Michele S. Zemplenyi

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SUMMARY

Biostatistician and AAAS Science & Technology Policy Fellow at DOE's Federal Energy Management Program passionate about clean energy deployment with strong data science, project management, and leadership skills.

EDUCATION

Harvard University — Cambridge, MA
Ph.D., Biostatistics — 2015 - 2020

- Dissertation Topic: "Statistical Methods for Environmental Epidemiology"
- Statistical Learning & Data Science Poster Award, Joint Statistical Meetings 2019
- Science & Innovation Fellow, Environmental Training Grant Fellow (NIH)
- 2020 Harvard T. H. Chan Teaching Assistant Award

Harvard University — Cambridge, MA
B.A., Statistics (Minor in Chemistry), summa cum laude, Phi Beta Kappa — 2009 - 2013

- Hoopes Prize recipient for outstanding undergraduate thesis: "Design and Analysis of a Fractional Factorial Screening Experiment to Identify Small Molecule Inducers of Pancreatic β Cells"
- Awarded Certificate of Distinction in Teaching

WORK & LEADERSHIP EXPERIENCE

Federal Energy Management Program, U.S. Department of Energy — Washington, D.C.
AAAS Science & Technology Policy Fellow, 40 hrs/week — 9/2021 – Present

- Implementing an active project management system to track $50+ million in grants awarded through DOE's Assisting Federal Facilities with Energy Conservation Technologies (AFFECT) program.
- Contributed to sections of E.O. 14057 draft implementing instructions related to utility engagement strategies and carbon pollution-free electricity targets, both on a net annual and 24/7 basis.
- Actively coordinating multiple projects to decarbonize the federal government including the FEMP Distributed Energy Team's Energy Storage Initiative and electric vehicle deployment teams.

Urban Ocean Lab — Brooklyn, NY
Project Manager, 35 hrs/week — 8/2020 – Present

- Developed policy recommendations for climate action plans and coastal resiliency initiatives to promote ocean-based solutions to climate change, including increased deployment of offshore wind turbines.
- Performed climate risk analyses to highlight the financial cost of failing to address sea-level rise in parts of Brooklyn that suffered financial and physical damage in the wake of Hurricane Sandy.

Voter Participation Center — Washington, D. C.
Statistical Consultant, 40 hrs/week — 7/2020 – 9/2020

- Selected relevant features and trained statistical models (random forests, logistic regression, uplift models) on voting history data to build a model targeting 50 million registered voters for 2020 get-out-the-vote mailing campaigns. Models were programmed in Python and R using Amazon Web Services.

Biostatistics Department, Harvard University — Boston, MA
Graduate Researcher, 60 hrs/week — 6/2016 – 5/2020

- Developed high-dimensional regression techniques for analyzing the effects of air pollution on human health and researched optimal Bayesian experimental design methods for discovery of gene networks.

Biostatistics Student Consulting Center Boston, MA
President, 5 hrs/week 1/2018 – 8/2020

- Managed and trained a team of 25 consultants who handled 150 inquiries / year from student researchers at Harvard Medical School and Harvard T. H. Chan School of Public Health.

Harvard Center for Climate, Health, and the Global Environment Boston, MA
Student Ambassador, 2 hrs/week 1/2019 – 9/2020

- Co-authored an expert opinion submitted to the UK government on behalf of organizations petitioning the UK to strengthen the Clear Air Strategy in light of the Covid-19 pandemic.
- Presented opportunities for increased climate education and training at the School of Public Health.

Massachusetts Eye and Ear Boston, MA
Statistician, 5 hrs/week 5/2019 – 12/2019

- Performed statistical analyses in R to evaluate the effectiveness of eye imaging procedures in detecting glaucoma progression and predicting optic disc hemorrhage.
- Contributed figures, tables, and writing for manuscripts in preparation for ophthalmology journals.

Applied Predictive Technologies Arlington, VA
Associate Product Manager, 60 hrs/week 8/2013 – 7/2015

- Led two engineering teams by creating product requirements to meet clients' needs and deadlines.
- Designed software features, dashboards, and implemented new data visualization and modeling tools.

TEACHING EXPERIENCE

Biostatistics Department, Harvard University Boston, MA
Teaching Assistant, 10 hrs/week 9/2016 – 5/2019

- Recipient of 2020 Harvard T. H. Chan School Teaching Assistant Award
- Courses: Design and Monitoring of Adaptive Clinical Trials, Basics of Statistical Inference, Statistical Genetics, Statistical Consulting, Principles of Clinical Trials

SELECTED PUBLICATIONS

Zemplenyi M, et al. "Function-on-function regression for the identification of epigenetic regions exhibiting windows of susceptibility to environmental exposures." *Annals of Applied Statistics*. 15 (3) 1366 - 1385, September 2021. https://doi.org/10.1214/20-AOAS1425.

Zemplenyi M, Miller JW. Bayesian Optimal Experimental Design for Inferring Causal Structure. arXiv preprint arXiv:2103.15229. 2021 Mar 28.

Zhong J, Karlsson O, Wang G, Li J, Guo Y, Lin X, **Zemplenyi M**, Sanchez-Guerra M, Trevisi L, Urch B, Speck M, Liang L, Coull BA, Koutrakis P, Silverman F, Gold DR, Wu T, Baccarelli AA. B vitamins attenuate the epigenetic effects of ambient fine particles in a pilot human intervention trial, *PNAS*. 114 (13) (2017) 3503-3508.

Ratanawongphaibul K, Tsikata E, **Zemplenyi M**, et al. Earlier Detection of Glaucoma Progression Using High-Density 3-Dimensional Spectral-Domain OCT Optic Nerve Volume Scans. *Ophthalmol Glaucoma*. 2021 Nov-Dec;4(6):604-616. doi: 10.1016/j.ogla.2021.03.010.

SKILLS

- Social: discerning interpersonal & group dynamics; interdisciplinary thinker; concise communicator
- Technical: R, Matlab, Linux computing, Excel, Microsoft Office, Python, Github, SQL