potential collaborators in other disciplines.

I fully support Gauri's application and she is in good academic standing. Please do not hesitate to contact me if I can be of further assistance. Please find the abstract, statement of acceptance, and proposed budget enclosed with this letter.

Sincerely,

Katherine McLaughlin

Assistant Professor, Department of Statistics
Oregon State University
541-737-3269
katherine.mclaughlin@oregonstate.edu

Abstract of Contribution 413

ID: 413

In-Person Oral Presentation

Topics: Longitudinal and Dynamic Network Models, Network Visualization, Networks and COVID-19

Assessing relationships between wastewater testing data for infectious diseases such as COVID-19 and Flu/RSV and demographics factors within locations in Oregon using transportation network data.

Gauri Phatak, Katherine McLaughlin, James Molyneux

E-Mail: gau.phatak@gmail.com

Understanding the spread of infectious diseases, such as COVID-19 and Flu/RSV, through networks that characterize the movement of people is crucial for making informed public health decisions. Since mid-2020, the wastewater surveillance team at Oregon State University has collected sewage samples at wastewater treatment plants every week from communities around Oregon. Wastewater-based epidemiology is an effective approach to monitor the presence, prevalence, and trend of COVID-19 and other diseases. Wastewater samples are processed using RT-ddPCR and the resulting measure is the concentration of SARS-CoV-2 in log10 gene copies per liter. Through the inclusion of highway-traffic networks, we explore how the movement of people affects the relationships between Oregon wastewater data and publicly available metrics such as COVID-19 case counts, hospitalizations, and deaths. We further consider how these transportation networks could impact the effectiveness of public policies enacted to slow the spread of COVID-19, such as masking mandates and stay-at-home orders.

The networks used for this paper are multilayer temporal networks formed by considering cities as nodes and a temporal layer for each week of wastewater testing. A second network, representing a highway network with intersections between major highways as nodes, is used to assess the connectivity and movement of traffic between the locations. Data derived from public sources are used to supplement these networks, including nodal covariates such as demographic variables, COVID-19 case counts, and hospitalizations; and dyadic covariates such as the movement of traffic over highway sections. The R programming language will be used for deriving descriptive statistics and visualizing the data. These networks will be visualized and descriptive statistics will be presented to assess the relationships between wastewater testing data, transportation networks, and COVID-19 outcomes.

Phatak, Gauri

From: Patterson, Meg Stiefel <megpatterson@tamu.edu>
Sent: Monday, March 13, 2023 10:36 AM
To: Phatak, Gauri
Subject: Sunbelt 2023 Presentation Decision

[This email originated from outside of OSU. Use caution with links and attachments.]

Dear Gauri Phatak,

Based on a careful review of your abstract by the Sunbelt 2023 Planning Committee, your submission titled "***Assessing relationships between wastewater testing data for infections diseases such as COVID-19 and Flu/RSV and demographics factors within locations in Oregon using transportation network data.***" has been accepted for an in-person oral presentation at Sunbelt 2023. Congratulations!

A couple of rules to remember:

1) It is an INSNA principle that **no one gives more than one presentation** at the same Sunbelt conference. If you have co-authored multiple studies for this year's conference (regardless whether these are posters or oral presentations), each presentation should be delivered by a different author to provide opportunities to everyone and to hear from as many researchers as possible.

2) **Presenting authors must register by April 10th** to be given a slot in our program. Further registration information can be found here: [Sunbelt 2023 - International Network for Social Network Analysis \(insna.org\)](https://insna.org).

Your presentation will be allocated to a session and the program will be finalized after this registration deadline for presenters.

We are looking forward to seeing you at the conference!

Sunbelt 2023 Planning Committee

Budget for INSNA Sunbelt Conference, June 27-July 1, 2023

<https://www.insna.org/events/sunbelt-2023>

Gauri Phatak

PhD Student, Department of Statistics, Oregon State University

| Item | Cost | # of Units | Subtotal |
|---|-------------|-------------------|-----------------|
| Student membership fee for INSNA (1 year)* | \$100 | 1 | \$100.00 |
| Registration fee for conference (student member) | \$125 | 1 | \$125.00 |
| Per diem for meals (Portland, OR) | | | |
| M&IE total (full day) | \$74 | 3 | \$222.00 |
| M&IE first and last day of travel | \$55.50 | 2 | \$111.00 |
| Cost per mile to drive to conference (round trip) | \$0.655 | 180 | \$117.90 |
| TOTAL | | | \$675.90 |

We propose that all items will be covered by the department award.

No airfare or lodging expenses are needed.

*This is cheaper than registering for the conference as a student non-member, which is \$250.