

Auburn University – Department of Geosciences  
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**EDUCATION**

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- 2019 Ph.D. Watts College of Public Service and Community Solutions - School of Public Affairs, Arizona State University – Public Administration and Policy
- 2014 M.S. College of Earth Ocean and Atmospheric Science, Oregon State University-Geography, GIS
- 2012 B.S. College of Earth Ocean and Atmospheric Science, Oregon State University-Environmental Science, Fisheries and Wildlife, GIS

**CAREER HISTORY**

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- 2021 – current Assistant Professor – Auburn University, Department of Geosciences
- 2019 – 2021 Postdoctoral Fellow – University of Texas at Austin, School of Information
- 2012 – 2021 Research Fellow – Oak Ridge Institute for Science and Education, Department of Energy, National Energy Technology Laboratory

**PUBLICATIONS**

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**Refereed Journal Articles**

- 2021 **Nelson, J.R.**, Grubestic, T.H., Miller, J., Chamberlain, A., The Equity of Tree Distribution in the Most Ruthlessly Hot City in the United States: Phoenix, Arizona. *Urban Forestry and Urban Greening* <https://doi.org/10.1016/j.ufug.2021.127016>
- Nelson, J.R.**, Grubestic, T.H., A spatiotemporal analysis of oil spill severity using Multi-Criteria Decision Analysis. *Ocean & Coastal Management*, <https://doi.org/10.1016/j.ocecoaman.2020.105410>
- Wallace, D., Walker, J., **Nelson, J.R.**, Towers, S., Eason, J., & Grubestic, T. H., The 2020 Coronavirus Pandemic and Its Corresponding Data Boon: Issues with Pandemic-Related Data from Criminal Justice Organizations. *Journal of Contemporary Criminal Justice*, <https://doi.org/10.1177/10439862211027993>
- Wallace, D., Eason J., Walker, J., Towers, S., Grubestic, T.H., **Nelson, J.R.**, Is There a Temporal Relationship between COVID-19 Infections among Prison Staff, Incarcerated Persons and the Larger Community in the United States? *International Journal of Environmental Research and Public Health*, <https://doi.org/10.3390/ijerph18136873>
- 2020 **Nelson, J.R.**, Grubestic, T.H., The Use of LiDAR versus Unmanned Aerial Systems (UAS) to Assess Rooftop Solar Energy Potential. *Sustainable Cities and Society*. <https://doi.org/10.1016/j.scs.2020.102353>

- Ma, Yuxin; Pydi Medini, Prannoy Chandra; **Nelson, Jake**; Wei, Ran; Grubestic, Tony; Sefair, Jorge; Maciejewski, Ross. A Visual Analytics System for Oil Spill Response and Recovery. *IEEE Computer Graphics and Applications*. 10.1109/MCG.2020.3004321
- Nelson, J.R.**, Ahan, J., Corley, E., (2020) Sense of Place: Trends from the Literature. *Journal of Urbanism: International Research on Placemaking and Urban Sustainability*.  
<https://doi.org/10.1080/17549175.2020.1726799>
- Nelson, J.R.**, Grubestic, T.H., (2020) Oil spill modeling: Mapping the knowledge domain. *Progress in Physical Geography*. <https://doi.org/10.1177/0309133319897503>
- 2019 Grubestic, T., **Nelson, J.R.**, Wei, R., (2019) A Strategic Planning Approach to Protect Environmentally Sensitive Coastlines from Oil Spills: Benchmarks and Application. *Marine Policy*.  
<https://doi.org/10.1016/j.marpol.2019.103549>
- Romeo, L. **Nelson, J.R.**, Wingo, P., Bauer, J., Justman, D., Rose, K., (2019) Cumulative Spatial Impact Layers: A Novel Multivariate Spatio-Temporal Analytical Summarization Tool. *Transactions in GIS*. <https://doi.org/10.1111/tgis.12558>
- Nelson, J.R.**, Gorichanaz, T., (2019) Trust as an ethical value in emerging technology governance: the case of drone regulation. *Technology in Society*, <https://doi.org/10.1016/j.techsoc.2019.04.007>
- Nelson, J.R.**, Grubestic, T.H., Wallace, D., & Chamberlain, A.W., (2019) The View from Above: A Survey of the Public's Perception of Unmanned Aerial Vehicles and Privacy, *Journal of Urban Technology*, <https://doi.org/10.1080/10630732.2018.1551106>
- 2018 **Nelson, J.R.**, Grubestic, T. (2018) Oil spill modeling: Computational tools, analytical frameworks and emerging technologies. *Progress in Physical Geography*. <https://doi.org/10.1177/0309133318804977>
- Grubestic, T., Wei, R., & **Nelson, J.R.** (2018) Protecting Sensitive Coastal Areas during Oil Spill Events. *Environmental Modeling & Assessment*. <https://doi.org/10.1007/s10666-018-9634-2>
- Nelson, J.R.**, Grubestic, T.H. (2018). The Implications of Oil Exploration off the Gulf Coast of Florida. *Journal of Marine Science and Engineering*, <https://doi.org/10.3390/jmse6020030>
- Nelson, J.R.**; Grubestic, T.H. (2018). Environmental Justice: A Panoptic Overview Using Scientometrics. *Sustainability*, <https://doi.org/10.3390/su10041022>
- Grubestic, T. H., Wallace, D., Chamberlain, A. W., & **Nelson, J.R.** (2018). Using unmanned aerial systems (UAS) for remotely sensing physical disorder in neighborhoods. *Landscape and Urban Planning*, <https://doi.org/10.1016/j.landurbplan.2017.09.001>
- Nelson, J.R.**, Grubestic, T.H., Sim, L., Rose, K., (2018). A Geospatial Evaluation of Oil Spill Impact Potential on Coastal Tourism in the Gulf of Mexico, *Computers Environment and Urban Systems*, <https://doi.org/10.1016/j.compenvurbsys.2017.10.001>
- 2017 **Nelson, J.R.**, Grubestic T.H. (2017). Oil spill modeling: Risk, spatial vulnerability, and impact assessment. *Progress in Physical Geography*, 42(1), 112-127.

- Grubestic, T., Wei, R., & **Nelson, J.R.** (2017). Optimizing Oil Spill Cleanup Efforts: A Tactical Approach and Evaluation Framework. *Marine Pollution Bulletin*, 125(1-2), 318-329.
- Nelson, J.R.**, & Grubestic, T. H. (2017). A Repeated Sampling Method for Oil Spill Impact Uncertainty and Interpolation. *International Journal of Disaster Risk Reduction*, 22, 420–430.
- 2015 **Nelson, J.R.**, Grubestic, T. H., Sim, L., Rose, K., & Graham, J. (2015). Approach for assessing coastal vulnerability to oil spills for prevention and readiness using GIS and the Blowout and Spill Occurrence Model. *Ocean & Coastal Management*, 112, 1-11.
- Piacenza, S. E., Thurman L., Barner A., Benkwitt C., Boersma K., Cerny-Chipman E., Ingeman K., Kindinger T., Lindsley A. J., **Nelson J.**, Reimer J., Rowe J., Shen C., Thompson K., and Heppell S. (2015). Evaluating Temporal Consistency in Marine Biodiversity Hotspots. *PLoS ONE* 10(7).
- 2014 **Nelson, J.R.**, Bauer, J.R., and Rose, K., (2014). Assessment of Geographic Setting on Oil Spill Impact Severity in the United States - Insights from Two Key Spill Events in Support of Risk Assessment for Science-Based Decision Making. *Journal of Sustainable Energy Engineering*. 2 (2), 152-165.

### Under Review

Grubestic, T., **Nelson, J.**, Wallace, D., Walker, J., Towers, S., Eason, J., Geodemographic Insights on the COVID-19 Pandemic in the State of Wisconsin and the Role of Risky Facilities. Submitted to *GeoJournal*. (In press)

**Nelson, J.R.**, Bienenstock, E., Palladino, A., Grubestic, T., On the Use of Social Infrastructure as Social Capital: A Spatial Exploration into Model Specification and Measurement. Submitted to *City and Community*

Grubestic, T.H., **Nelson, J.R.**, FSO Nabarima: Potential Spill Trajectories and Coastal Impacts. Submitted to *Environmental Pollution*

Dyer, A., Zaengle, D., **Nelson, J.**, Duran, R., Wenzlick, M., Wingo, P., Bauer, J., Rose, K., and Romeo, L., Applied Machine Learning Model Comparison: Predicting Offshore Infrastructure Integrity with Gradient Boosting Algorithms and Neural Networks. Submitted to *Marine Structures*

Towers, S., Wallace, D., Walker, J., Eason, J., **Nelson, J.**, Grubestic, T., A study of SARS-COV-2 outbreaks in federal prisons: the linkage between staff, prisoner, and community transmission. Submitted to *BMC Public Health*

### In Prep (only full manuscripts included)

**Nelson, J.R.**, Zhong, Q., Tong, D., Grubestic, T., Extending the Maximal PV Panel Coverage Problem through the use of Unmanned Aerial Vehicles. Submitting to *Applied Energy*

**Nelson, J.R.**, Romeo, L., Duran, R., Spatial Exploration of Factors Impacting Platform Removal in the Gulf of Mexico. Submitting to *Marine Pollution Bulletin*

Helderop, E., **Nelson, J.R.**, Grubestic, T.H., Exploring the effect of sociodemographic boundary changes on crime across a metropolitan region. Submitting to *Transactions in GIS*

## Books and Book Chapters

- 2021 **Nelson, J.R.**, “Oil Spill Risk, Impact, and Response Analysis.” In *Marine Oil Spills: A Practitioners Guide*. Edited by O. Makarynsky. New York: Elsevier
- 2020 Grubestic, T., **Nelson, J.R.**, *Small Unmanned Aerial Systems for Urban Spatial Analysis: An Introduction*. Switzerland: Springer Nature. <https://doi.org/10.1007/978-3-030-35865-5>
- 2015 Grubestic, T.H.; **Nelson, J.R.** “*Spatial Analysis*.” In *Oxford Bibliographies in Geography*. Ed. Barney Warf. New York: Oxford University Press

## Technical Reports

- 2021 **Nelson, J.**; Dyer, A.; Romeo, L.; Wenzlick, M.; Zaengle, D.; Duran, R.; Sabbatino, M.; Wingo, P.; Barkhurst, A.; Rose, K.; Bauer, J. *Evaluating Offshore Infrastructure Integrity*; DOE/NETL-2021/2643; NETL Technical Report Series; U.S. Department of Energy, National Energy Technology Laboratory: Albany, OR, 2021; p 70. [doi.org/10.2172/1780656](https://doi.org/10.2172/1780656)
- 2015 Sim, L.; Graham, J.; Rose, K.; Duran, R.; **Nelson, J.**; Umhoefer, J.; Vielma, J. *Developing a Comprehensive Deepwater Blowout and Spill Model*; NETL TRS-9-2015; EPAct Technical Report Series; U.S. Department of Energy, National Energy Technology Laboratory: Albany, OR, 2015; p 44.
- Romeo, L.; Rose, K.; Bauer, J. R.; Disenhof, C.; Sim, L.; **Nelson, J.**; Thimmisetty, C.; Mark-Moser, M.; Barkhurst, A. *Adapting the National Energy Technology Laboratory’s Offshore Integrated Assessment Modeling Approach for the Offshore Arctic*; NETL-TRS-3-2015; EPAct Technical Report Series; U.S. Department of Energy, National Energy Technology Laboratory: Morgantown, WV, 2015; p 40.
- Bauer, J. R.; **Nelson, J.**; Romeo, L.; Eynard, J.; Sim, L.; Halama, J.; Rose, K.; Graham, J. *A Spatio-Temporal Approach to Analyze Broad Risks and Potential Impacts Associated with Uncontrolled Hydrocarbon Release Events in the Offshore Gulf of Mexico*; NETL-TRS-2-2015; EPAct Technical Report Series; U.S. Department of Energy, National Energy Technology Laboratory: Morgantown, WV, 2015; p 60.
- 2012 Graham, J.; Rose, K.; Bauer, J.; Disenhof, C.; Jenkins, C.; **Nelson, J.**; Ringo, C.; Sim, L.; VanAckeren, K. *Integration of Spatial Data to Support Risk and Impact Assessments for Deep and Ultra-deepwater Hydrocarbon Activities in the Gulf of Mexico*; NETL-TRS-4-2012; EPAct Technical Report Series; U.S. Department of Energy, National Energy Technology Laboratory: Morgantown, WV, 2012; p 36.

## CONFERENCE ACTIVITY

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### Presentations

- 2021 **Nelson, J.**, Romeo, L., Duran, R., Bauer, J., A Geostatistical Analysis of Offshore Oil Platform Lifespan. NETL-ORISE Powerful Poster Series. Online. March 23
- 2020 **Nelson, J.**, Applying UAVs to Evaluate Rooftop Solar Disparities. Session: Energy Transitions. AAG Annual Meeting. Denver, CO., Cancelled due to COVID-19

- 2019 Palladino, A., Bienenstock, E., West, B., **Nelson, J.**, Grubestic, T., *Information fusion to estimate resilience of dense urban neighborhoods*, Signal Processing, Sensor/Information Fusion, and Target Recognition XXVIII. SPIE. Defense and Commercial Sensing. April 14 - 18
- Nelson, J.**, *Throwing Shade: Investigating the Distribution of Trees in Phoenix, Arizona*. Session: Forest Degradation and Tree Health. AAG Annual Meeting, Washington D.C., April 3 – 7
- Nelson, J.**, Grubestic, T., Wei, R., *Exploring Coastal Vulnerabilities to Oil Spills with the Tactical Analysis and Coordination for Oil Spills (TACOS) Suite*. Session 001: Synthesis, Integration, Collaboration, and Linkages: Moving Complex Data into the Right Hands. GOMOSEs, New Orleans, LA. February 5 – 7
- 2018 **Nelson, J.**, Grubestic, T., *Exploring Coastal Vulnerabilities to Oil Spills with the Blowout and Spill Occurrence Model (BLOSOM) and the Tactical Analysis and Coordination for Oil Spills (TACOS) Suite*. Session 4A: Planning Tools to Improve Response Strategies and Tactics. Clean Gulf, New Orleans, LA. Nov. 13 - 15
- Nelson, J.**, Wei, R., Grubestic, T., *Spatial Optimization to Enhance Oil Spill Damage Control*. Session 051 Modeling Anthropogenic Hazards. AAG Annual Meeting, New Orleans, LA. April 10 – 14.
- Nelson, J.**, Kim, Y., Grubestic, T., *Exploring the Potential Consequences of Drone Use Regulations from a Social Justice Perspective*. Session SA10.30.16 Scalar Planning, Scenarios, Building Codes, and Social Justice, Urban Affairs Association, Toronto, ON. April 4 – 7.
- Grubestic, T., Wei, R., **Nelson, J.**, *A Geographic Perspective for Protecting Sensitive Coastal Areas with Exclusion Booms During Oil Spill Events*. Session RSP-004 Biological Aspects and Recovery and Operational Methods, GOMOSEs, New Orleans, LA. February 5 – 8.
- Nelson, J.** *Where it's been and where it's going: An Inquiry into Environmental Justice Research through Citation Analysis*, Session 3 Nonprofits, Justice and Sustainability, College of Public Service and Community Solutions Doctoral Student Research Conference, Phoenix, AZ. January 26
- 2017 Zhang, F., **Nelson, J.**, Welch, E. *Public Organization Adaptation to Extreme Weather Events: A Simulation Approach*, In Organizational Adaptation and Change, Association for Public Policy Analysis and Management (APPAM), Chicago, IL. November 2 – 4.
- Nelson, J.** Grubestic, T. *Current State of the Art in Oil Spill Risk and Impact Analysis*, Session 2540 Exploring Uncertainties in Modeling, American Association of Geographers, Boston, MA. April 5 – 9.
- 2016 **Nelson, J.** Grubestic, T. *Spatial Optimization for Enhanced Community Resilience*, Session 6F Response Research-Geospatial, Clean Gulf Conference, Tampa, FL, November 1 – 3.
- Nelson, J.**, *Improving Impact Communication and Readiness with GIS*, GIS for Hazmat and Spill Response, ESRI International User Conference, San Diego, CA. June 27 – July 1.
- Nelson, J.**, *Spatial Modeling Approach for Oil Spill Impact Calculations*, Session 2245 Spatial Modeling of Human-Environment Interaction in the Anthropocene (2), American Association of Geographers, San Francisco, CA. March 29 – April 2.

- 2015 **Nelson, J.**, Grubestic, T., Sim, L., Rose, K., *Geospatial Approach for Evaluating Potential Impacts and Improving Response Readiness for Coastal Communities to Hydrocarbon Spills*. North American Regional Science, Portland, OR, November 11 – 14.
- Romeo, L., Bauer, J., **Nelson, J.**, Dick, D., Rose, K., *Impact Assessment Modeling: Robust Multivariate Spatial Analysis Tool*, ESRI International User Conference, San Diego, CA, July 20–24.
- Bauer, J., Rose, K., **Nelson, J.**, Romeo, L., Madsen, L., Ossiander, M., Pesynska, M., and J. Mbuthia., *Utilizing GIS for Engineered-Natural Systems Risk Reduction and Incident Response*. Esri Petroleum GIS Conference, Houston, TX, April 8-10.
- Nelson, J.**, Bauer, J., Madsen, L., Pesynska, M., Ossiander, M., Mbuthia, J. *Spatially integrated Multivariate Probability Assessment*, Session 4211 Spatial optimization and Analysis, American Association of Geographers, Chicago, IL.
- Nelson, J.**, Sim, L., Bauer, J., Romeo, L., Rose, K., *Assessing the vulnerability and implications of modeled oil spills in the Gulf of Mexico*, Session 011 #134, 2015 Oil Spill and Ecosystem Science Conference.
- Sim, L., Rose, K., Graham J., Duran, R., **Nelson, J.**, Umhoefer, J., and Vielma, J. *Potential subsurface plume formation and fate in ultra-deepwater blowout simulations using BLOSOM (Blowout and Spill Occurrence Model)*. 2015 Oil Spill & Ecosystem Science Conference, Houston, TX.
- 2013 Graham, J., Rose, K., **Nelson, J.**, Sim, L., and Ringo, C., 2013, *Modeling potential impact of oil spills on commercial fisheries in the northern Gulf of Mexico*, AAPG Search and Discovery Article #90163, AAPG 2013 Annual Convention and Exhibition, Pittsburgh, Pennsylvania, May 19-22

## **RESEARCH FUNDING/PROJECTS**

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- 2016 Key Contributor - Enhancing Community Resilience and Optimizing Oil Spill Response through the Participatory Design of a Decision Support System, PI: Tony Grubestic. Funded by Gulf Research Program of the National Academies of Science, # 2000007349
- 2014 Key Contributor - Leveraging Offshore Hydrocarbon Risk Assessment Models and Datasets to Support the Evaluation and Ranking of Worst Case Discharge Scenarios, PI: Kelly Rose. Funded by Department of Interior, BSEE FOA E14PS00054.

## **RESEARCH EXPERIENCE**

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- 2020 – 2021 Arizona State University Center for Spatial Reasoning and Policy Analytics – Faculty Research Associate
- 2015 – 2019 Arizona State University School of Public Affairs – Graduate Research Assistant
- 2014 – 2015 Drexel University College of Computing and Informatics – Graduate Research Assistant
- 2014 Oregon State University Mathematics Department – Graduate Research Assistant
- 2012 - 2014 Oregon State University College of Earth Ocean and Atmospheric Sciences – Graduate Research Assistant

## **TEACHING EXPERIENCE**

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- 2021 Instructor, Auburn University – Course: GEOG 5880/6880 Advanced GIS, Fall in-person (12 students)
- 2021 Co-Instructor, University of Texas at Austin – Course: INFO 385: Intro to Human Centered Data Science, Spring 2021 (13 students online)
- 2020 Co-Instructor, University of Texas at Austin – Course: INFO 385: Mapping for the Common Good, Spring 2020 (15 students in-person), Fall 2020 (12 students online)
- 2018 Graduate Teaching Assistant, Arizona State University - Course: CRJ 531: Crime Mapping (10 students online)
- 2015 Graduate Teaching Assistant, Drexel University - Course: InfoSci 555: Intro to GIScience (25 students online)

## **AWARDS**

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- 2017 Graduate and Professional Student Association (GPSA) - Individual Travel Grant Award – Arizona State University (\$600)
- 2014 Esri Development Center (EDC) Student of the Year Award – Oregon State University (\$500)

## **SERVICE**

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### **To Profession**

Associate Editor – Unmanned Vehicles section of *Remote Sensing in Earth Systems Sciences*

Editorial Assistant – *Telematics and Informatics*

Topic Editor – *Remote Sensing*

Review Board Member - *Journal of Marine Science and Engineering*

Ad-Hoc Reviewer:

*Computers, Environment, and Urban Systems; Remote Sensing; International Regional Science Review; Journal of Urban Technology; Telematics and Informatics; International Journal of Remote Sensing; Sensors; Journal of Marine Science and Engineering; Ocean and Coastal Management; Environmental Politics; Journal of Waterway, Port, Coastal, and Ocean Engineering; Environmental Quality Management*

### **To Institution**

- 2019 Mentor to Vritika Patni, BASIS Peoria High School Senior Capstone project (Topic on Environmental Justice)
- 2019 Arizona State University Undergraduate Research Fair – research poster competition group mentor (Topic on Impacts of Drone Technology to Privacy)

## **AFFILIATIONS**

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J. R. Nelson

American Association of Geographers  
Urban Affairs Association  
Association for Public Policy Analysis and Management