Raanan Gurewitsch, BPhil

An experienced data scientist and developer with a passion for civic innovation and established track record of leading and executing successful data science and product development projects that drive operational efficiency and communicate effectively to non-technical, public sector stakeholders; a strategic decision-maker with a desire to apply my skills, experience, and education with an innovative, mission-driven organization.

CORE STRENGTHS

- ♦ Python programming
- ♦ Geospatial data science
- ♦ Data visualization/story maps
- ♦ Machine learning
- ♦ Open data platforms and APIs
- ♦ Product management
- ♦ Leadership and strategy
- ♦ Client-facing experience
- ♦ Data science communication
- ♦ Public speaking

HIGHLIGHTS

- Developed lead water service line inventories for **10+ municipal and privately-owned utility clients** to ensure compliance with US EPA Lead and Copper Rule.
- Built human-in-the-loop machine learning platform to streamline data ingestion, modeling, inference and delivery to 50+ utility customers, **reducing per-customer costs by 70%** over two years.
- Work on machine learning for lead service line replacement cited in prominent media outlets, industry white papers and official state policy.
- Managed early engineering team as employee number 5 at a data analytics startup.
- Developed first-of-its-kind mapping between national tax parcel dataset and public water system boundaries, **identifying the likely water supplier for 100 million US addresses.**
- Created a series of **story maps** spanning topics from renewables and agriculture, to lead service line replacement to the opioid crisis.
- Presented on bias in AI, data science communication for public health at multiple water industry conferences.

PROFESSIONAL EXPERIENCE

Data Scientist, BlueConduit, January 2020 to Present

- Senior consultant to 15+ municipal and privately-owned utility clients, using data analytics and predictive modeling to support compliance with federal and state regulations, boost operational efficiency and prioritize environmental justice in lead service line replacement projects.
- Key contributor to standardization and automation of time-intensive and bespoke data ingestion, transformation, and machine learning workflows through custom Python packages and APIs connecting Databricks (internal) and ArcGIS platforms (external), **reducing average time-to-delivery by over 70%** to date and enabling **$5 million in revenue growth 2023 to 2024**.
- Led the development of LeadOutMap, a national lead service line inventory funded by Google.org, Rockefeller Foundation, part of White House partnership (public release expected in 2024)
    - As **project lead**, oversaw onboarding, product roadmapping and prototyping with a team of 10 Google volunteers, including software engineers, designers and product managers.
    - Compiled and standardized water system compliance data from the EPA and six states and used machine learning to estimate the prevalence of lead pipes in **over 40 thousand public water systems**.
    - Active member of a national community of practice focused on issues of federal water quality data including national non-profits, technology firms, and government agencies.
- Managed early engineering team and supported critical marketing, sales, and investor pitch presentations through the creation of maps and data visualizations.
- Hired, onboarded and mentored multiple data scientists, product managers, interns and college research groups over four years.

Data Analytics Consultant (part-time), Two Degrees Adapt, June 2023 to Present

- Compiled and visualized data on dozens of agronomic variables including soil health, crop yields and solar/wind low-impact capacity, part of studies of future land use in a warming climate for The Nature Conservancy.
- Created ArcGIS Story Maps and interactive visualization tools to communicate scientific findings to agriculture policy makers, growers associations, and farmers in the US Midwest (Iowa, Indiana, Illinois and Nebraska).

Research Programmer, Public Health Dynamics Lab, September 2019 to April 2020

- Developed mapping and space-time clustering modules for the Mortality Information and Research Analytics system--largest database of human mortality information in the US.
- Contributed to the study on trends in deaths of despair in the Appalachian region using novel space-time "meta-clustering" methodology, manuscript in pre-publication.
- Contributed to study on small area estimation of health survey data, published in 2023.

Civic Digital Fellow - Data Science, US Census Bureau, June 2019 to August 2019

- Used random forest models to identify businesses unlikely to report shipping activity, **saving approximately $400,000** in administrative burden related to sampling error in the forthcoming US Commodity Flow Survey.
- Developed OpenStreetMap data collection pipeline for machine learning applications within the US Census Bureau's secure computing environment.
- Presented findings to US Department of Transportation clients and US Census Bureau executive leadership.

Client Services Intern, City of Pittsburgh - Innovation and Performance, March 2018 – April 2019

- Developed business cases and gathered technical requirements for digital transformations across 19 departments and agencies in the City of Pittsburgh.
- Led cross-agency software inventory and procurement analysis, identifying **$2 million in annual savings** through automation of existing manual processes.

EDUCATION

Bachelor of Philosophy Information Science, University of Pittsburgh, PA
Magna Cum Laude - GPA: 3.696 - Economics minor
Geoinformatics Laboratory; University Honors College; Innovation Institute; Founder, Design for America

PRESENTATIONS

- **Gurewitsch R.** "Creating a National Parcel-Water System Crosswalk." Environmental Policy Innovation Center National Water Data Workshop. February 2024. Washington, D.C.
- **Gurewitsch R.** "Artificial Intelligence Applied: Reducing Lead Exposure Promotes Environmental Justice in Toledo, Ohio." Tri-Association Conference. August 2022. Ocean City, MD.
- **Gurewitsch R.** "Overcoming data inequities to improve outcomes." Tri-Association Conference. August 2022. Ocean City, MD.
- **Gurewitsch R.** "Data Science Principles for Lead Service Line Inventory and Replacement." NC AWWA-WEA 2021 Annual Conference. Nov 2021. Winston Salem, NC.
- **Gurewitsch R**. "Spatial Modeling of Lead Contamination Risk in Local Communities of Pittsburgh, PA." American Public Health Association Annual Meeting and Expo. Oct. 2020. (VIRTUAL). Student Achievement Award for Excellence in Environmental Justice Track.
- **Gurewitsch R**. "Applications of Geoinformatics to Mortality and Environmental Data." Public Health Dynamics Laboratory Seminar Series. Mar. 2020. Pittsburgh, PA, USA.
- **Gurewitsch R**. "How Machine Learning Can Solve America's Lead Crisis." Ecocity World Summit. Oct. 2019. Vancouver, BC, CA.

- **Gurewitsch R**. Baccalaureate Thesis Presentation. Mid-Atlantic Undergraduate Research Conference. Mar. 2019. Virginia Tech University. VA, USA.

PUBLICATIONS

- **Gurewitsch R**. "Pb-Predict: using machine learning to locate lead plumbing in a large public water system." Baccalaureate Thesis. April 2019. (Cited by 2) [link]
- Wheeler B, **Gurewitsch R**, et al. "Personalized Accessible Wayfinding for People with Disabilities through Standards and Open Geospatial Platforms in Smart Cities." Published 2020. Open Geospatial Data Software and Standards. (Cited by 14) [link]
- SL Stacy, **R Gurewitsch**, et al. "Rescaling and Small Area Estimation of Health Survey Data as applied to Smoking Rates in Allegheny County, Pennsylvania." Published 2023. BMC Public Health. [link]
- Aruru M, **Gurewitsch R**, et al. "A Data-Driven Approach to COVID-19: Resources, policies, and best practices." Published December 2020. BLDE Univ J Health Sci (link)
- Maleki M, **Gurewitsch R**, et al. "A Mixture of Regressions Model of COVID-19 Death Rates and Population Comorbidities." July 2020. Statistics and Applications. [link]
- Pyne S, Ray S, **Gurewitsch R**, Aruru M. "Transition from Social Vulnerability to Resiliency vis-à-vis Covid-19." Published June 2020. Statistics and Applications. [link]
- (Acknowledgement) Garbuio, M. Lin, N. "Artificial intelligence as a growth engine for healthcare startups: Emerging business models." California Management Review. 2019. (Cited by 212) [link]