

Thomas J. Pingel

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Department of Geography
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EDUCATION

- Ph.D. (2010). Department of Geography, University of California, Santa Barbara.
- M.A. (2004). Department of Geography, University of California, Santa Barbara.
- B.S. Foreign Service (1999). School of Foreign Service, Georgetown University.

PROFESSIONAL APPOINTMENTS

- Associate Professor (2023-present). Department of Geography, Binghamton University.
- Associate Professor (2018-23). Department of Geography, Virginia Polytechnic Institute and State University. Core Faculty in Center for Environmental Analytics & Remote Sensing.
- Assistant Professor (2012-18). Department of Geographic and Atmospheric Sciences, Northern Illinois University.
- Intelligence Community (IC) Postdoctoral Research Fellow (2010-12). Department of Geography, University of California, Santa Barbara and the National Geospatial Intelligence Agency.
- Graduate Research Fellow (2006-07). Central Intelligence Agency. McLean, VA.
- Instructor (2005-09). Department of Geography, University of California, Santa Barbara.

PUBLICATIONS AND PROFESSIONAL CONTRIBUTIONS

Manuscripts in Preparation

Pingel, T.J., Gonzales, J., and Isibue, E. (in preparation). Adaptive smoothing for 3D printed terrain models.

Lewis, C. and **Pingel, T.J.** (in preparation). Least Cost Path Modeling Between Inka and Amazon Civilizations.

Publications in Review

Villareal, M., Baird, T.D., Tarazaga, P., Kniola, D.J., and Pingel, T.J. (in review) Support for an Ideal Free Distribution of resource use in a shared indoor environment: An indoor geography. Submitted to *Annals of the American Association of Geographers*.

Young, J. and **Pingel, T.J.** (in review). The Role of DEM Generation in Lidar Based Landslide Detection Algorithm Performance. Submitted to *Environmental Earth Systems*.

Refereed Publications

Barua, G., **Pingel, T.J.**, Lim, T. (accepted). Urban Thermal Map Design Considerations: Color, Shading, and Resolution. Submitted to *Cartography and Geographic Information Science*.

Sterling, W., Krometis, L-A., **Pingel, T.J.**, and Winling, L. 2023. Connections Between Present-Day Water Access and Historical Redlining. *Environmental Justice*. [[10.1089/env.2022.0115](https://doi.org/10.1089/env.2022.0115)]

Carani, S. and **Pingel, T.J.** 2023. Detection of Tornado Damage via Convolutional Neural Networks and Uncrewed Aerial System Photogrammetry. *Natural Hazards*. [[10.1007/s11069-023-06125-4](https://doi.org/10.1007/s11069-023-06125-4)]

McKnight, M.X., Kolivras, K.N., Buttlng, L.G., Gohlke, J.M., Marr, L.C., **Pingel, T.J.**, & Ranganathan. S. 2022. Examining the Modifiable Areal Unit Problem: Associations Between Birth Outcomes and Surface Mining in Central Appalachia at Multiple Spatial Scales. *GeoHealth*. [[10.1029/2022GH000696](https://doi.org/10.1029/2022GH000696)]

Lim, T.C., Wilson, B., Grohs, J.R., & **Pingel, T.J.** 2022. Community-engaged Heat Resilience Planning: Lessons from a Youth “Smart City” STEM program. *Landscape and Urban Planning*. [[10.1016/j.landurbplan.2022.104497](https://doi.org/10.1016/j.landurbplan.2022.104497)]

Harris, R.C., Kennedy, L.M., **Pingel, T.J.**, and Thomas, V.A. 2022. Assessment of Canopy Health with Drone-Based Orthoimagery in a Southern Appalachian Red Spruce Forest. *Remote Sensing*. 14, 1341. [[10.3390/rs14061341](https://doi.org/10.3390/rs14061341)]

Prior E.M., Aquilina, C.A., Czuba, J.A., **Pingel, T.J.**, & Hession, W.C. 2021. Estimating Floodplain Vegetative Roughness using Drone-Based Laser Scanning and Structure from Motion Photogrammetry. *Remote Sensing*. 13(13), 2616. [[10.3390/rs13132616](https://doi.org/10.3390/rs13132616)]

Pingel, T.J., Saavedra, A., and L. Cobo. 2021. Deriving Land and Water Surface Elevations in the Northeastern Yucatán Peninsula using PPK GPS and UAV-based Structure from Motion. *Papers in Applied Geography*. 7(3), 294-315. [[10.1080/23754931.2021.1871937](https://doi.org/10.1080/23754931.2021.1871937)]

Eboh, H., Gallaher, C., **Pingel, T.J.**, and W. Ashley. 2021. Risk Perception in Small Island Developing States. *Natural Hazards*. 105(1), 889-914. [[10.1007/s11069-020-04342-9](https://doi.org/10.1007/s11069-020-04342-9)]

Virtanen, P., Gommers, R., Oliphant, T.E., Haberland, M., Reddy, T., Cournapeau, D., Burovski, E., Peterson, P., Weckesser, W., Bright, J., van der Walt, S.J., Brett, M., Wilson, J., Millman, K.J., Mayorov, N., Nelson, A., Jones, E., Kern, R., Larson, E., Carey, C.J., Polat, I., Feng, Y.,

Moore, E.W., VanderPlas, J., Laxalde, D., Perktold, J., Cimrman, R., Henriksen, I., Quintero, E.A., Harris, C.R., Archibald, A.M., Ribeiro, A.H., Pedregosa, F., van Mulbregt, P., and SciPy 1.0 Contributors [included as **Thomas J. Pingel** under SciPy 1.0 Contributors]. 2020. SciPy 1.0-Fundamental Algorithms for Scientific Computing in Python. *Nature Methods*. 17, 261-272. [[10.1038/s41592-019-0686-2](https://doi.org/10.1038/s41592-019-0686-2)]

Isibue, E.W. and **T.J. Pingel**. 2020. Unmanned Aerial Vehicle Based Measurement of Urban Forests. *Urban Forestry and Urban Greening*. 48, 126574. [[10.1016/j.ufug.2019.126574](https://doi.org/10.1016/j.ufug.2019.126574)]

McNeal, K.S., Ryker, K., Whitmeyer, S., Giorgis, S., Atkins, R., LaDue, N., Atkins, R., Clark, C., Soltis, N., and **T. Pingel**. 2020. A Multi-Institutional Study of Inquiry-Based Lab Activities using the Augmented Reality Sandbox: Impacts on Undergraduate Student Learning. *The Journal of Geography in Higher Education*. 44(1), 85-107. [[10.1080/03098265.2019.1694875](https://doi.org/10.1080/03098265.2019.1694875)]

Pingel, T. 2018. The Raster Data Model. The Geographic Information Science & Technology Body of Knowledge (3rd Quarter 2018 Edition), John P. Wilson (Ed.). [<http://dx.doi.org/10.22224/gistbok/2018.3.11>]

Strader, S.M., Ashley, W.S., **Pingel, T.J.**, & A.J. Krmenec. 2018. How land use alters the tornado disaster landscape. *Applied Geography*. 94, 18-29. [[10.1016/j.apgeog.2018.03.005](https://doi.org/10.1016/j.apgeog.2018.03.005)]

Pingel, T.J. and D. Bergman. 2017. Using Lidar to Measure the Urban Forest in DeKalb, Illinois. *Illinois Geographer*. 59(1), 1-36. [https://www.researchgate.net/publication/321348163_Using_LiDAR_to_Measure_the_Urban_Forest_in_DeKalb_Illinois]

Pingel, T.J. 2017. Using Web Maps to Analyze the Construction of Global Scale Cognitive Maps. *Journal of Geography*. [[10.1080/00221341.2017.1378364](https://doi.org/10.1080/00221341.2017.1378364)]

Strader, S.M., Ashley, W.S., **Pingel, T.J.**, and A.J. Krmenec. 2017. Projected 21st Century Changes in Tornado Exposure, Risk, and Disaster Potential. *Climatic Change*. 141(2), 301-313. [[10.1007/s10584-017-1905-4](https://doi.org/10.1007/s10584-017-1905-4)]

Strader, S.M., Ashley, W.S., **Pingel, T.J.**, and A.J. Krmenec. 2017. Observed and Forecast Changes in United States Tornado Exposure. *Weather, Climate and Society*. [[10.1175/WCAS-D-16-0041.1](https://doi.org/10.1175/WCAS-D-16-0041.1)]

Strader, S., **Pingel, T.J.**, and W. Ashley. 2016. A Monte Carlo Model for Estimating Tornado Impacts. *Meteorological Applications*. 23(2), 269-281. [[10.1002/met.1552](https://doi.org/10.1002/met.1552)]

Pingel, T.J., Clarke, K.C., & A. Ford. 2015. Bonemapping: A LiDAR Processing and Visualization Technique in Support of Archaeology Under the Canopy. *Cartography and Geographic Information Science*. 42(S1), 18-26. [[10.1080/15230406.2015.1059171](https://doi.org/10.1080/15230406.2015.1059171)]

Haberlie, A.M., Ashley, W.S., and **T.J. Pingel**. 2015. The Effect of Urbanisation on the Climatology of Thunderstorm Initiation. *Quarterly Journal of the Royal Meteorological Society*. 141(688), 663-675. [[10.1002/qj.2499](https://doi.org/10.1002/qj.2499)]

Luo, W., **Pingel, T.**, Jeo, J., Howard, A., and J. Jung. 2015. A Progressive Black Top Hat Transformation Algorithm for Estimating Valley Volumes on Mars. *Computers and Geosciences*. 75, 17-23. [[10.1016/j.cageo.2014.11.003](https://doi.org/10.1016/j.cageo.2014.11.003)]

Pingel, T.J. and V.R. Schinazi. 2014. The Role of Scale and Strategy in Search-Based Wayfinding. *Cartographic Perspectives*. 21-33. [[10.14714/CP77.1232](https://doi.org/10.14714/CP77.1232)]

Pingel, T.J. and K.C. Clarke, K.C. 2014. Perceptually Shaded Slope Maps for the Visualization of LiDAR Derived Digital Surface Models. *Cartographica: The International Journal for Geographic Information and Geovisualization*, 49(4), 225-240. [[10.3138/carto.49.4.2141](https://doi.org/10.3138/carto.49.4.2141)]

Pingel, T.J., Clarke, K.C., and W.A. McBride. 2013. An Improved Simple Progressive Morphological Filter for Ground Segmentation of LIDAR Data. *ISPRS Journal of Photogrammetry and Remote Sensing*, 77, 21-30. [[10.1016/j.isprsjprs.2012.12.002](https://doi.org/10.1016/j.isprsjprs.2012.12.002)]

Pingel, T.J. 2012. Characterizing the Role of Strategic Disposition and Orientation to Risk for Route Selection Problems. *Transportation Research Part F: Traffic Psychology and Behaviour*, 15(4), 427-437. [[10.1016/j.trf.2012.03.003](https://doi.org/10.1016/j.trf.2012.03.003)]

Loáiciga, H.A., **Pingel, T.J.** & E.S. Garcia. 2012. Sea Water Intrusion by Sea-Level Rise: Scenarios for the 21st Century. *Ground Water*, 50(1), 37-47. [[10.1111/j.1745-6584.2011.00800.x](https://doi.org/10.1111/j.1745-6584.2011.00800.x)]

Pingel, T.J. 2010. Modeling Slope as a Contributor to Route Selection in Mountainous Areas. *Cartography and Geographic Information Science*, 37(2), 137-148. [[10.1559/152304010791232163](https://doi.org/10.1559/152304010791232163)]

Conference Proceedings

Karki, S, Pingel, T.J., Flack, A., and Baird, T.D. 2023. Aggregating Multi-Sensor Terrestrial Lidar Data for Analyzing Human Behavior. 2023 ASPRS International Technical Symposium. Virtual Conference. 12-16 June. [[abstract](#)] [[presentation](#)] [[video](#)]

Barua, G., **Pingel T.**, and Lim, T. 2022. Understanding perception of different urban thermal model visualizations. AutoCarto 2022, Redlands, CA. [[abstract](#)]

Prior, E., Czuba, J., **Pingel, T.**, and Hession, W. 2022. Effect of Changing UAS Lidar DEM Resolution and Mesh Grid Resolution on Hydrodynamic Modeling Results. American Geophysical Union. 12-16 Dec. [[abstract](#)]

Bukvic, A., Bruce, C., Bordelon, L., Smith, C., Huang, L., Dillon, M., Carey, S., Crawford, M., Gonzales, J., **Pingel, T.**, Lim, T., and Moeltner, K. 2021. Advancing Towards a Resilient

Hampton 2050 by Supporting Population Mobility. 26th Biennial Conference of the Coastal and Estuarine Research Federation (CERF), 1-4 and 8-11 Nov. [[presentation](#)]

Prior, E., Aquilina, C., Czuba, J., **Pingel, T.**, and Hession, W. 2020. Estimating Floodplain Vegetative Roughness using Drone-Based Laser Scanning and Structure from Motion Photogrammetry. American Geophysical Union. 1-17 Dec. [[abstract](#)]

Pingel, T.J. and H. Chase. 2020. Immersive Web-based Classification Correction of Point Cloud Data. Proceedings of AutoCarto 2020. 17 November. [[pdf](#)]

Pingel, T.J., Mendez, M.W., & Isibue, E.W. (2018). From Point Clouds to Tactile Maps: How LiDAR and Photogrammetry Can Improve Maps for People with Visual Impairments. Proceedings of the 2018 AutoCarto / UCGIS Symposium, Madison, WI, 22-24 May. [[pdf](#)] [[pptx](#)]

Pingel, T.J. & Clarke, K.C. (2012). Automation and Visualization in Geographic Immersive Virtual Environments. Proceedings of the 2012 AutoCarto Symposium on Automated Cartography, Columbus, OH, 16-20 September. [[pdf](#)]

Pingel, T.J. (2009). Modeling slope as a contributor to route selection in mountainous areas. Proceedings of the 2009 Summer Assembly of the University Consortium for Geographic Information Science. Santa Fe, NM, 23-23 June. [[pdf](#)] [[ppt](#)]

Pingel, T.J. & Clarke, K.C. (2005). Assessing the Usability of a Wearable Computer System for Outdoor Pedestrian Navigation. Proceedings of the 2005 AutoCarto Symposium on Automated Cartography, Las Vegas, NV, 18-23 March. [[pdf](#)]

Clarke, K.C., Du, Q. Nuernberger, A. & **Pingel, T.** (2003) A prototype cartographic user interface for wearable computing. Proceedings of the 21st International Cartographic Conference (ICC), Durban, South Africa, 10-16 August. pp. 1430-1438. [[pdf](#)]

Pingel, T.J. (2003). Key Defensive Terrain in Cyberspace: A Geographic Perspective. In Proceedings of the International Conference on Politics and Information Systems (PISTA) 2003 (pp. 159-163). Orlando, FL, 1-2 August. [[pdf](#)]

Clarke, K.C., Nuernberger, A., **Pingel, T.** & Qingyun, D. (2002) User Interface Design for a Wearable Field Computer. Proceedings of dg.o 2002 National Conference on Digital Government Research, Los Angeles, CA. [[pdf](#)]

Papers Read at Professional Meetings

Prior EM, Michaelson N, Czuba JA, **Pingel TJ**, Thomas VA, Hession WC. 2023. Lidar DEM resolution modifies roughness in 2D hydrodynamic models (ID 1311910). Paper to be presented at AGU 2023 Fall Meeting. 11-15 Dec. San Francisco, CA.

Baird, T. and **Pingel, T.** 2023. Future uses of informal academic space for student learning and engagement. Paper presented at Annual Meeting of the American Association of Geographers. 23-27 Mar. Denver, CO.

Schulte, A.N., Resler, L.M., Gielstra, D.A., **Pingel, T.**, and Shao, Y. 2023. Plant Successional Patterns at Sperry Glacier Foreland, Glacier National Park, MT, USA. Paper presented at Annual Meeting of the American Association of Geographers. 23-27 Mar. Denver, CO.

Karki, S., **Pingel, T.J.**, Flack, A., Baird, T. 2023. Capturing and Modelling Movement and Behavior in a Digital Twin. [Specialist Meeting on Digital Twins](#). Feb 26-28. Tempe, AZ.

Prior, E.M., Czuba, J.A., **Pingel, T.J.**, Hession, W.C. 2022. Effects of UAS Lidar DEM Resolution and Mesh Grid Resolution on Hydrodynamic Modeling Results. Paper presented at AGU Fall Meeting. 12-16 Dec, Chicago, IL.

Harris, R., Kennedy, L. Thomas, V., **Pingel, T.** 2022. Assessment and Predictive Modeling of Individual Tree Mortality with Drone-Based Orthoimagery in a Southern Appalachian Red Spruce Forest, Whitetop Mountain, Virginia. Paper presented at Annual Meeting of the American Association of Geographers. 25 Feb – 1 Mar.

Barua, G., **Pingel, T.J.**, Lim, T. 2022. Understanding perception of different urban thermal model visualizations. Paper presented at AutoCarto 2022. 2-6 Nov, Redlands, CA.

Sterling, C., **Pingel, T.J.**, Winling, L., Krometis, L-A. 2022. Quantifying the impact of redlining on water and wastewater infrastructure in the United States. American Public Health Association Conference.

Osterlund Oltmanns, J.R., Blankenship, P.A., Blackwell, A.A., Shaeffer, E.A., **Pingel, T.J.**, and D.G. Wallace. 2022. Humans exhibit similar topographic organization of movement across different real-world environments. Paper presented at Midwestern Psychological Association Annual Meeting. April 21-23.

Aquilina, C.A, Prior, E.M., Czuba, J.A., **Pingel, T.J.**, and Hession, W.C. 2020. Estimating Floodplain Vegetative Roughness using Drone-Based Laser Scanning and Structure from Motion Photogrammetry (Paper #674457). Paper presented at AGU Fall Meeting.

Prasher, S., **Pingel, T.**, and Irwin, M. 2020. Evaluating spatial distributions of scent-marks in semi free-ranging groups of Lemur Catta at the Duke Lemur Center. Paper presented at the Annual Meeting of the Association of American Geographers. [[abstract](#)]

McKnight, M., Kolivras, K., Buttling, L., Gohlke, Julia, Marr, L., and **Pingel, T.J.** 2020. Examining the MAUP: The associations between adverse birth outcomes and surface mining in central appalachia at multiple spatial scales. Paper to be presented at the Annual Meeting of the Association of American Geographers.

Isibue, E. & **Pingel, T.J.** 2019. Unmanned Aerial Vehicle Based Measurement of Urban Forests. Paper presented at the 2019 ILGISA Annual Conference, Normal, IL, 20-24 October.

Isibue, E. & **Pingel, T.J.** 2019. Unmanned Aerial Vehicle Based Measurement of Urban Forests. Paper presented at the Illinois Geographical Society Annual Meeting, Dubuque, IA, 27 April. [[pptx](#)] [[pdf](#)]

Pingel, T.J., Saavedra, A., & Cobo, L. 2019. Deriving Land and Water Elevations in the Yucatán Peninsula using RTK GPS and UAV-based Photogrammetry. Paper presented at the Virginia Tech GIS and Remote Sensing Research Symposium, Blacksburg, VA, 26 April. [[pdf](#)]

Pingel, T.J., Saavedra, A., & Cobo, L. 2019. Deriving Land and Water Elevations in the Yucatán Peninsula using RTK GPS and UAV-based Photogrammetry. Paper presented at the Annual Meeting of the Association of American Geographers, Washington DC, 7 April. [[abstract](#)] [[pptx](#)] [[pdf](#)]

Harris, R., Kennedy, L., and **Pingel, T.J.** 2019. Characterization of a forest-grass ecotone on a Southern Appalachian bald, Whitetop Mountain, Virginia, USA, - Using remotely-sensed imagery. Paper presented at the Annual Meeting of the Association of American Geographers, Washington DC, 4 April. [[abstract](#)] [[pptx](#)] [[pdf](#)]

Eboh, H., Ashley, W., Gallaher, C. & **Pingel, T.** 2018. Risk Perception in Small Island Developing States: A Case Study in the Commonwealth of Dominica. Paper presented at the Annual Meeting of the Association of American Geographers, New Orleans, LA, 14 April.

Strader, S.M., Ashley, W.S., **Pingel, T.J.**, & Krmenc, A. 2018. Projected 21st Century Changes in Tornado Exposure, Risk, and Disaster Potential. Paper presented at the 98th Annual Meeting of the American Meteorological Society, Austin, TX, 7-11 January. [[website](#)]

Pingel, T.J. and Isibue, E. 2017. Applications of Mobile LiDAR and UAV Sourced Photogrammetry. Paper presented at the 2017 ILGISA Annual Conference, Normal, IL, 2-4 October. [[pptx](#)] [[pdf](#)]

Pingel, T.J. and Isibue, E. 2017. 3D Printed Maps from Global DEMs, LiDAR, and UAV Sourced Photogrammetry. Paper presented at 2017 Annual Meeting of the Illinois Geographical Society, Champaign-Urbana, IL, 27-29 April. [[pptx](#)] [[pdf](#)]

Strader, S.M., Ashley, W.S., **Pingel, T.J.**, & Krmenc, A. 2016. Observed and Forecast Changes in United States Tornado Exposure. Paper presented at American Meteorological Society's 28th Conference on Severe Local Storms, Portland, OR, 7-11 November.

Pingel, T.J. 2016. Using Web Maps to Measure the Development of Global Scale Cognitive Maps. Paper presented at 2016 Illinois Geographic Information Systems Association (ILGISA) Annual Meeting, Lisle, IL, 17-19 October. [[pptx](#)] [[pdf](#)]

Pingel, T.J. & Bergman, D. 2015. Using LiDAR to Manage the Urban Forest in DeKalb, Illinois. Paper presented at the 2015 Annual Meeting of the Illinois GIS Association, Springfield, IL, 14-16 September. [[pptx](#)] [[pdf](#)]

Pingel, T.J. 2015. Anchor-Point Theory as the Basis for Global Scale Cognitive Map Development via Web Maps. Paper presented at the 100th Annual Meeting of the National Council for Geographic Education, Washington, DC, 6-9 August. [[pptx](#)] [[pdf](#)]

Pingel, T.J., LaDue, N.D., & Turner, S.P. 2015. Spatial Ability and Individual Differences in the Use of Perceptually Shaded Slope Maps. Paper presented at the Annual Meeting of the Association of American Geographers, Chicago, IL, 21-25 April. [[pptx](#)] [[pdf](#)]

Pingel, T.J. 2015. Citizen Science and Open Source GIS. Workshop presented at the 30th Annual Meeting of the Illinois Lakes Management Association, DeKalb, IL, 19-21 February. [[pptx](#)] [[pdf](#)]

Pingel, T.J. 2014. Slope Shading Techniques for LiDAR Visualization. Paper presented at the Annual Meeting of the Illinois Geographic Information Systems Association, Lisle, IL, 26-28 October. [[pptx](#)] [[pdf](#)]

Pingel, T.J. & Moeller, D. 2014. Using the Google Public Data Explorer as a Learning Tool in the University Geography Classroom. Paper presented at the West-East Lakes Joint Meeting of the Association of American Geographers, Kalamazoo, MI, 16-18 October. [[pptx](#)] [[pdf](#)]

Pingel, T.J., Turner, S.P., & LaDue, N.D. 2014. Perceptually Shaded Slope Maps. Paper presented at the Annual Meeting of the Illinois Geographical Society, Metropolis, IL, 19-21 June. [[pptx](#)] [[pdf](#)]

Pingel, T.J., & Schinazi, V.R. 2014. The Cognition of Scale in Human Search Problems and Wayfinding Strategy. Paper presented at the Annual Meeting of the Association of American Geographers, Tampa, FL, 8-12 April. [[pdf](#)] [[pptx](#)]

Pingel, T.J. & Clarke, K.C. 2013. *An Empirical Evaluation of Perceptually Shaded Slope Maps for LIDAR Visualization of Urban Areas*. Paper presented at the Annual Meeting of the Association of American Geographers, Los Angeles, CA, 9-13 April. [[pdf](#)] [[pptx](#)]

Pingel, T.J. 2012. *Automatic Methods of LIDAR Visualization: A Test Case in the El Pilar Archaeological Reserve for Maya Flora and Fauna*. Paper presented at the West-East Lakes Joint Meeting of the Association of American Geographers, DeKalb, IL, 25-27 October. [[pdf](#)] [[pptx](#)]

Pingel, T.J. & Clarke, K.C. 2012. *DEMs for Immersive Geographic Virtual Environments: An Improved Simple Morphological Filter for Terrain Classification of LIDAR Data*. Paper presented at Association of American Geographers Annual Meeting, New York, NY, 24 -28 February. [[pdf](#)] [[pptx](#)]

Pingel, T.J. & Clarke, K.C. 2011. *Strategic Elements of Route Choice for Next Generation Digital Navigation Systems*. Paper presented at Association of American Geographers Annual Meeting, Seattle, WA, 12-16 April.

Pingel, T.J. 2011. *A Real-Time Immersive Virtual Reality Testbed: Automation and Visualization Issues*. Paper presented at the 11th Annual Intelligence Community Postdoctoral Research Fellowship Program Colloquium, Tyson's Corner, VA, 3-7 April. [[pdf](#)] [[ppt](#)]

Pingel, T.J. 2010. *Strategic Elements of Route Choice for Next Generation Digital Navigation Systems*. Paper presented at 16th University of California Transportation Center Student Conference, Irvine, California, 1-2 April. [[pdf](#)] [[ppt](#)]

Loaiciga, H.A., **Pingel, T.**, & Garcia, E. 2009. *E. Assessment of seawater intrusion potential from sea level rise and pumping in coastal aquifers of California*, Paper presented at the Groundwater Salinity: a Groundwater Dilemma Conference of the UC Center for Water Resources and Ground Resources Association of California, Sacramento, CA, 24-25 March.

Loáiciga, H. & **Pingel, T.** 2008. *21st-Century Sea Level Rise, Economic Growth, and Seawater Intrusion in Coastal Aquifers of California*. Fall Meeting of the American Geophysical Union. San Francisco, CA, 14-18 December.

Loaiciga, H.A., **Pingel, T.**, & Garcia, E. 2008. *21st century sea-level rise and seawater intrusion in coastal aquifers of California*. Symposium on Climate Change Implications for California Groundwater Management, California Groundwater Resources Association of California, Sacramento, CA, 13 August.

Invited Talks, Colloquia, and Panel Sessions

Baird, T., **Pingel, T.**, and Kniola, D. 2022. [How Art, Math, Design, Education, Geography, and Lasers Can Help Us Understand CID](#). Creativity and Innovation District Friday Friends Series. Blacksburg, VA, 25 March.

Baird, T., **Pingel, T.**, Abaid, N., Upthegrove, T. 2022. [How Art, Math, Design, Education, Geography, and Lasers Can Help Us Understand CID](#). Creativity and Innovation District Friday Friends Series. Blacksburg, VA, 14 October.

Pingel, T. 2022. [Panelist on: A Code of Ethics for Cartography](#). Association of Geographers Annual Meeting. 25 Feb.

Bukvic, A., **Pingel, T.**, Lim, T., Moeltner, K., Bruce, C., Bordelon, L., Smith, C., Huang, L. Dillon, M., Carey, S., Crawford, M., Gonzales, J. 2021. Advancing Toward a Resilient Hampton 2050 by Support Population Mobility. Public Engagement Talk, Virginia Tech, Blacksburg, VA, 19 May.

Pingel, T.J. (2020). UAV Operations during REU 2018 for Deriving Land and Water Elevations in the Yucatán Peninsula. Invited talk for 2020 REU Program at Northern Illinois University. [[pdf](#)] [[pptx](#)] [[video](#)]

Pingel, T.J. (2019). Mapping the Frontier of Geographic Information Science and Technology. Invited Talk for Virginia Tech Alumni Weekend. College of Natural Resources and the Environment, Virginia Tech, Blacksburg, VA, 8 June. [[pdf](#)] [[pptx](#)]

Pingel, T.J. (2018). The Near Earth Imaging Lab - Adventures in Lidar, Drones, and 3D Printing. Geography Department Colloquium, Virginia Tech, Blacksburg, VA, 31 August. [[pdf](#)] [[pptx](#)]

Pingel, T.J. (2018). Near Earth Imaging: Applications for LiDAR and UAV Sourced Photogrammetry. Invited Talk, State University of New York - Potsdam, Potsdam, NY. 1 March.

Pingel, T.J. (2018). Near Earth Imaging: Applications for LiDAR and UAV Sourced Photogrammetry. Invited Talk, Virginia Polytechnic Institute and State University, Blacksburg, VA. 6 February.

Pingel, T.J. (2017). Geographic Information Science and Technology at Northern Illinois University. Invited Talk, Illinois Municipal Arc Users Group (iMAUG), St. Charles, IL. 6 December.

Pingel, T.J. (2017). Geographic Information Science and Technology at Northern Illinois University. Invited Talk, Northern Illinois Regional GIS Managers Meeting, St. Charles, IL. 17 October.

Pingel, T.J. (2017). Careers in Geography. Invited Talk, Sycamore High School, Sycamore, IL. 27 April. [[pptx](#)] [[pdf](#)]

Pingel, T.J. (2017). Terrain Processing and Visualization: Approaches and New Directions. Invited Talk, SUNY Geneseo, Geneseo, NY. 30 January. [[pptx](#)] [[pdf](#)]

Pingel, T.J. (2016). Contributing to Disaster Relief Efforts from Home: An Introduction to the Humanitarian OpenStreetMap Team. Huskie Hack, Northern Illinois University, DeKalb, IL. 5-6 November. [[pdf](#)] [[pptx](#)]

Bergman, D. and **Pingel, T.J.** (2016). Using LiDAR to Measure the Urban Forest in DeKalb, IL. City of DeKalb, DeKalb, IL. 20 May. [[pdf](#)] [[pptx](#)]

Pingel, T.J. (2016). Ready Figure One! Exploring Graphic Communication Trends in Geography. Invited Lecture for English 203D: Researched Writing in Society and Culture. Northern Illinois University, DeKalb, IL. 30 March. [[pdf](#)] [[pptx](#)]

Pingel, T.J. (2015). Helping Disaster Relief Efforts from Home: An Introduction to the Humanitarian OpenStreetMap Team. Explore! The Power of Maps: A Geography Awareness Week Symposium. Northern Illinois University, DeKalb, IL. 19 November. [[pdf](#)] [[pptx](#)]

Pingel, T.J. (2015). Bonemapping: A LiDAR Processing and Visualization Approach and Its Applications. National Geography Awareness Week Invited Lecture, Eastern Illinois University, Charleston, IL, 17 November. [[pdf](#)] [[pptx](#)]

Pingel, T.J. (2015). Bonemapping: A LiDAR Processing and Visualization Technique in Support of Archaeology Under the Canopy. Paper presented at Anthropology Department Brown Bag, Northern Illinois University, DeKalb, IL, 29 April. [[pdf](#)] [[pptx](#)]

Pingel, T.J. (2014). Exploring the Gendered Space of Attributes that Predict Expectations of Success in STEM. Paper presented at the Gender in STEM Research Symposium, DeKalb, IL, 19 September. [[pdf](#)] [[pptx](#)]

Pingel, T.J., & Schinazi, V.R. (2014). The Cognition of Scale in Human Search Problems and Wayfinding Strategy. Paper presented at AAG@NIU Brown Bag, Northern Illinois University, DeKalb, IL, 23 April.

Pingel, T.J. (2014). The Role of Scale and Strategy in Search Problems. Cognitive Psychology Research Group Brown Bag, Department of Psychology, Northern Illinois University, DeKalb, IL. 4 April. [[pdf](#)] [[pptx](#)]

Pingel, T.J. (2014). Geographic Information Systems, Cartography, and Geovisualization. Invited Lecture, Concepts in Geography, Department of Geography, Northern Illinois University, DeKalb, IL. 3 February.

Pingel, T.J. (2013). Mapping from Airborne Laser Scanners: Applied Techniques and Visualizations. Geography and Earth Science Department GIS Expo 2013, University of Wisconsin, La Crosse, La Crosse, WI. 6 December. [[pdf](#)] [[pptx](#)]

Pingel, T.J. (2012). Automation and Visualization in Geographic Immersive Virtual Environments. Department of Geography Colloquium, Northern Illinois University, DeKalb, IL, 12 October. [[pdf](#)] [[pptx](#)]

Pingel, T.J. (2012). Terrain Representation and Analysis. Department of Geography, Northern Illinois University, DeKalb, IL, 2 March.

Pingel, T.J. (2012). Cognitive and Computational Aspects of Human Movement Modeling. Department of Geography, Northern Illinois University, DeKalb, IL, 1 March.

Pingel, T.J. (2012). Accounting for Cognitive and Perceptual Biases in Computational Models of Human Movement. Department of Geosciences Colloquium, University of Arkansas, Fayetteville, AR, 10 Feb. [[pdf](#)] [[pptx](#)]

Pingel, T.J., Clarke, K.C., & McBride, W.A. (2011). Automation and Visualization in Immersive Geographic Virtual Environments. UCSB Spatial Cognition Research Group. Montecito, CA, 20 April. [[pdf](#)] [[ppt](#)]

Pingel, T.J. (2010). *Strategic Elements of Route Choice for Next Generation Digital Navigation Systems*. Department of Geography Colloquium, University of California, Santa Barbara, Santa Barbara, CA, 14 January. [[pdf](#)] [[ppt](#)]

Pingel, T.J., Loáiciga, H.A., & Garcia, E.S. (2008). UCSB Modeling of Climate Change and Sea Level Rise on the Oxnard Plain and Implications to Groundwater. Fox Canyon Groundwater Management Agency, Ventura, CA, 23 October.

Poster Presentations

Dressel, L., Hesser, T., and **Pingel, T.J.** 2023. Seeing Heat in 3D: The Role of Resolution and Reconstruction Method on Thermal Models. Poster presented at the Dennis Dean Undergraduate Research and Create Scholarship Conference. Blacksburg, VA. 28 April. [[pptx](#)] [[pdf](#)]

Karki, S., Flack, A., **Pingel, T.J.**, and Baird, T.D. 2023. Navigating the Indoor Frontier: Uncovering Movement and Occupancy Patterns with Terrestrial Lidar. Poster presented at the Virginia Tech OGIS Symposium Blacksburg, VA. 21 April. [[pptx](#)] [[pdf](#)]

Whitten, R., Singhal P., **Pingel, T.J.**, Ogle, J.T. 2023. Virtual Reality for Accurate and Efficient Classification of Point Clouds. Poster presented at the Virginia Tech OGIS Symposium Blacksburg, VA. 21 April. [[pptx](#)] [[pdf](#)]

Dressel, L., Hesser, T., and **Pingel, T.J.** 2023. Seeing Heat in 3D: The Role of Resolution and Reconstruction Method on Thermal Models. Poster presented at the Virginia Tech OGIS Symposium Blacksburg, VA. 21 April. [[pptx](#)] [[pdf](#)]

Prior, E.M., Czuba, J.A., **Pingel, T.J.**, Thomas, V.A., Wynne, V.A., Wynne, R.H., and Hession, W.C. 2023. Effects of Drone Lidar DEM Resolution and Flow Area Resolution on Hydrodynamic Modeling Results. Poster presented at the Virginia Tech OGIS Symposium, Blacksburg, VA. 21 April.

Schulte, A.N., Resler, L.M., Gielstra, D.A., **Pingel, T.J.**, and Shao, Y. 2023. Plant Successional Patterns at Sperry Glacier Foreland, Glacier National Park, MT, USA. Poster presented at the Virginia Tech OGIS Symposium, Blacksburg, VA. 21 April.

Carruthers, C. and **Pingel, T.** 2022. Point Cloud Processing and Visualization for Landscape Architecture. Poster presented at the Virginia Tech OGIS Symposium, Blacksburg, VA. 9 April. [[pptx](#)] [[pdf](#)]

Barua, G. and **Pingel, T.** 2022. Construction and Geovisualization of 3D Thermal Models of Urban Areas. Poster presented at the Virginia Tech OGIS Symposium, Blacksburg, VA. 9 April. [[pptx](#)] [[pdf](#)]

Lewis, C. and **Pingel, T.** 2022. Least Cost Path Modeling Between Inka and Amazon Civilizations. Poster presented at the Virginia Tech OGIS Symposium, Blacksburg, VA. 9 April. [[pptx](#)] [[pdf](#)]

Arredondo, J., Wilson, B., Granger, A., and **Pingel, T.** 2022. Three Low-Cost, Open-Source Sensor Platforms for Structure from Motion Photogrammetry and Mobile Lidar. Poster presented at the Virginia Tech OGIS Symposium, Blacksburg, VA. 9 April. [[pptx](#)] [[pdf](#)]

Karki, S., Wilson, B., Granger, A., Flack, A., Neal, C., Dressel, L., Carruthers, C., and **Pingel, T.** 2022. Indoor Mapping. Poster presented at the Virginia Tech OGIS Symposium, Blacksburg, VA. 9 April. [[pptx](#)] [[pdf](#)]

Sterling, C, Kormetis, L, **Pingel, T.**, and Winling, L. 2022. Use of Pycnophylactic Interpolation to Determine the Number of Households in Redlined Districts in Roanoke City, Virginia that Lack Complete Plumbing. Poster presented at the Virginia Tech OGIS Symposium, Blacksburg, VA. 9 April.

Sterling, C, Kormetis, L, **Pingel, T.**, and Winling, L. 2022. Use of Pycnophylactic Interpolation to Determine the Number of Households in Redlined Districts in Roanoke City, Virginia that Lack Complete Plumbing. Poster presented at the Virginia Public Health Association Annual Conference, Blacksburg, VA. 26 March.

Atkins, M. and **Pingel, T.** 2021. High Resolution 3D Modeling Using Oblique Imagery and Lidar Data. Poster presented at the Virginia Tech OGIS Symposium, Blacksburg, VA. 30 April. [[pptx](#)] [[pdf](#)]

Gonzales, J. and **Pingel, T.** 2021. Comparing UAS and Pole Photogrammetry for Monitoring Beach Erosion. Poster presented at the Virginia Tech OGIS Symposium, Blacksburg, VA. 30 April. [[pptx](#)] [[pdf](#)]

Teaching Programming in Geography and GIS. Co-Organizer and Chair. Panel held at the 2019 Annual Meeting of the American Association of Geographers. 7 April, Washington, D.C. [[abstract](#)]

Saavedra, A. and **Pingel, T.** (2018). Comparing the Accuracy of Surface Elevations Derived from Satellites and UAVs in the Yucatan Peninsula. Poster presented at the Society for Advancement of Chicanos/Hispanics & Native Americans in Science (SACNAS) Annual Conference, San Antonio, TX. 11-13 October.

Strader, S., Ashley, W., **Pingel, T.**, Krmenec, A. (2018). How Land Use Alters the Tornado Disaster Landscape. Poster presented at the American Meteorological Society 29th Conference on Severe Local Storms. Stowe, VT, 22-26 October. [[website](#)]

Mendez, M. & **T.J. Pingel**. (2018). Labeling Systems for 3D Printed Maps for People with Visual Impairments. Poster presented at 2018 Northern Illinois University Undergraduate Research and Artistry Day, DeKalb, IL, 18 April. [[pptx](#)] [[pdf](#)]

Isibue, E.W. & **T.J. Pingel**. (2017). Enhanced LiDAR Mapping for Merged Interior and Exterior 3D Modeling. Poster presented at 2017 Northern Illinois University Undergraduate Research and Artistry Day, DeKalb, IL, 25 April. [[pdf](#)]

Kondratowicz, R. & **T.J. Pingel**. (2017). Open Source Field Repairable 3D Printed Drone Design. Poster presented at 2017 Northern Illinois University Undergraduate Research and Artistry Day, DeKalb, IL, 25 April. [[pptx](#)] [[pdf](#)]

Isibue, E.W. & **T.J. Pingel**. (2017). Enhanced LiDAR Mapping for Merged Interior and Exterior 3D Modeling. Poster presented at the 31th Anniversary National Conference on Undergraduate Research, Memphis, TN, 6-8 April. [[pdf](#)]

Isibue, E. & **Pingel, T.J.** (2016). LiDAR Mapping for Merged Interior and Exterior 3D Modeling. Paper presented at 2016 World Congress on Undergraduate Research, Doha, Qatar, 13-15 November.

Pingel, T.J. (2016). *Hands On Learning: The Augmented Reality (AR) Sandbox*. Huskie Hack, DeKalb, IL, 5-6 November. [[pdf](#)] [[pptx](#)]

Pingel, T.J. (2016). A View of DeKalb and Sycamore via LiDAR. Map/Poster presented at 2016 Illinois Geographic Information Systems Association (ILGISA) Annual Meeting, Lisle, IL, 17-19 October.

Pingel, T.J. & S. Kelly. (2016). 3D Printed Maps for People with Visual Impairments. Poster presented at 2016 Northern Illinois University Excellence in Innovation Award Ceremony, DeKalb, IL, 20 April. [[pptx](#)] [[pdf](#)]

Isibue, E.W. & **T.J. Pingel**. (2016). LiDAR Mapping for Merged Interior and Exterior 3D Modeling. Poster presented at 2016 Northern Illinois University Undergraduate Research and Artistry Day, DeKalb, IL, 19 April. [[pptx](#)] [[pdf](#)]

Kondratowicz, R., Matson, L., LaDue, N., & **T.J. Pingel**. (2016). The Augmented Reality (AR) Sandbox. Poster presented at 2016 Northern Illinois University Undergraduate Research and Artistry Day, DeKalb, IL, 19 April. [[pptx](#)] [[pdf](#)]

Isibue, E.W. & **T.J. Pingel**. (2016). LiDAR Mapping for Merged Interior and Exterior 3D Modeling. Poster presented at the 30th Anniversary National Conference on Undergraduate Research, Asheville, NC, 7-9 April. [[pptx](#)] [[pdf](#)]

Isibue, E.W. & **T.J. Pingel**. (2016). LiDAR Mapping for Merged Interior and Exterior 3D Modeling. Poster presented at the Annual Meeting of the Association of American Geographers, San Francisco, CA, 29 March – 2 April. [[pptx](#)] [[pdf](#)]

Bergman, D.P. & **T.J. Pingel**. (2015). Using LiDAR to Measure the Urban Forest in DeKalb, Illinois. Poster presented at the Annual Meeting of the Association of American Geographers, Chicago, IL, 21-25 April. [[pptx](#)] [[pdf](#)]

Fiore, D.J., Gallaher, C. & **T.J. Pingel**. (2014). Mapping Urban Gardens. Poster presented at the Northern Illinois University Undergraduate Research and Artistry Day, DeKalb, IL, 22 April.

Haberlie, A.M., Ashley, W.S., & **T.J. Pingel**. (2014). Warm-Season Convective Initiation Climatology for the Atlanta, Georgia Region. Poster presented at the Northern Illinois University Graduate Student Research Conference, DeKalb, IL, 19 April.

Haberlie, A.M., Ashley, W.S., & **T.J. Pingel**. (2014). Method of Detecting Convective Initiation due to Differences in Land Cover. Poster presented at 94th American Meteorological Society Annual Meeting, Atlanta, GA, 2-6 February. [[pdf](#)]

Luo, W., **Pingel, T.**, Heo, J., Howard, A., & Jung, J. (2013). *A Progressive Black Top Hat Transformation Algorithm for Estimating Valley Volumes*. Poster presented at 2013 American Geophysical Union Fall Meeting, San Francisco, CA, 9-13 December. [[pdf](#)]

Pingel, T.J., & Clarke, K.C. (2010). *A Real-Time Immersive Virtual Reality Test-bed*. Poster presented at the 10th Annual Intelligence Community Postdoctoral Research Fellowship Program Colloquium, Tyson's Corner, VA, 27-29 April. [[pdf](#)] [[ppt](#)]

Loáiciga, H.A., & **Pingel, T.J.** (2008). *Assessment of Seawater Intrusion Potential from Sea Level Rise in the Coastal Aquifers of California*. Poster presented at Spatial@UCSB Annual Conference, Santa Barbara, CA, 29 May. [[pdf](#)] [[ppt](#)]

Datasets

Hession, W., Lehmann, L., Pingel, T., Czuba, J., Prior, E., Christensen, N., Kobayashi, Y., Resop, J. (2023). Virginia Tech StREAM Lab Winter 2021 Drone Lidar Survey. Distributed by OpenTopography. [10.5069/G9348HK3](https://doi.org/10.5069/G9348HK3)

Reports

Pingel, T.J. 2017. NIU Research and Artistry Grant Final Report. 3D Printed Maps for People with Visual Impairments.

Pingel, T.J. 2014. Illinois Geographical Society Research Grant Final Report: Empirical Testing of Perceptually Shaded Slope Maps. [[pdf](#)]

Pingel, T.J. & Clarke, K.C. 2013. A Real Time Immersive Virtual Reality Testbed - Project Completion Report (HMN1582-09-1-0013). [[pdf](#)]

Loáiciga, H.A., **Pingel, T.J.**, & Garcia, E.S. 2009. Assessment of Seawater Intrusion Potential from Sea-Level Rise in Coastal Aquifers of California. University of California Water Resources Center Salinity and Drainage Program Technical Completion Report, SD017. [[pdf](#)]

GRANTS AND FELLOWSHIPS

External Grants and Contracts Activity

- VITAL: Vegetation, Ice, and Topography swath Altimetric Lidar. Solicitation No: [NNH23ZDA0160](#), 22-00890, August 2023, Earth System Explorer (ESE) Mission. \$310M. Co-I with Lora Koenig (Lockheed Martin, PI) and Mike Willis (Virginia Tech, D-PI). 2023.
- DPAA Mission Designation 23-1SB and 23-4SB. International Research Institute / Defense POW-MIA Accounting Agency (#98170/1184218). Co-PI with Carl Lipo (PI). \$127,393. 2023.
- CIVIC-FA Track A: Youth-centered civic technology, science, and art for improving community heat resilience infrastructure. \$1,000,000. Senior Personnel with Theodore Lim (PI). National Science Foundation. 2023.
- [Civic Innovation Challenge](#): Youth-centered Civic Technology and Citizen Science for Improving Community Heat Resilience Infrastructure (#2228553). \$50,000. Co-PI with Theodore Lim (PI), and Naren Ramakrishnan, Julia Gohlke, Jacob Grohs, and Eric Wiseman (Co-PIs). National Science Foundation.
- Building Ecology: Examining Space/Place Dynamics in a Shared Indoor Environment ([#2149229](#)). \$349,924. Co-PI with Tim Baird (PI), Nicole Abaid, Elif Tural, David Franusich Co-PIs. Human-Environment and Geographical Sciences Program, National Science Foundation.
- CERF 2021 Design Competition. *Adapting Land Use and Development to Sea Level Rise in the City of Hampton*. Co-PI with Anamaria Bukvic (PI) and T. Lim and K. Moelter (Co-PIs). \$5,000. 2020.
- *Web Portal for the Collection, Processing, Storage, and Sharing of NOAA UAS Imagery*. NOAA. \$107,481 requested; not funded. Co-PI with M. Sporer (PI) and M. Wagner (Co-PI). 2020.
- National Science Foundation ([#1560045](#), [#1852290](#)). *Water Quality in the Yucatan Peninsula*. Senior Personnel. \$266,746. 2017-2018. Project Role: Leading an undergraduate research team (with Gilberto Acosta-Gonzales, Cátedra CONACYT-CICY) during the summer of 2018 to Puerto Morelos. Our project used UAVs to build better digital elevation and land use models of study sites.
- Resources for the Future. Macauley Award for Research Innovation and Advanced Analytics for Policy. Rice and International Water Resources: Economic Value of Local

and Regional Remote Sensing in Southeast Asia. Co-PI with Anna Klis (PI), Melissa Lenczewski, and Wei Luo. \$130,833 requested; not funded. 2017.

- DigitalGlobe Foundation. *Characterizing Tornado Strength from UAV Sourced Aerial Imagery and Point Clouds*. Principal Investigator. \$19,500. 2017.
- Illinois Geographical Society. *Consumer Grade RTK GPS Correction for Mobile LiDAR Point Cloud Generation*. Principal Investigator. \$500. 2016.
- National Oceanic and Atmospheric Administration (Social and Behavioral Sciences). Loading the disaster dice: How tornado risk and societal exposure are changing the Southeast disaster landscape. Co-PI with Walker Ashley, Stephen Strader, and Andrew Krmenc. \$107,742 requested; not funded. 2016.
- National Science Foundation (Division of Atmospheric and Geospace Sciences / Physical and Dynamic Meteorology). Loading the disaster dice: How changes in societal exposure and climatological risk will alter the tornado disaster landscape. Co-PI with Walker Ashley and Andrew Krmenc. \$499,997 requested; not funded. 2015.
- City of DeKalb. *Lidar-Based Automated Methods to Survey Parkway Trees in the City of DeKalb*. Principal Investigator. \$4,800. 2014-15.
- National Council for Geographic Education, Miller Geography Education Research Grant. *Anchor-Point Theory as the Basis for Global Scale Cognitive Map Development via Web Maps*. Principal Investigator. \$4,000. 2014.
- National Science Foundation (Geography and Spatial Sciences). Relating the Geographies of Exposure and Risk to Changes in the U.S Tornado Disaster Landscape: Past, Present, and Future. Co-PI with Walker Ashley and Andrew Krmenc. \$325,894 requested; not funded. 2014.
- Illinois Geographical Society. *Empirical Validation of Digital Surface Model Visualizations Derived from Airborne Laser Scanner Data*. Principal Investigator. \$500. 2013.
- National Science Foundation (Geography and Spatial Science). Urban agriculture as an adaptation to climate change: Increasing the resilience of human and natural systems in Malawi. Co-PI with Courtney Gallaher, David Mkwambisi and Wezi Mhango. \$414,275 requested; not funded. 2013.
- Northrop Grumman. *Geomorphic Topological Models*. Senior Personnel. \$14,600. 2012.

Institutionally Funded Research Grants

- Virginia Tech. Undergraduate Research Grant (Lindsay Dressel). Three-Dimensional Thermal Modeling Using UAVs. \$2500. 2022.
- Virginia Tech. University Libraries Collaborative Research Grant. Virtual Reality Point Cloud Classification with Applications to 3D Printed Multi-Modal Interaction Models. \$10,000. 2022.

- Virginia Tech. Institute for Society, Culture and Environment. Engaging Vulnerable Populations in Extreme Heat Resilience Planning Through Citizen Science and Co-Production of Knowledge. \$28,415. 2021.
- Northern Illinois University. Office of Student Engagement and Experiential Learning. 3D Printed Maps for People with Visual Impairments. \$3,283. 2017.
- Northern Illinois University. Division of Research and Innovative Partnerships. 3D Printed Maps for People with Visual Impairments. \$13,500. 2016.
- Northern Illinois University. Office of Student Engagement and Experiential Learning and College of Liberal Arts and Sciences. Travel funding for undergraduate researcher Earle Isibue attend Association of American Geographers Annual Conference in San Francisco, CA. \$1,941. 2016.
- Northern Illinois University. Office of Student Engagement and Experiential Learning. *Assessing the Impact of the Augmented Reality Sandbox on Topographic Map Reading*. \$3,000. 2016.
- Northern Illinois University. Lillian Cobb Faculty Travel Fellowships for International Teaching and Service. *UAVs and Lidar for Environmental Monitoring in Puerto Morelos, Mexico*. \$1,500. 2015.
- Northern Illinois University Undergraduate Research Assistantship. *Improving Maps for Disaster Relief*. Principal Investigator. \$1,500. 2014.
- Northern Illinois University Undergraduate Research Apprenticeship Program. *Development of Geographic Immersive Virtual Environments for the Assessment of New Maps Designed to Improve Crisis Response*. Principal Investigator. \$650. 2014.
- Northern Illinois University Undergraduate Research Apprenticeship Program. *Mapping Urban Gardens for Food Security*. Co-Principal Investigator. \$650. 2013.

Post-doc and Graduate Student Researcher Experience on Funded Projects

- National Geospatial Intelligence Agency. *A Real Time Immersive Virtual Reality Testbed*. Postdoctoral Research Fellow. \$239,974. 2010-2012.
- University of California Transportation Center. *Strategic Elements of Route Choice for Next Generation Digital Navigation Systems*. Principal Investigator. \$15,000. 2009-2010.
- University of California Water Resources Center. *Assessment of Seawater Intrusion Potential from Sea-Level Rise in Coastal Aquifers of California*. Graduate Student Researcher. \$62,822. 2007-2010.
- National Science Foundation. *Project Battuta: Collecting and Using Geospatial Data in the Field*, subcontract from Iowa State University. Graduate Student Researcher. \$700,000. 2001–2004.
- National Science Foundation. *American Environmentalism: Science or Religion?* Graduate Student Researcher. \$181,431. 2000-2001.

Awards and Honors

- Excellence in Innovation Award, Northern Illinois University Division of Research and Innovation Partnerships. 2016.
- NIU Men's Baseball Team Most Valuable Professor Award. 2015
- E. Willard and Ruby S. Miller Research Award, National Council for Geographic Education. 2014.
- Runner Up, Best Dissertation in Transportation Geography Award. Transportation Geography Specialty Group. 2011.
- Best Student Paper Award, UCGIS Summer Assembly, Santa Fe, New Mexico. 2009.
- University of California Regents Fellowship. University of California, Santa Barbara. 2007.
- Director's Award, Central Intelligence Agency. 2007.

PROFESSIONALLY ORIENTED SERVICE ACTIVITIES

Professional Service / Offices Held

- Organization and Planning Committee, AutoCarto 2022.
- President, President-Elect, Vice President, Board of Directors (2017-). Cartography and Geographic Information Society.
- Editorial Board, Remote Sensing (2019-)
- Cartographic Editorial Board, [Journal of Maps](#) (2014-).
- Regional Conference Planning Committee Member (2018). Illinois GIS Association.
- Education Committee Member (2017-18). Illinois GIS Association.
- Past Chair (2015-2016). Cartography Specialty Group, Association of American Geographers.
- Chair (2013-2015). Cartography Specialty Group, Association of American Geographers.
- Vice-Chair (2013). Cartography Specialty Group, Association of American Geographers.

Memberships

- United States Geospatial Intelligence Foundation (2017-)
- Cartography and Geographic Information Society (2016-)
- FAA Certified Part 107 Remote Pilot (2016-)
- Illinois GIS Association (ILGISA) (2014-)
- Association of American Geographers (2008-). Specialty Groups: Environmental Perception and Behavioral Geography, Cartography, Geographic Information Science and Systems, Remote Sensing, Spatial Analysis and Modeling, Transportation Geography.
- International Cartographic Association Commission on Cognitive Visualization (2012-).
- American Society for Photogrammetry and Remote Sensing (2013-).
- Illinois Geographical Society (2013-).
- Spatial Intelligence and Learning Center (2013-).
- National Council for Geographic Education (2014-).

UNIVERSITY ORIENTED SERVICE ACTIVITIES

Departmental Service (Virginia Tech)

- Geospatial Hire Search Committee Chair (2022-2023)
- Geospatial Hire Search Committee Chair (2021-2022)
- Faculty Development (2021-)
- Geography Degree Committee, Chair (2020-2021).
- Equipment and Facilities (2019-2021).
- Communications Committee (2018-2021).
- Faculty Search Committee (2018-2019).
- Graduate Committee (2018-2019).

College Service (Virginia Tech)

- Alumni Weekend
- Alumni Mapping
- DC Workshop on Environmental Security

University Service

- Commission on Faculty Affairs (Faculty Senate Representative), 2022-2025.
- Faculty Senate, CNRE / Geography Representative, 2021-present.
- Computing Facilities Advisory Committee Chair, 2016-2018.
- NIU Fencing Club, Faculty Advisor, 2014-2018.
- Computing Facilities Advisory Committee. 2013-2018.
- Huskie Hack. Main Committee, Community Outreach Committee, Coding Sub-Committee. 2015.
- Acceptable Use Subcommittee for CFAC. 2014-2015.
- Committee to form a Peace and Conflict Studies Certificate. 2015.
- CLAS. IT Director Search Committee. 2014.
- Undergraduate Research and Artistry Day Judge. 2014.

Departmental Service (NIU)

- GEOG Undergraduate Research Day. 2018. Chair.
- Undergraduate Advisor. 2016-2018.
- GIS Certificate Coordinator. 2016-2018.
- Advisor of Geography Club. 2012-2018.
- Media Relations Committee. 2016-2018.
- Web Development Committee. 2016-2018. Chair.
- Executive Committee (Alternate). 2016-2017.
- Colloquium Coordinator, 2015-16.

- Executive Committee, 2015-16.
- Curriculum Committee, 2014-16.
- Admissions Committee. 2013-15.
- STEMfest Committee, Display Design, Volunteer. 2012-.
- Equipment Committee. 2012-2013.

TEACHING

Current Direction of Dissertations, Theses, or Equivalent

- **Addison Flack. Advisor for MS at Virginia Tech, Geography. Indoor Geography: Topic TBD.**
- Mohammed Albarrak. Committee member for PhD at Virginia Tech, Urban and Environmental Design. The impact of implementing smart growth policies and strategies as an approach to control urban sprawl in Riyadh, Saudi Arabia.
- **Shashank Karki. Advisor for MS at Virginia Tech, Geography. Indoor Geography: Using lidar to monitor behavior, movement, and resource use.**
- Charles Sterling. Committee member for PhD at Virginia Tech. Linking demographics and community drinking water access in the American South.
- Johanna Arredondo. Committee member for PhD at Virginia Tech. Using Lidar for Hiking Trail Design and Management.

Completed Direction of Dissertations, Theses, or Equivalent

- Ami Schulte. Committee member for MS at Virginia Tech, Geography. Plant Successional Patterns at Sperry Glacier Foreland, Glacier National Park, MT, USA. 2023.
- **Gunjan Barua. Advisor for MS at Virginia Tech. Understanding perception of different urban thermal model visualizations. Sigma Xi Research Award Winner 2022. 2023.**
- Fletcher Meadema. Committee member for PhD at Virginia Tech. Using Lidar for Hiking Trail Design and Management. 2023.
- **Colleen Lewis. Advisor for MS at Virginia Tech. Least Cost Path Modeling Between Inka and Amazon Civilizations. 2022.**
- Shakira Stackhouse. Committee member for MS at Virginia Tech. Evaluating the Skillfulness of the Hurricane Analysis and Forecasting System (HAFS) and the Basin-Scale Hurricane Weather Research and Forecasting (HWRF-B) Model Forecasts for Tropical Cyclone Precipitation using an Object-Based Methodology. 2022.
- Maxwell Dillon. Master of Arts in Urban and Regional Planning at Virginia Tech. Linking GIS, youth environmental literacy, and city government functions to define and catalyze community heat resilience planning in Roanoke, VA. Committee Member. 2022.
- **Sam Carani. Virginia Tech. Advisor MS degree awarded 2021.** Sam was a [2020 USGIF Scholarship Award Winner](#) and a [2021 Esri Innovation Program](#) winner.
- **Jack Gonzales. Virginia Tech. Advisor. MS degree awarded 2021.**

- **Jim Young, Virginia Tech. Advisor. MS degree awarded 2021.**
- Xuezhi Cang, NIU. Committee Member. PhD degree awarded 2021.
- Peter Forister. Virginia Tech. Committee Member. MS degree awarded 2021.
- Charles Aquilina. Committee Member. MS degree awarded 2020.
- **Hudson Chase. Advisor. MS degree awarded 2020.**
- Eric West, Committee Member. MS degree awarded 2020.
- Molly McKnight, Committee Member. MS degree awarded 2020.
- Ryley Harris, Committee Member. MS degree awarded 2020.
- Yanshen Sun, Committee Member. MS degree awarded 2019.
- Sammy Mallow, Committee Member. MS degree awarded 2019.
- Shallu Prasher, Committee Member. MS degree awarded 2019.
- **Earle Isibue, Advisor. MS degree awarded 2019.**
- Anil Shrestha, Committee Member. PhD degree awarded 2018.
- Hannah Eboh, Committee Member. MS degree awarded 2018.
- Justin Moore, Committee Member. MS degree awarded 2018.
- Alex Haberlie, Committee Member. PhD degree awarded 2018.
- Kory Allred, Committee Member. PhD degree awarded 2017.
- Jessica Ritsche. Committee Member, MS degree awarded 2016.
- Kelli Hamilton. Committee Member. PhD degree awarded 2016.
- Stephen Strader, Committee Member. PhD degree awarded 2016.
 - Winner, AAG Garrison Award for Best Dissertation in Computational Geography.
- Ashley Irizarry, Committee Member. MS degree awarded 2016.
- Kyle Whalley, Committee Member. MS degree awarded 2016.
- **Dustin Bergman, Advisor, MS degree awarded 2016.**
- Andres Florez, Committee Member. MS degree awarded 2015.
- Walter Furness, Committee Member. MS degree awarded 2015.
- **Alex Haberlie, Co-Advisor. MS degree awarded 2014.**
 - Winner, NIU Outstanding Thesis Award.

Undergraduate Research Direction (2021-)

- Laura Bordelon (2022-)
- Cole Jackson (2022-)
- Lindsay Dressel (2022-)
- Cameron Neal (2021-)
- Andrea Granger (2021-)
- Kooper Howerter (2021-)
- Chandler Carruthers (2021-)
- Addison Flack (2021)
- Howerter Kooper (2021)
- Grace Fernandez (2021)
- Maya Atkins (2020-2021)

Courses

- **Fall 2019**
 - Thesis Credits (12: 9/2/1)
- **Spring 2019**
 - GEOG 4314/5314 – Analysis in GIS
- **Fall 2018**
 - GEOG 4984/5984 – Geovisualization
- **Spring 2018**
 - GEOG 202 – World Regional Geography
 - GEOG 459/559 – Geographic Information Systems
- **Fall 2017**
 - GEOG 459/559 – Geographic Information Systems
 - GEOG 493/593 – Computer Programming for the Geospatial and Atmospheric Sciences
 - GEOG 391 – Internship (Marissa Nowakowski and Samuel Millard)
- **Summer 2017**
 - GEOG 391 – Internship (Danielle Taylor)
- **Spring 2017**
 - GEOG 202 – World Regional Geography
 - GEOG 459/559 – Geographic Information Systems
 - GEOG 602 – Internship (Kory Allred)
 - GEOG 602 – Internship (Kai Funahashi)
- **Fall 2016**
 - GEOG 459/559 – Geographic Information Systems
 - GEOG 493/593 – Computer Methods and Modeling
 - GEOG 771 – Independent Study (Alex Haberlie, Hannah Eboh)
 - Research Rookie: Earle Isibue
- **Summer 2016**
 - GEOG 771 – Independent Study (Margaret Buehler)
- **Spring 2016**
 - GEOG 202 – World Regional Geography
 - GEOG 459/559 – Geographic Information Systems
 - GEOG 600 – Colloquium Coordinator
 - GEOG 771 – Independent Study (Shane Eagan)
 - Research Rookie: Earle Isibue
 - Office of Student Engagement and Experiential Learning: Rob Kondratowicz
- **Fall 2015**
 - GEOG 202 – World Regional Geography
 - GEOG 493/593 – Computer Methods and Modeling
 - GEOG 600 – Colloquium Coordinator
 - GEOG 391 – Internship (Miguel Morales)
 - Research Rookie: Earle Isibue
- **Summer 2015**
 - City Project – Steve Charlton
- **Spring 2015**
 - GEOG 459/559 – Geographic Information Systems

- GEOG 202 – World Regional Geography
- GEOG 758 – Directed Readings (Stephen Strader)
- GEOG 491 – Honor Capstone Project (Edward Whalen)
- GEOG 602 – Internship (Steven Spradling)
- Undergraduate Research Assistant Program (Steve Wargaski)
- City of DeKalb Project (Miguel Morales & Steve Wargaski)
- **Fall 2014**
 - GEOG 493/593 – Computer Methods and Modeling
 - GEOG 202 – World Regional Geography
 - GEOG 602 – Internship (Tim Hodson)
 - Undergraduate Research Assistant (James Huske)
 - City of DeKalb Project (Miguel Morales)
- **Summer 2014**
 - Geography 202 – World Regional Geography
 - GEOG 771 - Independent Study (Tim Hodson)
- **Spring 2014**
 - GEOG 458/558 – Geovisualization
 - GEOG 498K/790K - Web Mapping
- **Fall 2013**
 - GEOG 202 – World Regional Geography
 - GEOG 493/593 – Computer Methods and Modeling
 - Undergraduate Research Apprenticeship Program (Donald Fiore)
- **Spring 2013**
 - GEOG 202 – World Regional Geography.
 - GEOG 498J/790J - Web Mapping.
 - GEOG 771 - Independent Study (Alex Haberlie)
- **Fall 2012**
 - GEOG 202 - World Regional Geography.
 - GEOG 498K/790K - Introduction to Programming in Geography.

PROFESSIONAL DEVELOPMENT

Research

- ESRI Federal GIS Conference, January 29-30, 2019.
- Lucy Deckard, Grant Writing Seminar, Academic Research Funding Strategies, 2017.
- Part 107 Certified Remote Pilot, 2016; recertified 2018.
- Python Programming Workshop, Illinois GIS Association, 2016.
- NIU Principal Investigator Academy, 2013-2014.
- Participated in Developing and Writing Competitive Research Proposals Workshop @ NIU, November 1, 2013.
- Current Trends in Quantitative Methods in the Social Sciences. July 10-11, 2013.
- Leverage the Power of 3D GEOINT. TerraGo. May 7, 2013

- Promotion & Tenure Workshop. Office of the CLAS Dean. April 18, 2013.
- Learn Computer Vision with MATLAB. Mathworks Webinar. October 21, 2012
- Parallel Computing with MATLAB on Multicore Desktops and GPUs. Mathworks Webinar. June 9, 2012
- New Faculty Forum & College of Liberal Arts & Sciences Orientation. Faculty Development and Instructional Design Center & CLAS, NIU. August 23, 2012.

Teaching

- McGraw-Hill Geoscience Workshop. February 21, 2014.
- Fall 2013 Teaching Effectiveness Institute - Meta-Learning: Building Self-Directed Learners. August 16, 2013.
- Fall 2013 Teaching Effectiveness Institute - Using Formative Feedback to Drive Student Learning. August 16, 2013.
- Preview of New Features Coming to Blackboard, Faculty Development and Instructional Design Center. April 24, 2013.
- Promotion & Tenure Workshop. Office of the CLAS Dean. April 18, 2013.
- Simple PowerPoint Tricks to Improve Learning, Faculty Development and Instructional Design Center. February 25, 2013.
- New Faculty Forum & College of Liberal Arts & Sciences Orientation. Faculty Development and Instructional Design Center & CLAS, NIU. August 23, 2012.