

# Nicholas Grokhowsky, PhD

202 Bromfield Way, Cary, NC 27519

(561) 305-9239 · [nickgrok@gmail.com](mailto:nickgrok@gmail.com) · [linkedin.com/in/nickgrok](https://www.linkedin.com/in/nickgrok) · [github.com/nickgrok](https://github.com/nickgrok) · [nickgrok.com](https://nickgrok.com)

## EDUCATION

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<b>Doctor of Philosophy in Geospatial Analytics</b> <i>North Carolina State University, Raleigh, North Carolina</i> Dissertation: "Spatiotemporal analysis of innovation using an automated publication screening" Advisor: Dr. Helena Mitsova	July 2024
<b>Graduate Certificate in Computer Programming</b> <i>Harvard University, Cambridge, Massachusetts</i>	January 2019
<b>Master of Science in Geomatic Sciences</b> <i>University of Florida, Gainesville, Florida</i> Advisor: Dr. Hartwig Hochmair	December 2018
<b>Graduate Certificate in Geospatial Analysis</b> <i>University of Florida, Gainesville, Florida</i>	June 2018
<b>Bachelor of Art in Interdisciplinary Social Sciences</b> <i>Florida Atlantic University, Boca Raton, Florida</i>	December 2005

## RESEARCH INTEREST

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My interests are in exploring the intersection of informatics, spatiotemporal analyses, and automation to improve decision-making and efficiencies across industry, the environment, and societal advancement.

## RESEARCH EXPERIENCE

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### Doctoral Researcher

August 2020 - July 2024

*North Carolina State University*

Raleigh, North Carolina

- Developed and validated a novel methodology to measure knowledge spillovers and quantify innovation within a targeted industry/research field.
- Enhanced existing productivity models by incorporating direct and indirect production measures across temporal and spatial dimensions.
- Developed an NLP application to automatically extract relevant data from published texts, enabling efficient and scalable analysis.
- Created a web application to automate the methodology and disseminate it to teams, organizations, and the public, promoting wider accessibility and usage.
- Applied the developed application and methodology to analyze innovation diffusion in diverse temporal and spatial contexts, demonstrating its versatility and effectiveness.
- Presented the results of this methodology applied to public health research to a scientific and non-scientific audience, including decision makers at the U.S. EPA assist with their research decision making process.

## **ORISE Fellow**

November 2020 - April 2023

*U.S. Environmental Protection Agency*

Durham, North Carolina

- Designed and executed a research project leveraging high-resolution satellite imagery to assess chemical contaminant concentrations and dispersions within a 50-mile radius of a West Virginia chemical production facility.
- Collaborated with an interdisciplinary team to investigate the influence of environmental factors on chemical contamination, with a focus on lead (Pb) and PFAS. Utilized statistical and machine learning methods to analyze data across various U.S. regions.
- Analyzed diverse datasets, including satellite imagery, sociodemographic and economic data, and anonymized health records, to identify correlations between environmental factors and chemical contamination. This work contributed to the publication of multiple peer-reviewed scientific papers.
- Developed and implemented quality assurance protocols for data collection and analysis, ensuring the scientific integrity of research findings. Maintained meticulous documentation and employed effective communication strategies to disseminate research results.

## **Data Manager**

July 2019 - November 2020

*U.S. Environmental Protection Agency, ORAU*

Durham, North Carolina

- Managed data processing and storage for a sensitive health study on childhood elevated blood lead levels (EBLL) in Michigan.
- Ensured data quality and representativeness through rigorous testing, contributing to the final analysis and publication of research findings.
- Independently researched perfluoroalkyl substances (PFAS), developing and implementing a novel data extraction and storage methodology to estimate PFAS levels nationwide.

## **TEACHING EXPERIENCE**

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### **Graduate Teaching Assistant**

Spring Semester of 2022

*North Carolina State University, Center for Geospatial Analytics*

Raleigh, NC

- Collaborated with the professor to deliver a graduate-level data management course covering geodatabases, ESRI server platform products (PaaS), and SQL databases.
- Curated and graded assignments, ensuring timely feedback and addressing student inquiries.
- Provided guidance and support to students throughout the course, fostering a positive learning environment.

## Student Assistant

Spring Semester of 2018

ESRI

Palm Springs, CA

- Collaborated with software engineering and data science teams to provide exceptional front-end service and support to ESRI clients.
- Facilitated ESRI presentations, showcasing products and solutions to diverse audiences.
- Cultivated a robust professional network through extensive engagement with thousands of data scientists, software engineers, and GIS specialists.

## PUBLICATIONS

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### Published:

Grokhowsky, Nicholas, An Inferential Spatiotemporal Approach for Knowledge Synthesis to Identify Trends in Public Health Research. Available at SSRN: <https://ssrn.com/abstract=4610131> or <http://dx.doi.org/10.2139/ssrn.4610131>

Stanek LW, Grokhowsky N, George BJ, Thomas KW. Assessing lead exposure in U.S. pregnant women using biological and residential measurements. *Sci Total Environ*. 2023 Dec 20;905:167135. doi: 10.1016/j.scitotenv.2023.167135. Epub 2023 Sep 21. PMID: 37739076.

Xue J, Zartarian V, Tornero-Velez R, Stanek LW, Poulakos A, Walts A, Triantafillou K, Suero M, Grokhowsky N. A Generalizable Evaluated Approach, Applying Advanced Geospatial Statistical Methods, to Identify High Lead Exposure Locations at Census Tract Scale: Michigan Case Study. *Environ Health Perspect*. 2022 Jul;130(7):77004. doi: 10.1289/EHP9705. Epub 2022 Jul 27. PMID: 35894594; PMCID: PMC9327739.

Grokhowsky, Nicholas. 2022. Identifying bias in childhood blood lead research using natural language processing. [Poster]. CURISA: NC GIS Conference Poster Session. 2021.

DeLuca N, Mullikin A, Slover R, Thomas K, George B, Stanek L, Grokhowsky N, Hubal E. Geographic and Demographic Variability in Serum PFAS Concentrations for Pregnant U.S. Women. *Environ Health Perspect*. [Conference presentation abstract]. 2021;1

## PROFESSIONAL EXPERIENCE

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### Senior Risk Analyst, Catastrophic Risk Modeler

May 2024 - Present

*Risk Placement Services, Inc.*

Raleigh, NC

- Developed and delivered catastrophe risk analysis models to insurance professionals, enabling data-driven decisions for pricing, claims, and sales strategies.
- Effectively communicated complex model outputs and inputs to diverse audiences including brokers, agents, and administrators, facilitating understanding and adoption.
- Reduced report turnaround times by 50% through the automation of key processes, significantly improving efficiency.
- Enhanced data cleansing efficiency by implementing an AI-powered toolkit, leading to more accurate and reliable data analysis.
- Generated significant cost savings for the department by developing and deploying customized software applications.

## **Catastrophic Risk Analyst**

April 2023 - February 2024

*IAT Insurance Group*

Raleigh, NC

- Utilized data analytics and catastrophic risk modeling software to assess financial risk associated with catastrophic events (i.e., wildfire, tropical cyclone, earthquake, and severe thunderstorm).
- Designed and developed tropical cyclone and wildfire tracking software applications to enhance productivity for the catastrophic risk management team, underwriting departments, and claims department.
- Reviewed and communicated findings from climate change studies and highlighted their implications for the insurance industry.
- Automated analysis processes by integrating API's for risk analysis software, and by streamlining data retrieval and analysis for enhanced efficiency and accuracy.
- Customized methods for calculating exceedance probability to develop a customized view of risk.

## **Strategic Account Specialist**

May 2017 - July 2020

*American Insurance Advisers*

Boca Raton, FL

Successfully expanded the client base by approximately 50% by proactively researching and targeting industries not typically pursued by the firm. This strategic approach resulted in the generation of significant premiums from new industries, contributing to a remarkable 25% increase in the firm's overall revenue.

## **Managing Director**

February 2012 - May 2017

*American Insurance Advisers*

Boca Raton, FL

Spearheaded the development of management systems aimed at reducing expenses by approximately 20%, while simultaneously enhancing service and sales efficiency. Led and coached teams of up to 8 employees, providing guidance and support in sales, service, and marketing systems to ensure optimal performance and alignment with organizational goals.

## **Insurance Producer**

Sept. 2008 - February 2012

*American Insurance Advisers*

Boca Raton, FL

Achieved outstanding results by generating \$500,000 in sales from high net worth clientele within the first year of assuming the position. Leveraged extensive networking efforts with local businesses across diverse industries to gain insights into their insurance needs and effectively target specific business clientele.

## TECHNICAL SKILLS

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**Programming languages:** Java, Python, C++, R, SAS, JavaScript, C#, MongoDB, SQL

**Visualization tools:** Photoshop, InkScape, Blender, Kepler, Tableau, Leaflet, RawGraphs, HTML, & CSS

**GIS:** ArcGIS and ArcPro, GrassGIS, QGIS, GeoPandas, Rasterio, Shapley, GDAL, Google Earth Engine, Harris Geospatial ENVI

**Other:** Windows OS, Linux OS, Mac OS, CAD, Certified Scrum Master (CSM), Property & Casualty (2-20), Life, Health & Variable Annuities (2-15); Verisk Touchstone; Verisk TouchstonRe; RMS Risk Manager

## HONORS & AWARDS

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Eagle Scout with the Boy Scouts of America (1998)

## REFERENCES

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**Lindsay Stanek, Branch Chief**

*U.S. Environmental Protection Agency, Center for Public Health and Environment*

(919) 541-7792, [stanek.lindsay@epa.gov](mailto:stanek.lindsay@epa.gov)

**Helena Mitasova, Associate Director of Earth and Environmental Sciences Applications**

*North Carolina State University*

919-513-1327, [hmitaso@ncsu.edu](mailto:hmitaso@ncsu.edu)

**Andrew Lindstrom, Research Physical Scientist**

*Retired, U.S. Environmental Protection Agency, National Exposure Research Laboratory*

919-541-0551, [ablindstrom@gmail.com](mailto:ablindstrom@gmail.com)

**Hartwig (Henry) Hochmair, Professor of Geomatics**

*University of Florida*

(954) 577-6317, [hhochmair@ufl.edu](mailto:hhochmair@ufl.edu)

**Adam Benjamin**

*Geospatial Data Scientist, Unacast*

(401) 741-7801, [adam.benjamin1@gmail.com](mailto:adam.benjamin1@gmail.com)