

Andrew N. Patton, PhD

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Petaluma, CA

ABOUT

Life sciences/public health data scientist and consultant with substantive experience in toxicology, exposure science, epidemiology/disease surveillance, data visualization, and machine learning. Demonstrated ability to tie together a wide range of scientific disciplines into a comprehensive deliverable and participate in conversations with experts from a variety of fields. Experienced R and Python user as well as Shiny developer.

EDUCATION

Johns Hopkins Bloomberg School of Public Health 2016-2021

PhD: Exposure Science and Environmental Epidemiology

Thesis: "Novel Methods for Occupational and Non-Occupational Exposure Assessment for Improved Risk Assessment and Decision Making"

Advisor: Dr. Kirsten Koehler

University of San Francisco 2014-2016

MS: Environmental Management

Certificate: Geospatial Technologies

University of California Berkeley 2007-2011

BS: Molecular Toxicology

EXPERIENCE

PatientsLikeMe 7/21-pres.

Sr. Data Scientist – Full Time

- Instituted new data science tooling for team-wide best practices
- Developed and research disease progression models and NLP models for improved content for patients

ICF/CDC Contractor 2/21-7/21

Sr. Data Scientist – Full Time

- Enhanced syndromic surveillance using BioSense/NSSP via machine learning

Stats Perform 7/20-2/21

Data Scientist – Full Time (during PhD)

- Advanced machine learning techniques applied to wide range of NCAA tracking data derived from complex computer vision pipeline for media partners and NBA teams.

AP Analytics 4/17-7/20

Owner/Consultant – Part Time (during PhD)

- Data science and visualization consulting firm with clients from media, sports, public health/government, and business.

Marin County Department of Health and Human Resources

5/17-8/19

Epidemiology Research Associate – Part Time (during PhD)

- Public health epidemiology/data science role focused on development and deployment of novel emergency medical services based predictive surveillance systems for drug overdoses.
- Built and implemented models/tools for fall prevention in senior citizens and early sepsis warning in EMS data

Cardno ChemRisk

5/11-7/16

Associate Health Scientist II – Full Time

- Human health risk assessment consultant for industry focusing on epidemiology, industrial hygiene, retrospective exposure assessment, and exposure simulation.

SELECTED PUBLICATIONS & PRESENTATIONS

Published

- Innes GK, Nachman KE, Abraham AG, Casey AJ, **Patton, AN**, Price AB, Tartof SY, Davis MF. *United States organic and conventional meat associations with multi-drug resistant organisms*. Environmental Health Perspectives. In Press. DOI 10.1289/EHP7327.
- **Patton, AN.**, Scott, M., Walker, N., Ottenwess, A., Power, P., Lucey, P. *Predicting NBA Talent from Enormous Amounts of College Basketball Tracking Data*. Sloan Sports Analytics Conference. 4th Place Finalist. 2021.
- **Patton AN**, Levy-Zamora M, Fox M, Koehler K. *Benzene Exposure and Cancer Risk from Commercial Gasoline Station Fueling Events Using a Novel Self-Sampling Protocol*. International Journal of Environmental Research and Public Health. 2021; 18(4):1872. DOI 10.3390/IJERPH18041872

Submitted/In Review

- **Patton, AN.**, Medvedovsky, K., Zuidema, C., Peters, T., Koehler, K. *Probabilistic Machine Learning with Low-Cost Sensor Networks for Occupational Exposure Assessment and Industrial Hygiene Decision Making*. Annals of Work Exposures and Health. In Review. 2021.
- **Patton, AN.**, Datta, A., Levy-Zamora, M., Buehler, C., Xiong, F., Genter, D., Koehler, K. *Machine Learning for Improving Accuracy and Utility of Low-Cost Air Pollution Sensor Networks for Probabilistic Spatial Exposure Assessment*. Journal of Atmospheric Science. In Review. 2021.

Recent Articles, Presentations, & Publications not Peer Reviewed

- Hoffman, R. and **Patton, A.** Digging deeper into Ben Simmons' defensive impact, is he DPOY-worthy? The Athletic. April 14, 2021.
- Hoffman, R. and **Patton, A.** Sixers' new shooting gravity: Creating space for Joel Embiid and Ben Simmons. The Athletic. December 11, 2020.
- Arambula, K, Hannah, H., **Patton, AN.**, Dominik, B., Willis, M., Ereman, R. Characteristics of emergency medical services suspect overdose responses associated with opioids, methamphetamine, alcohol, or polysubstances in Marin County, California. American Public Health Association Annual Meeting and Expo. October 2020.

- **Patton, AN.** *Machine Learning and EMS Data for Opioid Overdose Surveillance*. University of Miami Department of Public Health Sciences. Grand Rounds Distinguished Lecture Series. February 17, 2020.
- **Patton, AN.,** Ereman, R., Willis, M., Hannah, H., Arambula, K. *Development of Text-Based Algorithm for Opioid Overdose Identification in EMS Data*. *Online J Public Health Inform* 11(1): e28. 2019.
- Hannah, H., Arambula, K., **Patton, AN.,** Hansen, R. Willis, M., Ereman, R. *Cost-effectiveness of Offering Treatment to Non-Fatal Opioid Overdoses Encountered by Emergency Medical Services (EMS) in Marin County, California*. Council of State and Territorial Epidemiologists Annual Meeting 2019. Breakout Presentation.
- Arambula, K., Hannah, H., **Patton, AN.,** Willis, M., Ereman, R. *Preventing the Next Overdose: An Emergency Medical Services-Based Non-Fatal Opioid Overdose Surveillance and Telephone Outreach Pilot Program*. Council of State and Territorial Epidemiologists Annual Meeting 2019. Breakout Presentation.
- **Patton, AN.** *Development of Text-Based Algorithm for Opioid Overdose Identification in EMS Data*. International Society for Disease Surveillance Annual Meeting 2019. Oral Presentation. Honorable Mention Best Student Presentation.

TEACHING

University of San Francisco Geospatial Analysis Lab

6/21-Pres.

Visiting Faculty – Part Time

- Researcher in the GSaL focusing on predictive modeling and machine learning
- “Practical Modeling – Class 5”. Invited guest lecturer for Advanced Data Analysis, University of San Francisco. April 2019.
- “Geostatistics – Class 3”. Invited guest lecturer for Advanced Quantitative Methods. University of San Francisco. April 2018.

Johns Hopkins Bloomberg School of Public Health

TA: PH.182.615 “Airborne Particles”. Topics included: properties of aerosols, uniform particle motion, particle size statistics, acceleration and curvilinear motion. 2018, 2019.

TA: PH.185.621 “Spatial Analysis III: Spatial Statistics”. Topics include: geostatistics, point pattern data analysis, area level data analysis, interpolation. 2018.

TA; AS.280.101 “Introduction to Public Health”. Topics included: major causes of morbidity and mortality, the socioeconomic, behavioral, and environmental factors that affect health, the analytical methods used in the field, the role of government in protecting the public’s health. 2019

Other Universities

“How to Explain Yourself Graphically”. Invited lecturer for Data Science in Sports, Brigham Young University. October 2020, March 2021.

TOOLS

- R (tidyverse, tidymodels, etc) | **Python** (scikit-learn, TensorFlow, numpy, etc.) | **Shiny**