Ray Pomponio

SUMMARY

- 6+ years of experience with analysis of large, complex datasets.
- Strong programming, numerical analysis, and visualization skills.
- Extensive familiarity with statistical model fitting and interpretation.
- Experience writing scalable software for scientific user communities.
- Able to deliver actionable insights to decision-makers as part of a team.
- Practiced writer and speaker for technical and non-technical audiences.

EDUCATION

MS, Biostatistics, University of Colorado-Denver   May 2023
- Thesis title: *Mistaken Identities Lead to Missed Opportunities: Testing for mean difference in partially matched data*

BS, Economics, University of Pennsylvania-Wharton   May 2018

Nondegree Coursework, University of Pittsburgh   December 2025
- Graduate-level biostatistics: *Introduction to Causal Inference*

SKILLS

Programming: Python (including Matplotlib, Numpy, Scikit-learn, Scipy), R (including tidyverse, datatable, ggplot2), SAS, Unix shell scripting.

Databases: SQL, DBT, REDCap (including API automation).

Operating Systems: Linux, OS X.

Data Analysis: Machine Learning, Monte Carlo, Bootstrapping, Image Processing, Hypothesis Testing, Cross Validation, Prediction, Statistical Modeling, Longitudinal Data, Survival Analysis.

EXPERIENCE

Data Scientist   2024-Present

University of Pittsburgh, Children's Hospital of Pittsburgh
- Served as lead biostatistician for CDC-sponsored study tracking respiratory viruses in children, owning full clinical analytics pipeline from study design through publication (*mBio*).
- Designed and managed end-to-end data infrastructure for 3,000+ annual medical encounters spanning multiple clinical systems, enabling faster time to analysis.
- Developed and executed multivariate risk-factor models for predicting severe respiratory illness in pediatric populations, informing public health recommendations.

Independent Statistical Consultant   2023-2024

Upwork.com

- Advised medical device clients on study design for FDA submission, performing sample size/power calculation to justify proposal and study endpoints.
- Conducted customer segmentation analysis for ecommerce client, identifying high-value repeat purchasing behaviors to inform retention strategies.

Graduate Research Assistant   2021-2023

University of Colorado-Denver

- Co-authored 10+ scientific manuscripts and conference abstracts by designing statistical methodologies and executing multivariate analyses, accumulating 25+ citations.
- Collaborated with cross-functional teams of clinicians, epidemiologists, and pulmonary/critical care experts to translate questions into testable hypotheses and grants.
- Completed doctoral-level coursework in machine learning and model selection.

Data Analyst   2018-2020

University of Pennsylvania, School of Medicine

- Developed open-source Python package enabling researchers to harmonize neuroimaging datasets across 20+ medical centers, receiving 100+ GitHub stars and 500+ citations.
- Built automated data pipelines that cut preprocessing timelines from months to days for multi-center consortium working on ML-based biomarkers of neurodegeneration.
- Presented technical results and novel methodologies to interdisciplinary audiences.

Junior Analyst Intern   Fall 2017

Wharton Customer Analytics Initiative Accelerator

- Modeled customer lifetime value (CLV), analyzing subscription/churn behaviors in buyers of hair coloring and hair care products.
- Delivered actionable insights to executives of retail corporation, including three-pronged approach to maximize CLV, acquire high-value customers, and convert subscribers.

Global Management Trainee Intern   Summer 2017

Anheuser-Busch InBev, Sales and Marketing Headquarters

- Conducted field survey on potential innovations in on-premises sales strategies, aggregated industry insights from Nielsen and other intelligence vendors.
- Delivered time-saving insights to executive team for eventual go-to-market strategy.

OUTREACH AND SERVICE

Research Talks: Presented thesis work to audience at Colorado School of Public Health (2023), delivered lighting talk and poster presentation at Symposium on Data Science and Statistics (2022), presented to 3+ seminar groups on methods in biostatistics and data science.

Teaching: Led 10+ interactive office hours as TA for Longitudinal and Survival Analysis (2023).

Peer Review: Referee for 5+ journal articles published in *Imaging Neuroscience, NeuroImage.*

Volunteering: Coached golf in youth ages 7-13 for 3+ seasons with First Tee of Pittsburgh, provided dog walking and enrichment service to local animal shelter in Pittsburgh, assisted in Mt. Washington cleanup requiring technical rope skills and cliffside access.

Leadership: Coordinated 3+ adventure rock climbing outings for the Explorer's Club of Pittsburgh (pittecp.org), co-led technical climbing outings in North Cascades, Washington and in Hidalgo, Nuevo Leon, Mexico.

GRANTS AND AWARDS

New Vaccine Surveillance Network, Centers for Disease Control: Under leadership of Dr. Marian Michaels (PI), my listed role is data scientist/statistician.

Marvin Porter Award, University of Colorado-Denver: Recognized among 12+ department master's students for outstanding academic achievement.

Dean's List, University of Pennsylvania

PUBLICATIONS

Pless LL, Damodaran L, **Pomponio R,** Patrick R, Griffith MP, Walters S, Waggle KD, Pleskovitch A, Rangachar Srinivasa V, Varela CA, Harrison LH, Barton JP, Moncla LH, Michaels MG, Williams JV, Wang-Erickson AF. Emergence and epidemiology of dominant variants of human metapneumovirus in the United States between 2016 and 2021. mBio. 2026 Feb 11;17(2):e0261925. doi: 10.1128/mbio.02619-25. Epub 2026 Jan 12.

DeCamp LR, Thomas K, **Pomponio R,** Peterson R, Holguin F, Johnston K, Carter E. Health at Home: Investigating Low-Income Housing Quality on Colfax Avenue. J Health Care Poor Underserved. 2024;35(3):790-801.

Smith JB, Peterson RA, **Pomponio R,** Steele M, Gray AL. Donor derived cell free DNA in lung transplant recipients rises in setting of allograft instability. Front Transplant. 2024;3:1497374. doi: 10.3389/frtra.2024.1497374. eCollection 2024.

Pomponio R, Peterson RA, Owusu M, Slaughter S, Melgar S, Jolley SE, Burnham EL. Phosphatidylethanol measures in patients with severe COVID-19-associated respiratory failure identify a subset with alcohol misuse. Alcohol Clin Exp Res (Hoboken). 2025 Jan;49(1):165-174. doi: 10.1111/acer.15495. Epub 2024 Nov 26.

Dunbar PJ, Peterson R, McGrath M, **Pomponio R,** Kiser TH, Ho PM, Vandivier RW, Burnham EL, Moss M, Sottile PD. Analgesia and Sedation Use During Noninvasive Ventilation for Acute Respiratory Failure. Crit Care Med. 2024 Jul 1;52(7):1043-1053. doi: 10.1097/CCM.0000000000006253. Epub 2024 Mar 20.

Held N, Neumeier A, Amass T, Harry E, **Pomponio R,** Peterson RA, Huie TJ, Moss M. Extraneous Load, Patient Census, and Patient Acuity Correlate With Cognitive Load During ICU Rounds. Chest. 2024 Jun;165(6):1448-1457. doi: 10.1016/j.chest.2023.12.029. Epub 2024 Jan 4.

Burnham EL, **Pomponio R,** Perry G, Offner PJ, Ormesher R, Peterson RA, Jolley SE. Prevalence of Alcohol Use Characterized by Phosphatidylethanol in Patients With Respiratory Failure Before and During the COVID-19 Pandemic. CHEST Crit Care. 2024 Mar;2(1). doi: 10.1016/j.chstcc.2023.100045. Epub 2024 Jan 2.

Mayer M, Badesch DB, Nielsen KH, Kawut S, Bull T, Ryan JJ, Sager J, Mazimba S, Hemnes A, Klinger J, Runo J, McConnell JW, De Marco T, Chakinala MM, Yung D, Elwing J, Kaplan A,

Argula R, **Pomponio R,** Peterson R, Hountras P. Impact of the COVID-19 pandemic on chronic disease management and patient reported outcomes in patients with pulmonary hypertension: The Pulmonary Hypertension Association Registry. Pulm Circ. 2023 Apr;13(2):e12233. doi: 10.1002/pul2.12233. eCollection 2023 Apr.

Hwang G, Abdulkadir A, Erus G, Habes M, **Pomponio R,** Shou H, Doshi J, Mamourian E, Rashid T, Bilgel M, Fan Y, Sotiras A, Srinivasan D, Morris JC, Albert MS, Bryan NR, Resnick SM, Nasrallah IM, Davatzikos C, Wolk DA. Disentangling Alzheimer's disease neurodegeneration from typical brain ageing using machine learning. Brain Commun. 2022;4(3):fcac117. doi: 10.1093/braincomms/fcac117. eCollection 2022.

Chen AA, Srinivasan D, **Pomponio R,** Fan Y, Nasrallah IM, Resnick SM, Beason-Held LL, Davatzikos C, Satterthwaite TD, Bassett DS, Shinohara RT, Shou H. Harmonizing functional connectivity reduces scanner effects in community detection. Neuroimage. 2022 Aug 1;256:119198. doi: 10.1016/j.neuroimage.2022.119198. Epub 2022 Apr 11.

Zheng Y, Habes M, Gonzales M, **Pomponio R,** Nasrallah I, Khan S, Vaughan DE, Davatzikos C, Seshadri S, Launer L, Sorond F, Sedaghat S, Wainwright D, Baccarelli A, Sidney S, Bryan N, Greenland P, Lloyd-Jones D, Yaffe K, Hou L. Mid-life epigenetic age, neuroimaging brain age, and cognitive function: coronary artery risk development in young adults (CARDIA) study. Aging (Albany NY). 2022 Feb 27;14(4):1691-1712. doi: 10.18632/aging.203918. Epub 2022 Feb 27.

Charissé D, Erus G, **Pomponio R,** Gorges M, Schmidt N, Schneider C, Liepelt-Scarfone I, Riedel O, Reetz K, Schulz JB, Berg D, Storch A, Witt K, Dodel R, Kalbe E, Kassubek J, Hilker-Roggendorf R, Baudrexel S. Brain age and Alzheimer's-like atrophy are domain-specific predictors of cognitive impairment in Parkinson's disease. Neurobiol Aging. 2022 Jan;109:31-42. doi: 10.1016/j.neurobiolaging.2021.08.020. Epub 2021 Sep 6.

Nasrallah IM, Gaussoin SA, **Pomponio R,** Dolui S, Erus G, Wright CB, Launer LJ, Detre JA, Wolk DA, Davatzikos C, Williamson JD, Pajewski NM, Bryan RN. Association of Intensive vs Standard Blood Pressure Control With Magnetic Resonance Imaging Biomarkers of Alzheimer Disease: Secondary Analysis of the SPRINT MIND Randomized Trial. JAMA Neurol. 2021 May 1;78(5):568-577. doi: 10.1001/jamaneurol.2021.0178.

Habes M, **Pomponio R,** Shou H, Doshi J, Mamourian E, Erus G, Nasrallah I, Launer LJ, Rashid T, Bilgel M, Fan Y, Toledo JB, Yaffe K, Sotiras A, Srinivasan D, Espeland M, Masters C, Maruff P, Fripp J, Völzk H, Johnson SC, Morris JC, Albert MS, Miller MI, Bryan RN, Grabe HJ, Resnick SM, Wolk DA, Davatzikos C. The Brain Chart of Aging: Machine-learning analytics reveals links between brain aging, white matter disease, amyloid burden, and cognition in the iSTAGING consortium of 10,216 harmonized MR scans. Alzheimers Dement. 2021 Jan;17(1):89-102. doi: 10.1002/alz.12178. Epub 2020 Sep 13.

Bashyam VM, Erus G, Doshi J, Habes M, Nasrallah I, Truelove-Hill M, Srinivasan D, Mamourian L, **Pomponio R,** Fan Y, Launer LJ, Masters CL, Maruff P, Zhuo C, Völzke H, Johnson SC, Fripp J, Koutsouleris N, Satterthwaite TD, Wolf D, Gur RE, Gur RC, Morris J, Albert MS, Grabe HJ, Resnick S, Bryan RN, Wolk DA, Shou H, Davatzikos C. MRI signatures

of brain age and disease over the lifespan based on a deep brain network and 14 468 individuals worldwide. Brain. 2020 Jul 1;143(7):2312-2324. doi: 10.1093/brain/awaa160.

Chand GB, Dwyer DB, Erus G, Sotiras A, Varol E, Srinivasan D, Doshi J, **Pomponio R,** Pigoni A, Dazzan P, Kahn RS, Schnack HG, Zanetti MV, Meisenzahl E, Busatto GF, Crespo-Facorro B, Pantelis C, Wood SJ, Zhuo C, Shinohara RT, Shou H, Fan Y, Gur RC, Gur RE, Satterthwaite TD, Koutsouleris N, Wolf DH, Davatzikos C. Two distinct neuroanatomical subtypes of schizophrenia revealed using machine learning. Brain. 2020 Mar 1;143(3):1027-1038. doi: 10.1093/brain/awaa025.

Pomponio R, Erus G, Habes M, Doshi J, Srinivasan D, Mamourian E, Bashyam V, Nasrallah IM, Satterthwaite TD, Fan Y, Launer LJ, Masters CL, Maruff P, Zhuo C, Völzke H, Johnson SC, Fripp J, Koutsouleris N, Wolf DH, Gur R, Gur R, Morris J, Albert MS, Grabe HJ, Resnick SM, Bryan RN, Wolk DA, Shinohara RT, Shou H, Davatzikos C. Harmonization of large MRI datasets for the analysis of brain imaging patterns throughout the lifespan. Neuroimage. 2020 Mar;208:116450. doi: 10.1016/j.neuroimage.2019.116450. Epub 2019 Dec 9.