

I am a data analyst and quantitatively oriented scientist with 12 years of experience, specializing in health and decision-making. I am also a programmer with 19 years of experience, including data management, system administration, and web development.

## Education

### Stony Brook University (Stony Brook, NY)

Doctor of Philosophy in experimental psychology (advisor: Christian Luhmann) 2016  
Master of Arts in psychology 2013

### Allegheny College (Meadville, PA)

Bachelor of Science, psychology and mathematics double major 2011  
Valedictorian (class rank 1/589, GPA 4.0/4, *summa cum laude*)

## Research

My research interests lie in social science (particularly social psychology, decision-making, health, and sexuality) and in earth science (particularly empirical models of atmospheric variables relevant to human health). I use data-analytic methods from both statistics and machine learning, with an emphasis on predictive modeling. I'm also interested in open science: I make data, code, research notes, and working papers freely available on my website, Arfer.net.

## Peer-reviewed journal articles

- Arfer, K. B. (2024). Artiruno: A free-software tool for multi-criteria decision-making with verbal decision analysis. *Journal of Multi-Criteria Decision Analysis*, 31. doi:10.1002/mcda.1827
- Rappaport, B. I., Kujawa, A., Arfer, K. B., Pegg, S., Kelly, D., Jackson, J. J., Luby, J. L., & Barch, D. M. (2024). Behavioral and psychiatric correlates of brain responses to social feedback. *Psychophysiology*, 61. doi:10.1111/psyp.14413
- Arfer, K. B. (2023). Pattern-setting for improving risky decision-making. *Journal of the Experimental Analysis of Behavior*, 119, 81–90. doi:10.1002/jeab.816
- Babinski, D. E., Pegg, S., West, M., Arfer, K. B., & Kujawa, A. (2023). Borderline personality features and altered social feedback processing in emerging adults: An EEG study. *Progress in Neuro-Psychopharmacology and Biological Psychiatry*, 120. doi:10.1016/j.pnpbp.2022.110648
- Hill, K., Dickey, L., Pegg, S., Dao, A., Arfer, K. B., & Kujawa, A. (2023). Associations between parental conflict and social and monetary reward responsiveness in clinically depressed adolescents. *Research on Child and Adolescent Psychopathology*, 51, 119–131. doi:10.1007/s10802-022-00949-7
- Gutiérrez-Avila, I., Arfer, K. B., Carrión, D., Rush, J., Kloog, I., Naeger, A. R., Grutter, M., Páramo-Figueroa, V. H., Riojas-Rodríguez, H., & Just, A. C. (2022). Prediction of daily mean and one-hour maximum PM<sub>2.5</sub> concentrations and applications in Central Mexico using satellite-based machine-learning models. *Journal of Exposure Science and Environmental Epidemiology*, 32, 917–925. doi:10.1038/s41370-022-00471-4
- Pegg, S., Lytle, M., Arfer, K. B., & Kujawa, A. (2022). The time course of reactivity to social acceptance and rejection feedback: An examination of event-related potentials and behavioral measures in a peer interaction task. *Psychophysiology*, 59. doi:10.1111/psyp.14007

- Carrión, D., **Arfer, K. B.**, Rush, J., Dorman, M., Rowland, S. T., Kioumourtzoglou, M.-A., Kloog, I., & Just, A. C. (2021). A 1-km hourly air-temperature model for 13 northeastern U.S. states using remotely sensed and ground-based measurements. *Environmental Research*, 200. doi:10.1016/j.envres.2021.111477
- Carrión, D., Colicino, E., Pedretti, N. F., **Arfer, K. B.**, Rush, J., DeFelice, N., & Just, A. C. (2021). Neighborhood-level disparities and subway utilization during the COVID-19 pandemic in New York City. *Nature Communications*, 12. doi:10.1038/s41467-021-24088-7
- This study was covered by *Gothamist*, WYNC, etc.
- Gutiérrez-Avila, I., **Arfer, K. B.**, Wong, S., Rush, J., Kloog, I., & Just, A. C. (2021). A spatiotemporal reconstruction of daily ambient temperature using satellite data in the Megalopolis of Central Mexico from 2003-2019. *International Journal of Climatology*, 41, 4095–4111. doi:10.1002/joc.7060
- Pegg, S., **Arfer, K. B.**, & Kujawa, A. (2021). Altered reward responsiveness and depressive symptoms: An examination of social and monetary reward domains and interactions with rejection sensitivity. *Journal of Affective Disorders*, 282, 717–725. doi:10.1016/j.jad.2020.12.093
- Just, A. C., **Arfer, K. B.**, Rush, J., Dorman, M., Shtein, A., Lyapustin, A., & Kloog I. (2020). Advancing methodologies for applying machine learning and evaluating spatiotemporal models of fine particulate matter (PM<sub>2.5</sub>) using satellite data over large regions. *Atmospheric Environment*. doi:10.1016/j.atmosenv.2020.117649
- Kujawa, A., **Arfer, K. B.**, Finsaas, M. C., Kessel, E. M., Mumper, E., & Klein, D. N. (2020). Effects of maternal depression and mother-child relationship quality in early childhood on neural reactivity to rejection and peer stress in adolescence: A 9-year longitudinal study. *Clinical Psychological Science*, 8, 657–672. doi:10.1177/2167702620902463
- Arfer, K. B.**, O'Connor, M. J., Tomlinson, M., & Rotheram-Borus, M. J. (2020). South African mothers' immediate and 5-year retrospective reports of drinking alcohol during pregnancy. *PLOS One*. doi:10.1371/journal.pone.0231518
- Rappaport, B. I., Hennefield, L., Kujawa, A., **Arfer, K. B.**, Kelly, D., Kappenman, E. S., Luby, J. L., & Barch, D. M. (2019). Peer victimization and dysfunctional reward processing: ERP and behavioral responses to social and monetary rewards. *Frontiers in Behavioral Neuroscience*, 13. doi:10.3389/fnbeh.2019.00120
- Rotheram-Borus, M. J., **Arfer, K. B.**, Christodoulou, J., Comulada, W. S., Stewart, J., Tubert, J. E., & Tomlinson, M. (2019). The association of maternal alcohol use and paraprofessional home visiting with children's health: A randomized controlled trial. *Journal of Consulting and Clinical Psychology*, 87, 551–562. doi:10.1037/ccp0000408
- Babinski, D. E., Kujawa, A., Kessel, E. M., **Arfer, K. B.**, & Klein, D. N. (2019). Sensitivity to peer feedback in young adolescents with symptoms of ADHD: Examination of neurophysiological and self-report measures. *Journal of Abnormal Child Psychology*, 47, 605–617. doi:10.1007/s10802-018-0470-2
- Arfer, K. B.**, & Jones, J. J. (2019). American political-party affiliation as a predictor of usage of an adultery website. *Archives of Sexual Behavior*, 48, 715–723. doi:10.1007/s10508-018-1244-1
- This study was covered by *The Guardian*, *Pacific Standard*, etc.
- Arfer, K. B.**, Tomlinson, M., Mayekiso, A., Bantjes, J., & Rotheram-Borus, M. J. (2018). Criterion validity of self-reports of alcohol, cannabis, and methamphetamine use among young men in Cape Town, South Africa. *International Journal of Mental Health and Addiction*, 16, 45–52. doi:10.1007/s11469-017-9769-4
- Zingmond, D., **Arfer, K. B.**, Gildner, J., & Leibowitz, A. (2017). The cost of comorbidities in treatment for HIV/AIDS in California. *PLOS One*. doi:10.1371/journal.pone.0189392
- Kujawa, A., Kessel, E. M., Carroll, A., **Arfer, K. B.**, & Klein, D. N. (2017). Social processing in early adolescence: Associations between neurophysiological, self-report, and behavioral measures. *Biological Psychology*, 128, 55–62. doi:10.1016/j.biopsycho.2017.07.001
- Ethridge, P., Kujawa, A., Dirks, M. A., **Arfer, K. B.**, Kessel, E. M., Klein, D. N., & Weinberg, A. (2017). Neural responses to social and monetary reward in early adolescence and emerging adulthood. *Psychophysiology*, 54, 1786–1799. doi:10.1111/psyp.12957

- Rodriguez-Seijas, C., **Arfer, K. B.**, Thompson, R. G., Jr., Hasin, D. S., & Eaton, N. R. (2017). Sex-related substance use and the externalizing spectrum. *Drug and Alcohol Dependence*, *174*, 39–46. doi:10.1016/j.drugalcdep.2017.01.008
- Arfer, K. B.**, & Luhmann, C. C. (2017). Time-preference tests fail to predict behavior related to self-control. *Frontiers in Psychology*, *8*. doi:10.3389/fpsyg.2017.00150
- Arfer, K. B.**, Bixter, M. T., & Luhmann, C. C. (2015). Reputational concerns, not altruism, motivate restraint when gambling with other people's money. *Frontiers in Psychology*, *6*. doi:10.3389/fpsyg.2015.00848
- Rachlin, H., **Arfer, K. B.**, Safin, V., & Yen, M. (2015). The amount effect and marginal value. *Journal of the Experimental Analysis of Behavior*, *104*, 1–6. doi:10.1002/jeab.158
- Safin, V., **Arfer, K. B.**, & Rachlin, H. (2015). Reciprocation and altruism in social cooperation. *Behavioural Processes*, *116*, 12–16. doi:10.1016/j.beproc.2015.04.009
- Arfer, K. B.**, & Luhmann, C. C. (2015). The predictive accuracy of intertemporal-choice models. *British Journal of Mathematical and Statistical Psychology*, *68*, 326–341. doi:10.1111/bmsp.12049
- Rachlin, H., Safin, V., **Arfer, K. B.**, & Yen, M. (2015). The attraction of gambling. *Journal of the Experimental Analysis of Behavior*, *103*, 260–266. doi:10.1002/jeab.113
- Kujawa, A., **Arfer, K. B.**, Klein, D. N., & Proudfit, G. H. (2014). Electrocortical reactivity to social feedback in youth: A pilot study of the Island Getaway task. *Developmental Cognitive Neuroscience*, *10*, 140–147. doi:10.1016/j.dcn.2014.08.008

## Conference presentations

- Pegg, S., Zhang, H., Dickey, L., Dao, A., **Arfer, K. B.**, & Kujawa, A. (2023, March). *Reduced reward responsiveness moderates the association between chronic stress and depressive symptoms in adolescents*. Presentation at the Society for Research in Child Development Biennial Meeting, Salt Lake City, UT.
- Arfer, K. B.**, Quinn, B., & Shoptaw, S. (2018, January 19). *Dose-response relationships of binge drinking, cannabis, inhaled nitrites (poppers), and methamphetamine with risky sex and viral load among men who have sex with men in Los Angeles*. Presentation at the CHIPTS HIV Next Generation Conference 2018, Los Angeles, CA.
- Arfer, K. B.**, & Luhmann, C. C. (2013, August 7). *The predictive accuracy of intertemporal-choice models*. Paper presented at the 46th Annual Meeting of the Society of Mathematical Psychology, Potsdam, Germany.

## Posters

- Pegg, S., Dickey, L., Dao, A., **Arfer, K. B.**, & Kujawa, A. (2022, September 10). *Social reward responsiveness moderates the effect of chronic stress on depressive symptoms in adolescents*. Poster presented at the Society for Research in Psychopathology annual meeting, Philadelphia, PA.
- Gutiérrez-Avila, I., Carrión, D., **Arfer, K. B.**, Rush, J., Yitshak-Sade, M., Kloog, I., Colicino, E., & Just, A. C. (2021, August 24). *Daily particulate matter and temperature from satellite-hybrid models and 1.5 million deaths: A time-stratified case-crossover analysis in Central Mexico*. Poster presented at the 33rd Annual Conference of the International Society for Environmental Epidemiology, New York, NY.
- Pegg, S., **Arfer, K. B.**, & Kujawa, A. (2020, March). *Blunted neural responsiveness to social reward moderates the association between rejection sensitivity and depressive symptoms*. Poster presented at the 40th Annual Meeting of the Anxiety and Depression Association of American, San Antonio, TX.
- Pegg, S. L., **Arfer, K. B.**, & Kujawa, A. (2019, September 19). *Neurophysiological measures of social feedback processing predict real-world experience of emotions in social settings*. Poster presented at the 33rd Annual Meeting of the Society for Research in Psychopathology, Buffalo, NY.

- Pegg, S. L., **Arfer, K. B.**, & Kujawa, A. (2019, March 29). *Distinct dimensions of mood symptoms associated with altered social reward processing in clinically depressed adolescents*. Poster presented at the 39th Annual Meeting of the Anxiety and Depression Association of America, Chicago, IL.
- Arfer, K. B.**, Tomlinson, M., Mayekiso, A., Bantjes, J., van Heerden, A., & Rotheram-Borus, M. J. (2017, June 25). *Criterion validity of self-reports of alcohol, cannabis, and methamphetamine use among young men in Cape Town, South Africa*. Poster session presented at the 40th Annual Meeting of the Research Society on Alcoholism, Denver, CO.
- Ethridge, P., Kujawa, A., **Arfer, K. B.**, Kessel, K. M., Klein, D. N., & Weinberg, A. (2016, September 23). *Monetary and social reward in early adolescence and emerging adulthood*. Poster session presented at the 56th Annual Meeting of the Society for Psychophysiological Research, Minneapolis, MN.
- Gordon, K. K., McGrath, M. R., Castro, R., Anderson, L. J., Natoli, L. J., Cohen, A. C., **Arfer, K. B.**, & Klausner, J. K. (2016, September 22). *Comparing home-collected versus clinic-collected specimens for the detection of Chlamydia trachomatis and Neisseria gonorrhoeae in anatomic sites*. Poster session presented at the 2016 STD Prevention Conference, Atlanta, GA.
- Safin, V., **Arfer, K. B.**, & Rachlin, H. (2014, May 22). *Altruism and reciprocation in the prisoner's dilemma game*. Poster session presented at the 37th Annual Meeting of the Society for the Quantitative Analyses of Behavior, Chicago, IL.

## Unpublished and self-published works

- Arfer, K. B.** (2021). The unpredictable Buridan's ass: Failure to predict decisions in a trivial decision-making task. doi:10.31234/osf.io/qu39a
- Arfer, K. B.** (2016). *Empirical sexual attitudes*. Los Angeles, CA: Author. Retrieved from <https://arfer.net/w/esa>
- Arfer, K. B.** (2016). *Predicting outcomes of interventions to increase social competence in children and adolescents* (PhD dissertation, Stony Brook University). Retrieved from <http://arfer.net/projects/pelt>

## Work experience

- Research scientist, Center for Epidemiologic Research, Brown University** 2023 – present  
(remote work from New York City)
- Biostatistician, Icahn School of Medicine, Mount Sinai Hospital** 2018 – present  
(part-time since 2023)
- Designed and implemented longitudinal geospatial models of air pollution and temperature in the US and Mexico
  - Managed and processed terabyte-scale public datasets
  - Administered two high-performance Linux servers used for this research
- Postdoctoral scholar, Global Center for Children and Families, University of California, Los Angeles** 2016 – 2018
- Managed and analyzed data for 4 longitudinal public-health studies with over 1,000 subjects each
  - Provided statistical consultation to faculty and postdoctoral fellows
  - Presented research to general audiences in presentations and poster sessions
- Teaching assistant and graduate student, Stony Brook University** 2011 – 2016
- Programmed web-based tasks and analyzed behavioral data
  - Presented research annually to a non-quantitative audience
  - Taught 2 courses on research writing with frequent one-on-one student interaction
  - Delivered guest lectures in statistics

## **Tutor, Allegheny College**

2008 – 2010

- Tutored high-school and college students in mathematical subjects such as geometry, calculus, abstract algebra, and analysis

## **Volunteering**

### **Maintainer, Hy programming language (<http://hylang.org>)**

2016 – present

- Designed and implemented language features and fixed bugs
- Reviewed pull requests and managed issues
- Wrote documentation and provided user support

## **Ad-hoc reviewing**

PLOS One

2024

Basic and Applied Social Psychology

2016 – 2023

Environmental Research

2019, 2022

Personality and Individual Differences

2020, 2021

Archives of Sexual Behavior

2018 – 2020

Polish Psychological Bulletin

2017

AIDS and Behavior (special issue on alcohol and HIV)

2017

Drug and Alcohol Dependence

2016, 2017