ANDREW G. JOHNSON

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EDUCATION

University of Pennsylvania, *Ph.D., M.S.* in Biology — August 2017 - September 2024

North Carolina State University, *B.S.* in Animal Science — August 2008 - December 2012

RESEARCH EXPERIENCE

Penn Institute for Urban Research/School of Medicine — Sepember 2024 - Present
Postdoctoral Fellow — *Philadelphia, PA / Cary, NC*

· Using features of the urban built environment, e.g. infrastructure, heat landscape, etc. to predict localized population density and human movement in cities

Penn Institute for Urban Research/Wharton Real Estate — August 2023 - December 2024
Research Associate — *Philadelphia, PA*

· Developed a large language model pipeline to extract zoning data from municipal zoning ordinances
· Led machine learning pipeline development and data analysis for a project aimed at inferring residential land use allowances nationally
· Presented findings to non-technical, interdisciplinary audiences

Adaptive Cities Working Group — July 2022 - Present
Infectious Disease Biologist — *Philadelphia, PA*

· Interdisciplinary working group, in partnership with the Rockefeller Foundation and the Brookings Institution, focused on the intersection of cities, climate, and health.
· Participating in Brookings 17 Rooms 2023 flagship, Room 3
· Organizing a Digital Twin City Initiative at the University of Pennsylvania

Perry World House — August 2022 - May 2023
Graduate Associate — *Philadelphia, PA*

· Worked at the intersection of scientific and policy challenges associated with modern biodefense
· Wrote an op-ed highlighting the latent value of built infrastructure for pandemic mitigation (in review)

Host-Microorganism Interaction Laboratory — February 2020
Visiting Scholar, Instituto Gulbenkian de Cincia — *Oeiras, Portugal*

· Performed gnotobiotic microbiome experiments using *D. melanogaster*
· Helped to establish an international collaboration between three laboratories

Evolution and Ecology of Disease Systems Laboratory — April 2018 - September 2024
Doctoral Candidate — *Philadelphia, PA*

· Working to understand ecological assembly and coexistence dynamics within the gut microbiome
· Adapting existing ecological theory to novel systems

Plotkin Research Group in Mathematical Biology — January 2018 - May 2018
Rotation Student — *Philadelphia, PA*

· Developed a series of computational Wright-Fisher models to simulate the competitive dynamics of hashtags on Twitter

Akçay Lab August 2017 - December 2017
Rotation Student *Philadelphia, PA*

· Studied the intersection between ecological theory, multi-layer network analysis, and urban planning

Duke Network Analysis Center (DNAC) February 2017 - July 2017
Associate in Research *Durham, NC*

· Cleaned and analyzed empirical network data

Zoonotic Disease Research Center October 2016 - January 2017
Field Research Assistant *Arequipa, Peru*

· Led a team to collect GPS data of free-roaming dog movement to infer correlations between the built environment and rabies dynamics

PEER-REVIEWED PUBLICATIONS

2. Brinkley Raynor, Micaela De la Puente-Len, **Andrew Johnson**, Elvis W. Daz, Michael Z. Levy, Sergio E. Recuenco, and Ricardo Castillo-Neyra. "Movement patterns of free-roaming dogs on heterogeneous urban landscapes: Implications for rabies control." Preventive veterinary medicine 178 (2020): 104978.

1. Ricardo Castillo-Neyra, Valerie Paz-Soldan, Alison Buttenheim, Hannelore MacDonald, **Andrew Johnson**, Cesar Naquira, Michael Z Levy. "Reemergence of canine rabies in complex urban environments: Lessons from an outbreak in Arequipa, Peru." American Journal of Tropical Medicine and Hygiene. Vol. 97. No. 5. (2017)

MANUSCRIPTS IN PREPARATION

4. **Andrew Johnson**, Jake Hira, Dustin Brisson (In Preparation). The gut microbiome can influence female mating behavior in *D. melanogaster*.

3. **Andrew Johnson**, Julia Pfrommer, Jake Hira, Dustin Brisson (In Preparation). Neutral Processes Play a Role in Microbiome Community Assembly.

2. **Andrew Johnson**, Julia Pfrommer, Erol Akcay, Dustin Brisson (In Preparation). Phylogenetic determinants of coexistence in the gut microbiome of *D. melanogaster*.

1. **Andrew Johnson**, William Manly, Dustin Brisson (In Preparation). Wisdom of the masses: stacking and ensembling approaches for statistical ecology.

OTHER PUBLICATIONS

3. **Andrew Johnson** (In Preparation). To Restore Trust, NIHs New Director Needs More Than Science (Op-ed).

2. **Andrew Johnson** (In Preparation). The Case for a Global Biosafety Agency with Teeth (Essay).

1. **Andrew Johnson** (In Preparation). City Infrastructure Could Help Curb the Next Pandemic (Op-ed).

FELLOWSHIPS AND GRANTS

Intelligence Community Postdoctoral Research Fellowship 2024-2026
Amount Awarded: $200,000

SASGov Research Student Grant 2022
Amount Awarded: $2,000

GAPSA-Provost Fellowship for Interdisciplinary Innovation 2021
Community ecology of the gut microbiome

Role: Principle Investigator
Amount Awarded: $6,000

Teece Dissertation Research Fellowship 2020
Amount Awarded: $2,500

SASGov Research Student Grant 2020
Amount Awarded: $2,000

AWARDS AND HONORS

Schmidt Science Fellowship Nominee, University of Pennsylvania 2024

Perry World House Graduate Associate, University of Pennsylvania 2022

TECHNICAL STRENGTHS

Languages	Python, R, Java
Software & Tools	VS Code, Jupyter, RStudio, Anaconda, LaTeX, NetLogo, Eclipse
Machine Learning	Random Forests, Gradient Boosted Models, Ensembling & Stacking

ADVISING

Graduate

Julia Pfrommer, masters student, currently an MD student at Duke	2022-2023
Will Gaines, masters student, currently at J. Goldman & Co.	2019-2021

Post-Baccalaureate

Jake Hira, post-bacc researcher, currently a PhD student at Duke	2021-2023
William Manly, post-bacc researcher, currently a PhD student at UPenn	2021-2024
Bonnie Mendelson, post-bacc researcher, currently a PhD student at U. Chicago	2021

Undergraduate

Elizabeth Rush, undergraduate researcher, currently PhD student at Case Western	2024-2025
Deborah Armstrong, undergraduate researcher	2024
Alvin Xu, undergraduate researcher	2023-2024
Henry Feldman, undergraduate researcher	2022-2023
Sophia Coutu, undergraduate researcher	2022-2023
Olivia Carrafiell, undergraduate researcher	2022
Dietrich Nigh, undergraduate researcher, currently a System Administrator at ZeroEyes	2019-2020

High School

Elli Greenbaum, research assistant	2023
Sophia Weatherwax, research assistant , currently an undergraduate at Penn State	2022

TEACHING EXPERIENCE

Statistics for Biologists (BIOL 446) Fall 2021
University of Pennsylvania *Teaching Assistant*

Evolutionary Biology (BIOL 230) Spring 2019
University of Pennsylvania *Teaching Assistant*

Statistics for Biologists (BIOL 446) Fall 2018
University of Pennsylvania *Teaching Assistant*

DEPARTMENTAL SERVICE

President, Biology Graduate Group 2020-2021

ORGANIZATIONS AND VOLUNTEERING

University of Pennsylvania Judo Club/Main Line Judo Club — August 2019 - September 2024
Member — *Philadelphia, PA*

NASA JPL Solar System Ambassador Program — January 2017 - December 2019
Member — *Raleigh, NC & Philadelphia, PA*

North Carolina One Health Collaborative — August 2012 - July 2017
Member — *Research Triangle Park, NC*

Triangle Linux Users Group (TriLUG) — July 2015 - July 2017
Member — *Raleigh, NC*