

NARSC NEWS



Welcome from the Executive Director



Hello everyone, I hope everyone had a safe and (relatively) uneventful winter. As we move out of the pandemic, I know many of us are looking forward to collaborating, sharing research, writing articles, presenting, or perhaps just looking to share a drink and catch up with each other. To that end, work is

currently underway for the 2022 North American Meetings of the Regional Science Association International, being held in Montreal, Canada, November 9-12, 2022 - live and in person!

While the conference is still some months away, it is now time to start planning your participation. The deadline for submission of abstracts and organized sessions is July 1. The general call for papers and information about organized sessions can be found <u>here</u>, while information about the abstract submission process can be found <u>here</u>. If you are interested in participating in one of the organized sessions, please contact the session organizers. As a reminder, we have two Student Paper Competitions - Graduate-Student Author Paper Competition and the Graduate-Student-Led Paper Competition. If you are a graduate student, please consider submitting a paper to one of these two competitions.

In addition to working on putting together our largest conference since 2019, I am working with some great folks to help you make your experience even better through ways you may not always notice. We have upgraded our credit card processing for the conference, so you will notice a small difference this year when you register this year. We are also in the process of creating a new NARSC.org website. It will be mobile ready, so that you will always be able to access the site no matter where you are.

One thing to note before going to the conference is that currently Canada does require everyone to provide mandatory

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travel information before and after your entry into Canada by using <u>ArriveCAN</u>. It only takes minutes to help keep each other safe. Hopefully everything will continue to improve as we lead up to the conference, but be sure and check your home country website to see what requirements may be required for your trip home.

I am looking forward to seeing all of you in the beautiful city of Montreal, Quebec. The dates of the conference are November 9-12, so mark your calendars. Have fun and safe summer!

John Sporing NARSC Executive Director

Words from the Editors



We are delighted to bring you the latest issue of the North American Regional Science (NARSC) newsletter. In this June 2022 issue of the newsletter, we include a very timely and important interview with Dr. Anna Nagurney about her influential research on supernetworks, current supply chain issues including the pandemic and Russia's invasion of Ukraine, the importance of public outreach, what future research on

supply chain networks is needed, and the role of regional scientists in advancing our knowledge around supply chains. We learned a lot and want to thank Anna for taking time out of her busy schedule to answer all our questions.

This issue also contains member spotlights which aims to introduce our membership and show some of the excellent research performed by members from our organization. We would like to thank all of featured members in this issue for taking their time to respond to our questions. We really enjoyed reading their responses and we believe that our readers will as well. Finally, we highlight recent successes by our members including some very impressive grant awards.

If you have ideas or suggestions regarding content or would like to contribute to the newsletter, please do not hesitate to contact us. We hope to see all of you at the NARSC meeting in Montreal in November.

<u>Isabelle Nilsson</u> and <u>Ran Wei</u> Newsletter Co-Editors



Interview with Anna Nagurney: Supernetworks, Supply Chains, and The Role of Regional Science

After the NARSC annual meeting in Denver last year, a NARSC member suggested to our editorial team that we interview Dr. Anna Nagurney "profiling the highly influential work that Anna (an RSAI Fellow) has been doing on supply chains and supernetworks for many years and the role (or roles) she is playing now in an advisory capacity for logistics firms, government agencies, and news services. I think it would also be most useful for colleagues in regional science to learn where Anna thinks research on supply chain operations needs to be conducted". We contacted Anna shortly after this to hear more about her impactful work, the impact of recent disruptions including the pandemic and Russia's invasion of Ukraine on supply chain operations, critical areas of future research, and the role of regional scientists in advancing our knowledge around supply chain networks. Please enjoy our interview with Anna below.

For those that may not know you, would you please describe who you are (academic background/past and current positions)?

First, let me express my appreciation for this interview!

I am the Eugene M. Isenberg Chair in Integrative Studies at the Isenberg School of Management at the University of Massachusetts Amherst, which I was appointed to in April 2021. Prior to that, since 1998, I was the John F. Smith Memorial Professor of Operations Management at the Isenberg School, where I started out my academic career as an Assistant Professor. I am also the Director of the Virtual Center for Supernetworks, which I founded in 2001. I hold ScB, AB, ScM and PhD degrees from Brown University in Providence, RI. I have been a Fulbrighter twice (in Austria and Italy); was a Visiting Professor at the School of Business, Economics and Law at the University of Gothenburg in Sweden, and was a Distinguished Guest Visiting Professor at the Royal Institute of Technology (KTH) in Stockholm. I was a Visiting Fellow at All Souls College at Oxford University during the 2016 Trinity Term and a Summer Fellow at the Radcliffe Institute for Advanced Study at Harvard in 2017 and 2018. I have held visiting appointments at MIT and at Brown University and was a Science Fellow at the Radcliffe Institute for Advanced Study at Harvard University in 2005-2006.

What is your connection to regional science (NARSC and RSAI)?

I have served as a Councilor-at-Large of NARSC and was elected an RSAI Fellow and also received the Walter Isard Award so my association with Regional Science has been both long and very rewarding. I might add that Martin Beckman was on my PhD Committee at Brown University, so I have been very lucky to have been influenced by leaders in Regional Science even during my PhD studies. As an undergraduate, I enjoyed wandering through the library stacks and browsing through and reading books that captured my interest. Seeing, for example, books by Karen R. Polenske, showed me that females can write technical books and, after graduating, I was delighted to meet Karen through NARSC activities. I recall how the two of us were the only females invited to speak at a conference in St. Petersburg at which David E. Boyce also spoke. Karen made sure that local female scholars were put on the program, once we arrived there.

I remember fondly many Regional Science conferences in North America, Europe, and even Australia. My research, as well as personal experiences, and, I might add, even friendships, have been enriched through these professional societies and its members and many luminaries (too many to list but I so appreciate them - those still with us and those who have passed away). I will never forget, for example, Walter Isard coming to my seminar at Cornell University, which was hosted by Kieran Donaghy, on April 1, 2009. Isard passed away at age 91 on November 6, 2010.

Could you tell us about your research on supply chains and supernetworks?

My research focuses on network systems from transportation and logistical ones, including supply chains, to financial, economic, social networks and their integration, along with the Internet. Supernetworks are "networks of networks" and supply chains are some of the most fascinating examples of supernetworks. The relevance of supply chains has been dramatically illustrated in the pandemic because of numerous disruptions, which continue now, in various forms, and are

exacerbated because of the war against Ukraine. I study and model complex behaviors on networks (and the interactions among network systems) with a goal of providing frameworks and tools for understanding their structure, performance, and resilience. I have also contributed to the understanding of the Braess paradox in transportation networks and the Internet. My team at the Supernetwork Center has been deeply researching supply chains, including those for perishable products, such as food, blood, and pharmaceuticals, as well as supply chain networks in humanitarian logistics and disaster management. With collaborators, I have advanced methodological tools used in game theory, network theory, equilibrium analysis, and dynamical systems.

I have been honored to be recognized for my research on networks with the Kempe Prize from the University of Umea, the Faculty Award for Women from the US National Science Foundation, the University Medal from the University of Catania in Italy, the 2019 Constantin Caratheodory Prize, and the 2020 Harold Larnder Prize, and being elected a Fellow of the RSAI (Regional Science Association International) as well as INFORMS (Institute for Operations Research and the Management Sciences) and the Network Science Society, among other awards.

We understand that you have been working on many OpEds during the pandemic and now as the war against Ukraine rages. Could you please tell us a little about the work that you have done in this capacity?

I strongly believe that, once a body of research, with supporting publications, has been completed, that one should "get the news out." For quite a few years, I have been writing OpEds, including articles for The Conversation, which then get reprinted in other media outlets. One then often gets invited to speak on radio and TV news programs. Doing such writing and speaking is important (although it can be quite time-consuming). In the pandemic, my public outreach articles, because of my work on supply chains, focused heavily on vaccine distribution issues, supply chain disruptions, shortages of blood, and even the history of the shipping container and what it did for world trade. The latter article in a few weeks had over 330,000 readers, which further demonstrates the fascination that many have with supply chains and logistics because they have personally felt the impacts of disruptions from food products and PPEs to even high technology products because of shortages of computer chips. One of my articles on blood supply chains influenced national policy in the US and that is very gratifying. Because of my connections to Ukraine, I now respond to media inquiries on the negative impacts of the war and even how supply chain education is changing, which I am doing in real-time, as I teach a class on Humanitarian Logistics and Healthcare!

What is your take on the current disruption to the global supply chain network? Obviously, the pandemic played a large role in this, but what are some of the weaknesses of the current global supply chain network that may have made this worse and/or strengths that prevented it from getting even worse?

In the pandemic, we experienced both supply shocks as well as demand shocks and many companies pivoted to address shortcomings, especially those associated with shortages of PPEs, for which there was intense competition. Companies that were agile and adaptive took advantage of electronic commerce, as did many consumers for safety and even convenience reasons. Organizations that supported their workers with enhanced telework sustained or even increased their productivity. Companies and organizations with strong relationships with their partners and suppliers were able to withstand some of the stressors. In the pandemic, we saw the importance of the tools that we have

developed, including those for addressing congestion management, as major ports in the US suffered from inefficiencies. I believe that using a mindset of "just-in-case" for supply chains will continue to be relevant as well as incorporating multiple criteria in decision-making and resource allocation with risk as well as sustainability and timeliness being weighted heavily.

The million (trillion) dollar question, how do we recover from this? What needs to be done to ensure that goods and service flows does not get disrupted to the same extent if we were to face another similar crisis?

The emphasis on cost-reduction and just-in-time clearly showed that we were not adequately prepared when the COVID-19 pandemic struck with even the PPEs in the US National Stockpile, in effect, "perishing" since they had not been replaced in years. I believe that product quality will be a very important feature for consumers and, hence, producers and that we will need to do a lot to mitigate against climate change. I also believe that workers need to be paid wages that they deserve and to have good working conditions so that they can stay healthy, enjoy their work, and be productive. Laborers are critical to product supply chains as well as service supply chains, including those in healthcare. Lessons learned from disaster management can help regions and nations to be better prepared in the next pandemic, with the COVID-19 pandemic being a healthcare disaster not limited to a location or time window, unlike many natural disasters. Supply chains need to be visualized and analyzed as networks and their efficiency/performance quantified, and their components, such as nodes and links, ranked in importance. Stress testing supply chains will continue to be done since valuable information can thus be gathered. Furthermore, restoring peace around the globe, including Ukraine, should be paramount.

What effects will Russia's invasion of Ukraine have on the global supply chain and its recovery?

Ukrainian is my first language and I was born in Canada. My parents were WWII refugees from Ukraine. For several years I have served on the Board of Directors and the International Academic Board of the Kyiv School of Economics (KSE), a private university in Ukraine. After the invasion by Russia of Ukraine on February 24, 2022, I was elected Co-Chair of the Board of Directors of KSE. The leadership and faculty of KSE have done incredible work in the time of war in having online classes; in advising the Ukrainian government; in hosting global thought leaders in speaker series, and also in serving on panels on which they provide updates on the war and its horrific impacts. They have done an outstanding job in public outreach and in speaking to the media to provide information. Several times (and I have personally seen this because of my participation in various meetings and online events), they have had to hurry to shelters as the air raid sirens wail but then they manage to continue. The President of KSE, Tymofiy Mylovanov, is one of the co-authors of "The Blueprint for the Reconstruction of Ukraine." The report highlights the importance of rebuilding critical infrastructure networks and in "building back better" and in investing in human capital. Clearly, the research that we have done at the Supernetwork Center is highly relevant in the recovery and the reconstruction of Ukraine.

Ukraine has been called the "breadbasket of Europe." It is known for its rich soil and for the wheat, barley, corn, and sunflower oil, to start, of the agricultural products that it grows and exports. Many MENA (Middle Eastern and North African) countries depend on Ukraine's agricultural exports with even countries in Europe as well as China benefiting from them. The unlawful, unjust war by Russia against Ukraine, a sovereign nation, has resulted in the blockading of ports, the mining of the Black Sea and of agricultural lands, plus the theft of produce and the destruction of warehouses. I am

reminded of the Holodomor, under Stalin, in which millions of Ukrainians, and others in the USSR, died of hunger and starvation because of government-instituted policies. Farmers in Ukraine now have had challenges in procuring fuel for their machinery and extreme difficulties in getting their products to market. This will lead to a tsunami of hunger and rising food insecurity. Historically, the World Food Programme obtained 50% of its wheat from Ukraine, which will, clearly, not be possible now because of the war. The reduction in needed food supplies will add to the pain and suffering of those in great need. We are already seeing sharply rising commodity prices with supplies of food, energy, and fertilizers disrupted.

It is important to also recognize that Ukraine is the source of about 50% of the globe's neon gas, which is needed to produce semiconductor chips. In addition, Ukraine and Russia are the world's leading producers of metals such as copper, nickel, and iron, plus of palladium and platinum, important raw materials.

Global supply chains, already were highly stressed in the pandemic and, increasingly so, even now, with the zero COVID policy followed by China with major lockdowns of its cities. Russia's war against Ukraine has exacerbated the challenges and the uncertainty, with major issues for global trade as new sources for products need to be identified and even modes of transportation and trade routes. The increase in heightened geopolitical risk is a feature of global supply chains that will be studied and will need to be addressed deeply.

What do you think are some critical areas of research that needs to be conducted on supply chain operations? And what role do regional scientists play in advancing the knowledge around supply chain operations?

Thank you so much for all the highly relevant questions!

In the pandemic, I have been, literally, obsessed with the need to include labor into rigorous models of supply chain networks. With so many workers suffering, many losing their lives, I focused on the development of both optimization and game theory models, which include the availability of labor, under different sets of constraints, labor productivity, wages (both endogenous and exogenous), and even investments in labor, to identify the impacts of various disruptions to supply chains on product flows, product prices, as well as costs and profits of firms. I have also worked on integrating migration flows into supply chain networks. Some of the models explicitly make use of supernetwork constructs and I have been honored for several of the journal articles with awards from Editors.

There are numerous topics surrounding supply chains that need further research and study and that regional scientists can contribute to from the study of the implementation of greater transparency, even with the use of technologies such as blockchain, to the development of cooperative game theory models for addressing issues of climate change and assisting in the development of policies for sustainability, as well as the construction of methodologies for mapping and stress testing supply chains, with the understanding that there are many distinct supply chains, with special characteristics and features that are dependent on the product under consideration. I also believe that, with the number of disasters growing as well as the people affected by them, whether man-made or ``natural," sudden-onset or quick-onset ones, much more needs to be done in terms of supply chains and disaster management. Links and nodes in critical supply chain networks will need to be invested in and the performance of supply chains monitored.

I have often emphasized, and have even written about, the role of regional science and regional scientists in developing the foundations for the modeling, analysis, and solution of supply chain problems. We, better than those in many other relevant disciplines, identified the importance of transportation and the associated costs to interregional and global trade, and that capturing such costs is critical to the rigorous modeling of supply chain networks! In addition, we have intensively studied the impacts of various trade policies from quotas to different types of tariffs in regional science, a topic that resonates now with so many different policy instruments having been applied in the pandemic. We continue to conduct research in this area.

I do believe that regional scientists are very creative and, I might add, courageous, in the types of problems that they tackle. Peace and freedom are essential to our economies and societies. Walter Isard started Regional Science as well as Peace Science. I believe that, in his memory, we should work on their further integration for the benefit of our planet. Isard will be smiling at us from the heavens.

Anything else that you would like our readers to know about yourself, your work, and/or supply chain operations research? Something that we missed?

I sincerely believe that professional societies, such as NARSC and RSAI, are extremely important in community-building and knowledge exchange and help to provide sustenance and hope during the epochal time in history that we are now experiencing with the pandemic and Russia's war against Ukraine. By building bridges across boundaries through education, scholarship, and public outreach, we are making positive progress in helping humanity.

To learn more about Anna's important work and find references to some of the studies that she mentions in her interview, please visit the <u>Supernetwork Center website</u> where you will find a lot of material including some reprints and preprints. You can also follow Anna on Twitter <u>@Supernetworks</u>.

Member Spotlight: Amanda Weinstein

Please tell us about yourself!



I am an Associate Professor in the Department of Economics at the University of Akron. I graduated with a PhD in Agricultural, Environmental, and Development Economics from The Ohio State University. As the C. William Swank Program in Rural-Urban Policy Graduate Research Associate, I conducted research on regional economic growth and policy issues - including one of the first studies to examine the impact development on economic of shale drilling communities with Dr. Mark Partridge. I have consulted for various organizations including the OECD, advising on the economic impacts of alternative energy development on rural communities, and the Ohio Consumers' Counsel, advising on the economic impact of energy policy in Ohio. I have served as

an expert witness for the Southern Poverty Law Center. I am on the advisory council for the Ohio River Valley Institute. I am also the resident economist and co-host on The Suburban Women Problem Podcast produced by Red, Wine, and Blue. Before starting my PhD at OSU, I was a commissioned officer in the United States Air Force after graduating from the United States Air Force Academy with an undergraduate degree in Mathematics.

How did you find NARSC and to what degree are you currently involved?

My graduate advisor, Dr. Mark Partridge encouraged me as a graduate student to present my research at the NARSC conference in Denver in 2010. I enjoyed the collegiality of the conference where I could share my work with others and network with other regional scientists. I especially appreciate that NARSC offers perspectives not only from academic economists but also from other fields such as geography and rural sociology in addition to the perspective of policy practitioners. Since then, I have been a regular attendee at the meetings and was nominated to represent the Southern Regional Science Association on the NARSC council. I am also one of the co-chairs of the emerging scholars committee which aims to engage with new scholars in the field of regional science.

Please tell us about your research and how it contribute to the field of Regional Science?

My research focus is on policies that can help attract and keep a skilled workforce and the importance of enhancing the quality of life in communities. One recent publication (with Dr. C. Lockwood Reynolds) examined gender differences in quality of life estimations and preferences for locationspecific amenities. One result of this research, was that cultural gender role attitudes affect quality of life estimations especially for women. Similarly, previous research with Dr. Carlianne Patrick and Dr. Heather Stephens shows that regional gender role attitudes can affect the employment and occupation decisions of women. I recently received grant funding (with the Center for Business and Economic Research Center at Ball State University) through the Robert Wood Johnson Foundation and the Institute for Advanced Learning & Research, "Charting a More Prosperous Future for America's Micropolitan Regions" to develop a data-driven approach to economic development policy for small towns that focused on the importance of quality of life and local amenities for economic development in small towns. My research has been featured in various media including the Atlantic's CityLab, MarketWatch, Brookings, and the Harvard Business Review.

How do you see the field of Regional Science evolving going forward?

In just the past few years, we have seen a shift in the field of Economics toward acknowledging the importance of place-based policies. I see Regional Science playing a pivotal role in helping the field of Economics catch up and moving us all forward as we consider how we can improve the economic outcomes of people by focusing on places. I see a pivotal role for Regional Science research that focuses on the determinants of quality of life – considering differences across space and for different people. I see Regional Science evolving in a way that becomes even more interdisciplinary considering how culture and gender, for example, interact with the determinants of economic success of places.

If you want to learn about Amanda's research please visit her <u>website</u> and follow her on Twitter <u>@ProfWeinstein</u>.

Member Spotlight: Carlianne Patrick

Please tell us about yourself!



I am an associate professor in the Department of Economics at the Andrew Young School of Policy Studies at Georgia State University and faculty affiliate of the Center for State and Local Finance, Fiscal Research Center, the Real Estate Center, and the Institute for Urban Studies as well as a Research Affiliate of the W.E. Upjohn Institute. My research investigates how local variation in economic incentives and other conditions affect economic agents, covering several topics under this umbrella. My research has been published in journals such as Journal of Urban Economics, Regional Science and Urban Economics, Journal of Regional Science, National Tax Journal, Economic Inquiry, and Small Business Economics. I am a recipient of the 2020 Geoffrey J.D. Hewings Award, the 2016 Miernyk Research Excellence Medal, the 2014 Andrew Young School of Policy Studies Dean's Early Career Award, Charles M. Tiebout Prize in Regional Science, Barry M.

Moriarty Prize, W.E. Upjohn Foundation Early Career Award, and Regional Science Association International Dissertation Award. I currently serve on the National Tax Association Board of Directors and the Editorial Boards of Contemporary Economic Policy and Review of Regional Studies. I served on the Executive Council of SRSA from 2014-2017 and am the current President of SRSA. I received my Ph.D. from The Ohio State University.

How did you find NARSC and to what degree are you currently involved?

I attended my first NARSC annual meeting as a graduate student at the suggestion of my advisor Mark Partridge. It was my first academic conference and I was so intimidated, but the NARSC community was incredibly supportive and welcoming. I got great feedback and began my professional network. A few months later, I also attended the annual Western and Southern Regional Science Association meetings where I again had positive experiences. NARSC and the regional organizations have been a cornerstone in my professional development ever since. I regularly attend the annual meetings, served on the NARSC Council from 2014-2017, previously served on the NARSC graduate student paper competition committee, and co-chaired the graduate student paper competition last year. I currently serve on the NARSC Young Scholars and Diversity and Inclusion Committees.

Please tell us about your research and how it contributes to the field of Regional Science?

My primary strand of research focuses on the effect of, and theoretical justification for, policies aimed at altering firm decisions, such as where to locate – particularly the use of economic development incentives. Another strand explores the effect of local public goods and tax policies on households' location decisions. A third studies how locational characteristics influence labor market outcomes. As a former International Council of Economic Development Certified Economic Developer (CEcD) who worked with firms and communities, my experience as a local economic development practitioner helps ground my research in a 'real world' institutional framework and gives it a decidedly policy-oriented focus.

My research contributes to the field of regional science by deeply considering how structural and institutional differences across places influence causal empirical insight into location decisions and heterogeneous outcomes across space.

How do you see the field of Regional Science evolving going forward?

I think this is a good time for Regional Science. Spatial disparities in income, wages, health outcomes, climate change, etc. have come to the forefront of academic research and policy discussions over the last few years – and these are exactly the topics that regional scientists tackle. The increasing availability of data at fine spatial scales should allow regional scientists to leverage our comparative advantage(s) to provide insight to the causes and consequences of such differences across space. The historical roots of regional science as interdisciplinary and policy-focused should also allow regional scientists to uniquely contribute to understanding the potential role of policy in shaping these disparities. My hope is that Regional Science evolves as the "go-to" field for answering the pressing questions about spatial inequalities. To do so, we must stay on the research frontiers of our primary disciplines while embracing the other disciplines that make regional science an interdisciplinary field. I see the range of fields involved in regional science continuing to expand. To fully utilize the rich spatial data available through administrative, government, web, and other sources requires adapting skills from computer science, linguistics, and other disciplines that are not historical part of the Regional Science field. Fortunately, more and more people are interested in spatial differences – which should allow us to attract collaborators and scientists from a broader pool.

If you want to learn about Heather's research, please visit her <u>website</u> and check out some of her publications:

Banzhaf, Spencer, Ryan Mickey, and Carlianne Patrick. 2021. "Age-based Property Tax Exemptions," *Journal of Urban Economics* 121

Weinstein, Amanda and Carlianne Patrick. 2020. "Recession-proof skills, Cities, and Resilience in Economic Downturns," *Journal of Regional Science* 60(2): 348-373.

Andreyeva, Elena and Carlianne Patrick. 2017. "Paying for priority in school choice: Capitalization effects of charter school admission zones," *Journal of Urban Economics* 100: 19-32.

Patrick, Carlianne. 2016. "Jobless Capital: The Role of Capital Subsidies," *Regional Science and Urban Economics* 60: 169-179.

Patrick, Carlianne. 2016. "Identifying the Economic Development Effects of Million Dollar Facilities," *Economic Inquiry* 54(4): 1737-1762.

Member Spotlight: Craig Wesley Carpenter

Please tell us about yourself!

I am an Assistant Professor in the Department of Agricultural Economics at Texas A&M University, though this fall I will be moving to the Department of Agricultural, Food, and Resource Economics at Michigan State University. I got my BA in Political Science, Economics and Business from Kalamazoo College in 2011 and my PhD in Agricultural, Food, and Resource Economics from Michigan State University in 2016. My research efforts focus on the use of federal administrative data to examine questions related to the interaction of race, ethnicity, veteran status, entrepreneurship, and economic growth. More recently, I began examining policy questions related to the long-run causal effects of



early life exposure to government programs on later life labor market and health outcomes. I also teach and have an Extension/outreach appointment where my efforts revolve around community and economic development. I have published articles in many regional science and economics journals, have over one hundred Extension presentations and articles, and lead millions of dollars in granted research, Extension, and teaching projects.

How did you find NARSC and to what degree are you currently involved?

I first attended NARSC in graduate school, where I received fantastic feedback on dissertation articles in desperate need thereof. I have remained a member of NARSC since then and attended most

NARSC conferences. I am now the President of the Mid-Continent Regional Science Association, in addition to the Chair of the Community and Regional Economics Network section of the Agricultural and Applied Economics Association, President of Sustainable and Inclusive Rural Economic Development to Enhance Housing, Health, Entrepreneurship, and Equity (NE2249, a USDA-funded multi-state research group), and Chair of the Finance Committee of the National Association of Community Development and Extension Professionals. I hope to become more involved in NARSC committees and governance going forward.

Please tell us about your research and how it contributes to the field of Regional Science?

Most of my research uses federal administrative data through the Federal Statistical Research Data Centers (FSRDCs). My major research projects include (1) enhancing business locational choice studies with limited-access FSRDC data, (2) studying military veteran entrepreneurship, including regional determinants of their survival and growth, and (3) the long-run causal effects of government programs and discrimination. My recent journal article in the Journal of Regional Science highlights the value of FSRDCs by showing that public and proprietary regional economic data suppression leads to substantially biased estimates. My research has been recognized by naming me the Associate Director for Economic Research of the Texas FSRDC, a fellow at the Rural Policy Research Institute, a fellow at the Western Center for Metropolitan Extension & Research, and by receiving the Early Career Award from the Mid-Continent Regional Science Association.

How does your research contribute to the field of Regional Science?

As a social scientist with an emphasis on application oriented research, I view the community system as a complex network that spans economics, sociology, geography, planning, public policy, data science and other related fields. As a very applied field, regional science allows for a data-driven framework to study local and regional issues and problems and create opportunities for solving problems. All of my prior and ongoing research and outreach efforts cuts through multiple disciplines highlighted above. In addition, through the community engagement work that I am involved in, provides my research to tie to real world situations and inputs, which have the potential for real world applications. I believe this elevates the importance of regional science research.

How do you see the field of Regional Science evolving going forward?

I see three important trends in regional science going forward. First, (interdisciplinary) regional science will generally grow in importance as interdisciplinary research continues to increase in

perceived value by funders and authors. Discipline-specific journals will continue to struggle to evaluate interdisciplinary research. Second, I see increased attention to issues related to diversity, equity, and inclusion, especially how regional science research conclusions and topics themselves intersect – whether implicitly or explicitly – with racial, ethnic, and gender inequities. Regional sciencies often rely on regional data, rather than microdata. As such, results can be driven by majority groups in those geographies and interpretations can fail to consider the potential for heterogeneous effects across diverse racial, ethnic, gender, and other identity groups in those same geographies. I see increased pressure on researchers to evaluate the potential for these diverse effects. Finally, data is often a limiting factor in researchers' ability to examine these diverse effects, so I see increased use of administrative data, including FSRDCs in the US and other country-specific administrative data.

If you want to learn about Craig's research please follow him on Twitter <u>*@DrCWCarpenter, visit his website, and check out some of his latest publications:*</u>

Carpenter, Craig Wesley, Anders Van Sandt, and Scott Loveridge. 2022. "Measurement Error in U.S. Regional Economic Data." *Journal of Regional Science*, 62(1): 57-80. <u>https://doi.org/10.1111/jors.12551</u>

Carpenter, Craig Wesley, Rebekka Dudensing, and Anders Van Sandt. 2022. "Estimating Determinants of Establishment Locations of Transportation and Warehousing Industries Using U.S. Administrative Data." *REGION*, 9(1): 1–27. <u>https://doi.org/10.18335/region.v9i1.366</u>

Carpenter, Craig Wesley, Anders Van Sandt, Rebekka Dudensing, and Scott Loveridge. 2022. "Profit Pools and Determinants of Potential County-Level Manufacturing Growth." *International Regional Science Review*, 45(2), 188-224. <u>https://doi.org/10.1177/01600176211028761</u>

Carpenter, Craig Wesley, Anders Van Sandt, and Scott Loveridge. 2021. "Empirical Methods in Business Location Research." *Regional Studies, Regional Science*, 8(1): 344-361. https://doi.org/10.1080/21681376.2021.1976261

Carpenter, Craig Wesley, Scott Loveridge, and Maureen Mickus. 2021. "Research Note: Age, Retirement, and Intertemporal Resource Decision Ability." *Journal of Consumer Affairs*, 55(2): 542-555. <u>https://doi.org/10.1111/joca.12353</u>

Member Spotlight: Heather Stephens

Please tell us about yourself!

I am an associate professor in Resource Economics and Management and a Research Affiliate of the Regional Research Institute RRI) at West Virginia University. I am a regional economist whose research is focused on examining issues related to regional economic development and the differences in the impact of policies across regions. I serve on the U.S. Bureau of Economic Analysis (BEA) Advisory Council and as the chair of the technical advisory committee for the Northeast Regional Center for Rural Development (NERCRD). I am also on the editorial boards of Regional Science Policy and Practice and Growth and Change. I received my Ph.D. and an M.B.A. from The Ohio State University and have a B.A. in Economics and Public Policy Studies from Duke University. Previously, I was an Assistant Professor of Economics and the Director of Economic Research at

California State University, Long Beach, and I also have prior experience working for a U.S. Congressman, on strategic partnership development for a Fortune 100 company, as a local economic development director, and on regional economic development and energy-related issues at a university-based applied research institute.

How did you find NARSC and to what degree are you currently involved?



I found NARSC while getting my PhD at Ohio State. My first and second conferences that I attended in 2010 were the Southern Regional Science Association (SRSA) and NARSC conferences. I have been attending ever since and have encouraged my graduate students to attend as well! I also currently serve on the Ben Stevens Fellowship Committee for NARSC. I have also been active in the regional associations and served on the technical advisory committee for the most recent RSAI conference.

Please tell us about your research and how it contributes to the field of Regional Science?

I am very interested in examining differences in economic activity across regions. Among my current research are projects looking at the labor market decisions of women, how economic development incentives

affect wages and employment, how new infrastructure and energy development affect housing values, and how access to telemedicine helped provide health care access during the early part of the COVID pandemic. All of these projects advance the knowledge in regional science.

How do you see the field of Regional Science evolving going forward?

I think we need to be thinking about how to cultivate the next generation of regional scientists. How can we get undergraduate students interested into what is an interdisciplinary field and how can we continue to support the field within our various disciplines? I also think regional science can and should play more of a role in working with policymakers to address our big policy challenges. I also think big data will help us do a better job of exploring the differences between and within regions.

If you want to learn about Heather's research, please visit her <u>website</u> and check out some of her publications:

Taylor, Samuel, Heather M. Stephens, and Daniel Grossman. 2022. "The Opioid Crisis and Economic Distress: Consequences for Population Change." *Journal of Regional Science* 62: 541–577.

Patrick, Carlianne, and Heather M. Stephens. 2020. "Incentivizing the Missing Middle: The role of economic development policy." *Economic Development Quarterly* 34(2): 154-170. DOI: 10.1177/0891242420907160

Stephens, Heather M. 2019. "Understanding U.S. College Graduate Migration." *Journal of Geographical Systems* 21(4): 509-531

Patrick, Carlianne, Heather M. Stephens, and Amanda Weinstein. 2016. "Where are all the selfemployed women? Push and pull factors influencing female labor market decisions." *Small Business Economics*. 46(3): 365-390. DOI: 10.1007/s11187-015-9697-2

Stephens, Heather M., and Mark D. Partridge. 2011. "Do Entrepreneurs Enhance Economic Growth in Lagging Regions?" *Growth and Change* 42(4): 431–465.

Member Spotlight: Jason Brown

Please tell us about yourself!



I am a Vice President and Economist in the Economic Research Department of the Federal Reserve Bank of Kansas City. In this role, I lead the regional research and policy function of the Bank. I regularly brief the Kansas City Fed's president, a member of the Federal Open Market Committee, on regional economic conditions in the 10th Federal Reserve District. I conduct research on issues related to regional economic growth, emerging industries, natural resource development, and structural change in regional industry and labor markets. Prior to joining the bank, I was an economist at the USDA Economic Research Service in Washington D.C. I earned my Ph.D. in agricultural economics from Purdue University.

How did you find NARSC and to what degree are you currently involved?

I first learned of NARSC in graduate school at Purdue University. My PhD advisor, Raymond Florax, was a long-time member of the association. He suggested that I present my research at NARSC. I attended my first meetings in 2006 and have attended every year since but one. I have also attended many SRSA meetings. I recently served on the NARSC Council and as the Chair in 2021. These opportunities have allowed me to meet and serve alongside many wonderful people in the profession. I also currently serve on the editorial boards of the Journal of Regional Science and Review of Regional Studies.

Please tell us about your research and how it contributes to the field of Regional Science?

NARSC has been a natural fit for my academic research due to its interdisciplinary nature. There are not very many places you can go to engage on topics related to regional growth, spatial analysis, and economic development policy. My research has mainly been at the nexus of natural resource development and regional growth. I have also done work related to location choice and application of spatial econometric methods to many of these areas. I have also often researched how economic phenomenon play out differently in rural versus urban areas.

How do you see the field of Regional Science evolving going forward?

I believe that Regional Science will continue to bring people together to answer complex questions with an eye towards how people and places are affected differently by economic and environmental outcomes. The interdisciplinary nature of Regional Science brings the best set of diverse research tools to the table. I hope the organization will continue to attract graduate students from a wide range of disciplines and demonstrate how welcoming and encouraging of association it can be and has been for me and so many others.

If you want to learn about Jason's research, please visit his <u>website</u>.

Member Spotlight: Paul Jung

Please tell us about yourself!



I am an economic geographer and received a Ph.D. in Geography and Urban Regional Analysis in 2021 from the University of North Carolina at Charlotte. I studied urban planning at Yonsei University as an undergraduate student and hold an MS in City and Regional Planning from Seoul National University. My research lies broadly in logistics, international trade regional economic development, information transportation, geographic science and spatial econometrics. I also have built my research career in the public sector as a policy research associate at Korea Small Business Institute, and as a geographer at the U.S. Census Bureau.

How did you find NARSC and to what degree are you currently involved?

My journey as a regional scientist started in my earlier years. I was first introduced to the field of Regional Science first as an undergraduate student by learning spatial economics and applications of urban planning practices from Walter Isard's textbooks. Dr. Euijune Kim at Seoul National University was a great mentor who first encouraged me to study in the field of Regional Science. My doctoral advisor, Dr. Jean-Claude Thill, also guided me to be a part of the NARSC community. I have seen my intellectual growth through my paper presentations and knowledge exchange with fellow regional scientists at NARSC annual conferences since 2017. I am so much thankful to the NARSC community for recognizing the value of my research with two Best Graduate-Student-Led Paper Awards at the 2018 and 2021 NARSC conferences. I have really enjoyed interacting with geographers, urban planners, and economists at the NARSC conferences, which always boosts inspiring ideas. I wish to get more actively involved in the future NARSC conferences and serve fellow regional scientists.

Please tell us about your research and how it contributes to the field of Regional Science?

I am interested in spatial economic interactions of international trade and what economic factors affect or are affected by the relationship of long-distance commerce. In my doctoral dissertation, I have studied international trade flows in the context of the modern international logistics system. I studied how spatial organizations of a port system emerge with the intermodal integration, examined how the hub-and-spoke distribution system alleviates distance friction of trade and enables efficient flow of trade cargos, and found how compromised logistic security by prevalent armed conflicts along trade routes reduces freight mobility and causes re-routing of shipments through a longerdistance inland corridor to avoid risk. I am now expanding my research on international trade logistics to diverse issues. I am closely looking at the current global supply chain crisis brought by the Covid-19, and working on a research project to assess the impact of disruptions in port operation and examine how network cascading failure unfolds in the international supply chain network. I am also interested in various cases in that international logistic chain security is compromised, such as piracy activities, economic sanctions, and changes in trade relationships, and how spatial flow patterns of trade shipment and port activities change against such risk. My research potentially provides a deeper understanding of the spatial nature of international commerce and trade logistics and brings insights to trade logistics policies for resiliency.

My focus is also on spatial data uncertainty in census data. I am interested in a new method of spatial statistics through which more unbiased and more accurate model estimates can be obtained on uncertain small-area census data. Due to large uncertainty that stems from the nature of sampling errors in the American Community Survey and differential privacy in the 2020 Census, inaccuracy and biasedness can arise in estimation results, especially at small-area census units, such as tracts or block groups. I am interested in developing spatial statistical tools for researchers and policymakers to accurately capture neighborhood characteristics and relationships and derive place-based policy solutions. I have combined the empirical Bayesian approach with spatial statistics to improve accuracy in Global and Local Moran's I on ACS data using weighting schemes with margin-of-error information. I am expanding my empirical Bayesian approach to Getis-Ord G, Geary's C and spatial econometric models.

I am very keen on a new statistical approach to a new type of data. Functional data analysis (FDA) is one of my current methodological research interests. FDA is a statistical framework for highdimensional objects like lines, curves and surfaces of data rather than points. I have found it interesting and promising because spatiotemporal features of an object in an attribute space (changes in attributes over time) or physical space (changes in location over time) can be analyzed easily. I have developed an FDA-based neighborhood dynamics model with which spatiotemporal patterns of neighborhood change are nicely captured. I am going to expand the applications of FDA in the field of regional science especially in detecting and analyzing spatiotemporal patterns of movement data like GPS records.

How do you see the field of Regional Science evolving going forward?

I see that climate change, population degrowth and international supply chain security are our major challenges. I think the field of Regional Science is very promising in leading research on those topics, bringing new insights and providing solutions. These issues are complex, multi-faceted and multidimensional. Regional Scientists have a great asset of intellectual diversity and interdisciplinarity that combines us with our major focus on space. We can have a deeper understanding of those issues by the adoption of new methodological tools to find hidden insights from geospatial big data, micro-level data and new types of data. Many geographers are working on how spatial patterns of environmental change, small-area population changes and trade flow can be captured from different geospatial data. I think it is worth paying our attention to high-resolution, remote sensing images, street imagery data, micro-level GPS trajectory data, census microdata, AIS shipment trajectory data and their combinations.

If you want to learn about Paul's research, please visit his <u>website</u> and check out some of his publications:

Jung, P. H. and Thill, J.-C. (2022) Sea-land Independence and Delimitation of Port Forelandhinterland Structures in the International Transportation System. *Journal of Transport Geography*, 99, 103297.

Jung, P. H., Kim, H., Lee, K.-S. and Song, Y. (2021) Examining Day-to-Day Dynamic Transit Accessibility Using Functional Data Analysis Approach. *Professional Geographers*, In Print.

Jung, P. H. and Song, J. (2021) Multivariate Neighborhood Trajectory Analysis: An Exploration of the Functional Data Analysis Approach. *Geographical Analysis*, <u>https://doi.org/10.1111/gean.12298</u>

NARSC Newsletter

Jung, P. H., Thill, J.-C. and Issel, M. (2019) Spatial Autocorrelation and Data Uncertainty in the American Community Survey: A Critique. *International Journal of Geographical Information Science*, 33(6), 1155-1175.

Jung, P. H., Thill, J.-C. and Issel, M. (2019) Spatial Autocorrelation Statistics of Areal Prevalence Rates under High Uncertainty in Denominator Data. *Geographical Analysis*, 51(3), 354-380.

NARSC Members' Recent Books

Title: *Economies, Institutions and Territories: Dissecting Nexuses in a Changing World*

Editors: Luca Storti (University of Torino), Giulia Urso (Gran Sasso Science Institute), Neil Reid (University of Toledo)

Publisher: Routledge (forthcoming August 2022)



ECONOMIES, INSTITUTIONS AND TERRITORIES

DISSECTING NEXUSES IN A CHANGING WORLD



Description: Presenting multidisciplinary and global insights, this book explores the nexus between economies, institutions, and territories and how global phenomena have local consequences. It examines how original and innovative economic related processes embed themselves in societies at the local level; how boundaries between the state and the market are placed under stress by unexpected changes. It explores whether new types of elites and forms of social inequalities are emerging as a result of institutional and economic changes, and whether peripheral areas are experiencing insidious forms of economic and institutional lock-in. Presenting empirical cases and useful analytical and conceptual tools, the book makes current economic and territorial phenomena more understandable. This is an important read for students and scholars in the fields of geography, sociology, political sciences, anthropology, economics, regional science, and international relations. It is also a valuable resource for policymakers, well-educated lay readers and economic, political and international relations journalists.

NARSC Members' Recent Grant Awards

Funding Agency: United States Department of Agriculture, National Institute of Food and Agriculture

Amount: \$650,000

Project Participants: Wesley Carpenter, John Anders, Marcus Bernard, Trey Malone, and Charles M. Tolbert.

Project summary: *Documenting Discrimination and Researching Policy: Racial Inequality and Economic Opportunity in Rural America 1920-2020.* The legacy of discrimination in rural American along with its present-day implications for diversity, equity, and inclusion (DEI), are understudied. Moreover, DEI issues have failed to attract public attention because they are not standardly taught – in the classroom and in Extension – even in especially germane fields, including agricultural economics, economics,

and sociology. To address this lack of attention, our research asks: (1) what can be done to better document the impact of last-century racial, ethnic, and gender discrimination in contemporary rural America? (2) Can impacts of discrimination be observed in the life course of rural Americans, and across generations? And (3) how do various rural policies affect long run and intergenerational economic opportunity and inequality? This project will leverage longitudinal federal administrative data to document the relationship between historical discriminatory federal programs in rural areas and inequality of rural opportunity. Then we will conduct causal education policy analysis, examining the long-term and intergenerational effects on rural opportunity of rural education investments. Specifically, we define "rural opportunity" as measures of labor market, migration, and health outcomes, for individuals born into rural areas.

Funding Agency: National Science Foundation

Amount: \$300,000

Project Participants: Guangqing Chi, Megan Mucioki, Heather Randell, Rebecca Napolitano, and Davin Holen

Project summary: *Community-Driven Innovation for Resilient Bridges in Remote Communities.* Bridges have become increasingly critical for remote communities in northern latitudes. Residents frequently need to cross rivers or lakes to hunt and gather traditional foods as well as access schools, healthcare facilities, and other essential services that are typically available in regional hubs. Travel by boat is common during warmer months, while frozen water bodies serve as transportation corridors during winter. Temperatures in these regions are increasing rapidly, causing rivers to freeze later, thaw earlier, and form thinner ice. There have been concurrent increases in snowmobile fatalities related to unstable and unpredictable ice. Reliable bridges connect communities and provide safe transportation corridors to larger settlements, which not only support indigenous subsistence livelihoods and remote access to goods and services, but also reduce weather-related deaths and injuries. This project aims to understand the importance of bridges for the well-being of remote communities and to develop a protocol for other remote communities to work together to fund, construct, monitor, and maintain bridges. More generally, this project potentially demonstrates methods for efficient and cost-effective assessments of infrastructure condition in remote, rural areas. Refer to the project website for more information: https://theedenresearch.org/bridging_arctic

Funding Agency: National Science Foundation

Amount: \$200,000

Project Participants: Guangqing Chi, Megan Mucioki, and Junjun Yin

Project summary: Using Mobile Phone Data to Understand the Impacts of the COVID-19 Pandemic on Food Assistance Use in Alaska. The COVID-19 pandemic has strained national and international transportation systems, affecting the cost and availability of food and other essentials. The pandemic has also exacerbated economic inequalities, disproportionately affecting vulnerable and low-income communities. In Alaska, most households rely on costly imported foods, and many, especially those with children, are experiencing food insecurity and undernutrition. This project investigates the impact of the COVID-19 pandemic on household use of food assistance in urban Alaska over the past three years. Through an innovative methodology using mobility data and spatial analysis, the PI team evaluates links between social and demographic variables and food pantry access, identifying food insecurity hotspots where need is greatest. This methodology may be applied elsewhere in the U.S. to identify and assist communities facing food insecurity. Working with local partners, research

findings will be rapidly disseminated to stakeholders to inform food assistance programs. Research findings will also be used for university curriculum development and workshops. More broadly, assessment and response to food assistance needs during periods of crisis will improve the household security of vulnerable and low-income Americans.

Memorial Notes for Dr. Arthur Getis



July 6, 1934 – May 13, 2022

Arthur Getis passed away in May of this year; he was a few months shy of his 88th birthday. His career, ambitions and successes are well documented in a delightful piece he wrote for the RSAI Newsletter (https://www.regionalscience.org/index.php/component/k2/item/2241-arthur-getis.html) which he titled "Place and Time: The Right Place at the Right Time." He was part of a significant cadre of doctoral students at the University of Washington that included WRSA Fellows Waldo Tobler and Richard Morrill, who brought a new, innovative and analytical approach to economic geography. Art's own stature gained prominence with his work in point pattern analysis and his book, with Barry Boots, Models of Spatial Processes (1978). Spatial structure, spatial processes and their representation visually and formally were paramount concerns throughout his career. Manfred Fischer has written an extensive review of Art's accomplishments for the RSAI website; this can be found here:

(https://www.regionalscience.org/index.php/news/obituaries/item/3035-in-memoriam-professorarthur-getis-july-6,-1934---may-13,-2022.html)

After spending the period 1963-1977 at Rutgers University, Art was recruited to Illinois where he remained until 1990. Like many of us, Art wanted to experience the challenge of leadership at the department level and his arrival in Illinois coincided with growth in numbers of regional science colleagues in Urban Planning, Economics and Civil Engineering. I think he enjoyed the stimulation of a diverse set of colleagues, very bright graduate students, the various seminars and a stream of visiting scholars. However, I do not think he enjoyed the attendant personnel issues that come with being a department head; thankfully, for regional science, he resisted moving up in the administration hierarchy and returned to his main interests in science and teaching (he was an

outstanding teacher). An emerging doctoral program at San Diego State University and the opportunity to build something in collaboration with University of California Santa Barbara proved irresistible. He remained at SDSU until his retirement.

For WRSA, we were fortunate that his scientific collaboration with Keith Ord stretched beyond significant papers on the relationship between spatial association and distance to the establishment of the Getis-Ord Lecture that has become a prominent feature of the annual meetings. In the true spirit of WRSA, Art proposed that there should be a reception after the lecture; I recall observing the delight he took in having so many folks gathered in one place obviously enjoying both the lecture and the libations that followed. From his time in Washington as a graduate student, through his period in Illinois, this merging of academic and personal interactions resonated with him. We were fortunate that his wife, Judy, and occasionally his daughters would also participate. Whenever the meetings were in San Diego, Art would often host a party at his house for those "Saturday-night captives" who remained in town to secure cheaper airfares. In essence, Art embraced the WRSA motto: the way academic life should be. While Art and Judy will no longer be with us in person, we are fortunate that we will be able to celebrate his insights and generosity each year that we attend the Getis-Ord lecture.

This memorial note was written by Dr. Geoffrey Hewings, and was shared by the Western Regional Science Association.

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Join us in Montreal, Canada for the 69th Annual North American Meetings of the Regional Science Association International, November 9-12, 2022

Join us in Montreal, Canada for the 69th North American Meetings of the Regional Science Association International (RSAI) sponsored by the North American Regional Science Council (NARSC) and co-hosted by the Canadian Regional Science Association. The deadline for submission of abstracts is July 1. The conference will be held at the beautiful DoubleTree by Hilton in downtown Montreal, November 9-12. The conference hotel is connected to Palais des congrès, Complexe Desjardins, and Place des Arts. It is located close to Old Montreal, Sainte-Catherine Street's shopping, the local food scene and steps away from Place des Festivals. You can learn more about the conference, submit an abstract, and register for the conference and workshops at the <u>NARSC Website</u>.

We are in the process of organizing several pre-conference workshops, as well as keynote speakers. We are also planning to have numerous organized sessions devoted to specific topics. Do you have an interest in organizing a special session or a series of special sessions? If you do, please contact Montreal Program Chair, Neil Reid (<u>neil.reid@utoledo.edu</u>), as soon as possible.

For overseas attendees, we are offering expedited abstract acceptance to anyone coming from a country that requires a visa to enter Canada. Once you have submitted your abstract, and if you need an acceptance letter, please contact NARSC Executive Director, John Sporing at executivedirector@narsc.org.

If you have any questions or suggestions, here's who to contact:

Local arrangements:

Bruce Newbold (newbold@mcmaster.ca)

Program Chair:

Neil Reid (neil.reid@utoledo.edu)

Overall Arrangements:

John Sporing (executivedirector@narsc.org)

We look forward to seeing you in Montreal!

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Other Conferences

4th Bridging Transportation Researchers (BTR#4) Online Conference!

At zero cost, covid-free, and practically zero carbon, BTR #4 brings transportation engineers, planners, & policymakers together globally by removing the burden of travel, the cost of registration, & greenhouse gases associated with transport and accommodation. We welcome researchers and practitioners from diverse disciplines, particularly individuals who are unable to obtain a visa or afford traveling to, and participating in, international conferences.

Please join us online on August 4 & 5, 2022 for two days of multi-track Zoom-based meetings!

Conference registration & details here: <u>https://bridgingtransport.org/</u>