|  |  |
| --- | --- |
| **Name:**  Zachary Weller | GTI Energy |
| **Title:** Senior Manager, Data Science | 1700 S Mt Prospect Rd |
| **Phone:** 847-768-0828 | Des Plaines IL 60018 |

Summary of Experience

Dr. Weller is a Senior Manager, Data Science in the Digital Innovation group at GTI energy where he leads and supports projects using applied and advanced statistical data analysis techniques to derive insights from complex data. He is principal investigator for GTI Energy’s iM4 Technologies AOI-4 project on an integrated methane monitoring platform and key personnel on the AOI-3 project on methane emissions from the Haynesville Basin. He has supported the writing, development, and company implementations of the Veritas Protocols. Dr. Weller was previously a Senior Data Scientist at Pacific Northwest National Lab and an Assistant Professor of Statistics at Colorado State University. Dr. Weller specializes in working with subject matter experts to apply and develop statistical methods to address problems in the energy, environment, and agricultural domains. He has researched methane emissions since 2017, supporting monitoring data analyses and leading a study that estimates and characterizes uncertainty for emissions from local distribution systems. Dr. Weller has authored or co-authored over 30 peer-reviewed publications.

**Education** and Training

|  |  |  |  |
| --- | --- | --- | --- |
| **Location** | **Degree** | **Area** | **Year** |
| Concordia College | B.A. | Mathematics and Computer Science | 2011 |
| Colorado State University | Ph.D. | Statistics | 2017 |
| Colorado State University | Postdoc | Biology | 2017 |

**Research and Professional Experience**

## GTI Energy - Des Plaines, IL (remote), *Senior Manager – Data Science* 2023-Present

* Leads and contributes to complex projects in data and digitalization applied to the energy sector
* Responsible for project structuring, coordination, reporting, and managing project personnel
* Thought leader and co-developer of the GTI Veritas Protocols – a standardized, scientific approach to measuring methane emissions from the oil and gas supply chain
* Collaborates with subject matter experts and applies statistical methods to design experiments, plan measurement campaigns, and analyze data to derive data-driven insights
* Applies statistical methods to quantify uncertainty in estimates

## Pacific Northwest National Laboratory – Richland, WA (remote), *Senior Data Scientist* 2022-2023

* Work with domain scientists to apply statistical data science methods to address problems in energy, environment, and national security
* Led and supported project proposals to numerous sponsors, including non-profit organizations and U.S. government agencies
* Collaborated with data scientists and software developers in the development of Visual Sample Plan software
* Communicated and disseminated findings through presentations and reports

## Colorado State University – Fort Collins, CO, *Assistant Professor* 2017-2022

* Collaborated and consulted with a wide range of domain experts as a consultant in the Graybill Statistics and Data Science Lab
* Advised and mentored undergraduate and graduate students to apply statistical methods
* Taught graduate and undergraduate students in statistics courses
* Communicated and disseminated findings through presentations and peer-reviewed papers

## Sole Proprietor: Statistical Consulting – Fort Collins, CO, *Statistical Consultant* 2015-2022

* Collaborated and consulted with a wide range of subject matter experts to apply statistical methods
* Supported projects and data analysis in a variety of domains including agriculture, environmental monitoring, healthcare, sports, and biology.
* Communicated and disseminated findings through presentations and peer-reviewed papers

5 Relevant Publications

**Weller, Z.D**., Hamburg, S., von Fischer, J.C. (2020). National Assessment of Methane Emissions from Natural Gas Distribution Systems. *Environmental Science and Technology*, 54(14), 8958-8967.

**Weller, Z.D**., Roscioli, J.R., Daube, W.C., Lamb, B.K., Ferrara, T.W., Brewer, P.E., von Fischer, J.C. (2018). Vehicle-Based Methane Surveys for Finding Natural Gas Leaks and Estimating Their Size: Validation and Uncertainty. *Environmental Science and Technology*. 52(20): 11922-11930. doi: 10.1021/acs.est.8b03135.

**Weller, Z.D.,** Hoeting, J.A., & von Fischer, J.C. (2018). A Calibration-Capture-Recapture Model for Inferring Natural Gas Leak Population Characteristics Using Data from Google Street View Cars. Environmetrics. 29(7): e2519. doi: 10.1002/env.2519.

Luetschwager, E., von Fischer, J.C.,**Weller, Z.D.** (2021). Characterizing Sampling Characteristics of Mobile Surveys for Natural Gas Leaks. Elementa: Science of the Anthropocene 9(1), 00143.

**Weller, Z.D**., Yang, D.K., von Fischer, J.C. (2019). An Algorithm to Process Data from Mobile Methane Surveys. PloS One. 14(2). doi: 10.1371/journal.pone.0212287.

Other Selected Publications

Maazallahi, H., Fernandez, J. M., Menoud, M., Zavala-Araiza, D., **Weller, Z. D.,** Schwietzke,

S., ... & Reockmann, T. (2020). Methane Mapping, Emission Quantification, and Attribution in

Two European Cities: Utrecht (NL) and Hamburg (DE). Atmospheric Chemistry and Physics,

20(23), 14717-14740.

Diefenderfer, H.L., Borde, A.B., Sinks, I.A., McKeon, M.A., Zimmerman, S.A., Mackereth, K.F.,

and **Weller, Z.D.** (2023). Scientific Support for the Columbia Estuary Ecosystem Restoration

Program, FY 2022 Annual Report. PNNL-33879. Richland, WA: Pacific Northwest National

Laboratory.

Whittier, T. T., **Weller, Z. D.,** Fling, B. W. (2022). Novel Applications of Bayesian Inference

Clarify Sensorimotor Uncertainty During Stepping Movements. Neuropsychologia, 173, 108310.

Young, B.N., Benka-Coker, W.O., **Weller, Z.D.,** Oliver, S., Schaefer, J.W., Magzmen, S.

(2021). How Does Absenteeism Impact the Link Between School's Indoor Environmental Quality and Student Performance? Building and the Environment, 108053.

Barry, K.R., Thomas, C.H., Ezra, J.L., Twohy, C.H., Moore, K.A., **Weller, Z.D.,** Toohey,

D.W., Reeves, M., Campos, T., Geiss, R., Schill, G.P., Fischer, E.V., Kreidenweis, S.M., DeMott, P.J. Observations of Ice Nucleating Particles in the Free Troposphere from Western US Wildfires. (2021). Journal of Geophysical Research: Atmospheres, 123(3), e2020JD033752.

Stuchiner, E. R., **Weller, Z. D.,** & von Fischer, J. C. (2021). An Approach for Calibrating

Laser-Based N2O Isotopic Analyzers for Soil Biogeochemistry Research. Rapid Communications in Mass Spectrometry, 35(3), e8978.