

ANDREW G. JOHNSON

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More ◇ [anjohns.github.io](https://github.com/anjohns)

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

Postdoctoral Fellow

September 2024 - Present

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

Research Associate

August 2023 - December 2024

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

Infectious Disease Biologist

July 2022 - Present

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

Graduate Associate

August 2022 - May 2023

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

Visiting Scholar, Instituto Gulbenkian de Cincia

February 2020

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

Doctoral Candidate

April 2018 - September 2024

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

Rotation Student

January 2018 - May 2018

Philadelphia, PA

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

Akçay Lab*Rotation Student*

August 2017 - December 2017

Philadelphia, PA

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

Duke Network Analysis Center (DNAC)*Associate in Research*

February 2017 - July 2017

Durham, NC

- Cleaned and analyzed empirical network data

Zoonotic Disease Research Center*Field Research Assistant*

October 2016 - January 2017

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 Bittenheim, 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, L^AT_EX, 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

2024-current

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
Member

August 2019 - September 2024
Philadelphia, PA

NASA JPL Solar System Ambassador Program
Member

January 2017 - December 2019
Raleigh, NC & Philadelphia, PA

North Carolina One Health Collaborative
Member

August 2012 - July 2017
Research Triangle Park, NC

Triangle Linux Users Group (TriLUG)
Member

July 2015 - July 2017
Raleigh, NC