Garrett C. Millar

UX / HCI Researcher ‖ Geospatial Scientist

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EDUCATION

📅 2018 — Present	**Doctorate of Philosophy: Geospatial Analytics**
	📍 North Carolina State University, Raleigh, NC, US
	👤 Advisor: Dr. Helena Mitasova
📅 2016 — 2018 [1]	**Doctorate of Philosophy: Human Factors & Applied Cognition**
	📍 North Carolina State University, Raleigh, NC, US
	👤 Advisor: Dr. Roger Azevedo
📅 2012 — 2016	**Bachelor of Arts: Psychology**
	📍 North Carolina State University, Raleigh, NC, US

EXPERIENCE

Graduate Research & Teaching Assistant

📅 August 2017 Present

📍 Center for Geospatial Analytics – Geovisualization Lab — College of Natural Resources — NCSU

👤 Advisor: Dr. Helena Mitasova   👤 Supervisor: Dr. Ross Meentemeyer

Research Assistant

Designing, implementing, and assessing innovative technologies and applications for representing spatial data to inform critical decision-making and deliver actionable solutions for real-world geospatial problems.

- **Tangible Landscape**
  - Lead User Experience and Human-Computer Interaction researcher of open source tangible geospatial interface powered by GRASS GIS. [tangible-landscape.github.io]
- **GRASS GIS wxGUI development**
  - Development work focusing on tools for visualization and new GUI and startup-screen features to enable intuitive software use for all user levels. [en.wikipedia.org/wiki/GRASS]
- **United States Department of Agriculture - Animal and Plant Health Inspection Service**
  - Co-leading User Experience and Human-Computer Interaction research on PoPS (Pest or Pathogen Spread Model)a framework for modeling the spread of pests or pathogens across a landscape. [popsmodel.org]
- **Geospatial Applications for Problem Solving (GAPS) Project**
  - Lead researcher for the evaluation of the GAPS program, which introduces high school students to geospatial science, GIS, and advanced geovisualization technologies in an after-school STEM learning experience. [gaps.cnr.ncsu.edu]

Teaching Assistant

Provided teaching assistance for the following courses:

- **GIS 205 Spatial Thinking with GIS** (70 students)
- **GIS 501 Geospatial Professionalism** (16 students)
- **GIS 582 Geospatial Modeling** (20 students)
- **GIS 595 Tools for Open Geospatial Science** (9 students)

Graduate Research Assistant

📅 January 2018 January 2019

📍 Teacher Education and Learning Services College of Education — NCSU

👤 Advisor: Dr. Michael Evans

- **GAPS Project**
  - Lead evaluative researcher and grant proposal writer for the GAPS program.

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[1] Transferred from Human Factors & Applied Cognition to Geospatial Analytics February 2018.

Graduate Research Assistant

📅 August 2016 May 2017

📍 Laboratory for the Study of Metacognition & Advanced Learning Technologies Department of Psychology — HFAC — NCSU

👤 Advisor: Dr. Roger Azevedo

- **MetaTutor IVH Project**
  - Designing and testing an intelligent multi-agent hypermedia system which collects multi- channel self-regulated learning data (e.g., eye-tracking, log-files, facial expressions of emotions) to help foster college students STEM learning.
- **CRYSTAL ISLAND**
  - Working with faculty members and research associates in Computer Science to design studies to examine how students learn from game-based learning environments built to teach students about science and literacy.
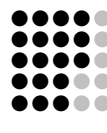- **Tangible Landscape Project**

SKILLS

Programming

Python	●●●●○
Javascript	●●●●○
LaTeX	●●●●○
CSS	●●●●○
HTML	●●●●○
R	●●●●○
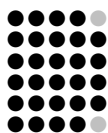
GIS

ArcGIS	●●●●●
GRASS GIS	●●●●●
QGIS	●●●●●
GDAL / OGR	●●●○○
PostGIS	●●●○○
Leaflet	●●●●○

Graphics

Photoshop	●●●●○
Illustrator	●●●●○
Lightroom	●●●●○
Indesign	●●●○○
Blender	●●●○○

Statistics

Multivariate Models	●●●○○
Mixed Models	●●●○○
Spatial Statistics	●●●●○
SPSS	●●●●○
SAS JMP	●●●●○
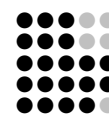
EDITORIAL EXPERIENCE

Journals

Computers, Environment & Urban Systems

Special Issue: *Advances in portable sensing methodologies for urban environments: Understanding cities from a mobility perspective.*

PUBLICATIONS

Book Chapters

Azevedo, R., **Millar, G. C.**, Taub, M., Mudrick, N. V., Bradbury, A. E., & Price, M. J. (2017). Using data visualizations to foster emotion regulation during self-regulated learning with advanced learning technologies. *Informational Environments* (pp. 225-247). Springer, Cham.

Manuscripts

Millar, G. C., Mitas, O., Boode, W., Hoeke, L., de Kruijff, J., Mitasova, H. (2020). Space-time Analytics of Human Physiology for Urban Planning. *Computers, Environment and Urban Systems.*

Mitas, O., Mitasova, H., **Millar, G. C.**, Boode, W., Neveu, V., Hover, M., van den Eijnden, F., Bastiaansen, M. (2020). More is Not Better: The Emotional Dynamics of an Excellent Experience. *Journal of Hospitality Tourism Research.*

Taub, M., Azevedo, R., Bradbury, A. E., **Millar, G. C.**, Lester, J. (2018). Using sequence mining to reveal the efficiency in scientific reasoning during STEM learning with a game-based learning environment. *Learning & Instruction*, 54, 93-103.

Taub, M., Mudrick, N. V., Azevedo, R., **Millar, G. C.**, Rowe, J., Lester, J. (2017). Using multi-channel data with multi- level modeling to assess in-game performance during gameplay with Crystal Island. *Computers in Human Behavior*. 641-655.

Refereed Conference Proceedings

Millar, G. C., Tabrizian P., Petrasova A., Petras V., Harmon B., Mitasova H., Meetenmeyer R. K. (2018). Tangible landscape: A hands-on method for teaching terrain analysis. In Proceedings of the 2018 chi conference on human factors in computing systems (pp. 380:1380:12). New York, NY, USA: ACM. [**Winner of the Honorable Mention for Best Paper Award**]

Azevedo, R., **Millar, G. C.**, Taub, M., Mudrick, N. V., Bradbury, A. E., Price, M. J. (2017). Using data visualizations to foster emotion regulation during self-regulated learning with advanced learning technologies: a conceptual framework. In X. Ochoa, I. Molenaar, S. Dawson (Eds.), Proceedings of the 7th International Conference on Learning Analytics Knowledge: Understanding, Informing, and Improving Learning (pp. 444-448). New York, NY: ACM.

Pryor, M., **Millar, G. C.**, McNamara, A., Kaufman, L., McLaughlin, A. C. (2017, September). Creating Content Guidelines for Consistent Display of Information on an Ecommerce Website. In Proceedings of the Human Factors and Ergonomics Society Annual Meeting (Vol. 61, No. 1, pp. 1834-1838). Sage CA: Los Angeles, CA: SAGE Publications. Azevedo, R., Martin, S. A., Taub, M., Mudrick, N., **Millar, G. C.**, Grafsgaard, J. (2016).

Azevedo, R., Martin, S. A., Taub, M., Mudrick, N. V., **Millar, G. C.**, Grafsgaard, J. F. (2016, June). Are pedagogical agents external regulation effective in fostering learning with intelligent tutoring systems? In international conference on intelligent tutoring systems (pp. 197-207). Springer, Cham. **[Winner of the Best Conference Paper Award]**

Presentations

Millar, G. C., Mitas, O., Mitasova, H. Stress3d: Mapping cyclists physiological responses to inform urban planning. *14th Annual NC State University Graduate Student Symposium.*; Raleigh, NC.

Millar, G. C. *People & the Environment: Geo-analytical Guidelines for Measuring Environmental Interaction.* Talk Presented as Visiting Scholar at Harvard University Center for Geographic Analysis and Harvard School of Public Health; Harvard University, September 2019, Boston, MA.

Millar, G. C., Money, E. S., Bunds, K. S., Mitasova, H., (2018). Increasing underrepresented high school students stem career awareness and interest: An informal geospatial science program. In AGU Fall Meeting Abstracts.

Millar, G. C., Tabrizian, P., Petrasova, A., Petras, V., Harmon, B., Mitasova, H., Meentemeyer, R. K. (2018). Hands-on Methods for Teaching Landscape Form and Processes. In US-IALE Spring Meeting Abstracts.

Petrasova, A., Tabrizian, P., Harmon, B. A., Petras, V., **Millar, G. C.**, Mitasova, H., Meentemeyer, R. K. (2017). Learning topography with Tangible Landscape games. In AGU Fall Meeting Abstracts.

Pryor, M., **Millar G. C.**, McNamara, A., Kaufman L., McLaughlin A. C., (2017). Creating content guidelines for consistent display of information on an ecommerce website. Paper presented at the annual meeting of the Human Factors and Ergonomics Society, Austin, TX.

Azevedo, R., Mudrick, N. V., Taub, M., **Millar, G. C.**, Bradbury, A. E., Price, M. J. (2017). Examining cognitive, metacognitive, and affective processes during multimedia learning with an intelligent virtual human. Paper presented at the biennial meeting of the European Association for Research on Learning and Instruction (EARLI), Tampere, Finland.

Azevedo, R., Taub, M., Mudrick, N. V., **Millar, G. C.**, Bradbury, A. E., Price, M. J. (2017). Measuring, analyzing, and inferring temporally unfolding self-regulatory processes from multimodal data. Paper presented at the biennial meeting of the European Association for Research on Learning and Instruction (EARLI), Tampere, Finland.

Mudrick, N. V., Azevedo, R., Taub, M., **Millar, G. C.**, Price, M. J., Bradbury, A. E., Grafsgaard, J. F. (2017). Physiological indicators of critical affective processes during multimedia learning with a virtual human. Paper presented at the biennial meeting of the European Association for Research on Learning and Instruction (EARLI), Tampere, Finland.

Taub, M., Azevedo, R., Bradury, A. E., **Millar, G. C.**, Price, M. J., Mudrick, N. V. (2017). Using sequence mining to measure students SRL and scientific reasoning during learning with a game-based learning environment. Paper presented at the biennial meeting of the European Association for Research on Learning and Instruction (EARLI), Tampere, Finland.

Pryor, M., **Millar G. C.**, McNamara, A., Kaufman L., McLaughlin A. C., (2017). Using Signal Detection Theory to Quantify Effects of Changes in Ecommerce Websites. Poster presented at the first annual Southeastern Human Factors Applied Research Conference (SHARC), Raleigh, NC.

Azevedo, R., Taub, M., Mudrick, N. V., Grafsgaard, J. F., **Millar, G. C.**, Price. M. (2017). Understanding and reasoning about cognitive, metacognitive, and affective processes used during complex learning with advanced learning technologies. Paper presented at the annual meeting of the American Educational Research Association (AERA), San Antonio, TX.

Azevedo, A., **Millar, G. C.**, Taub, M., Mudrick, N. V., Bradbury, A. E., Price, M. J. (2017). Using data visualizations to foster emotion regulation during self-regulated learning with advanced learning technologies: A conceptual framework. Paper presented at the 7th International Conference on Learning Analytics Knowledge Conference, Vancouver, BC, Canada.