

Emile Honaminto Virgile DJOHI

Pre-Doctoral Research Fellow, Penn Development Research Initiative (PDRI-DevLab)

University of Pennsylvania

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Research Summary

Pre-doctoral researcher with expertise in development economics, applied econometrics, and climate-conflict dynamics. Current work focuses on the causal links between climate extremes, economic stress, and political violence in Central America, West Africa, and South Asia, using large-scale panel datasets, geospatial methods, and machine learning for causal inference. Strong background in fieldwork, survey design, and policy-relevant research across Sub-Saharan Africa.

Research Interests

Development Economics • Applied Econometrics • Climate & Environmental Economics • Governance & Conflict • Data Science for Policy • Machine Learning

Education

Predoctoral Research Fellowship

University of Pennsylvania, Philadelphia, PA

Supervisors: Erik Wibbels, Guy Grossman & Irina Marinov

Jan 2025 – May 2026

GPA: 3.77/4.0

M.Sc. in Mathematics, Economics & Statistics

African School of Economics (ASE), Benin

Thesis: “Development of a Web-Based Diagnostic Tool for Real-Time Classification and Visualization of Affected Areas in Colposcopy Images from the Central Hospital of Parakou, Benin.”

Supervisor: Zimé Songbian

Sep 2021 – Oct 2023

GPA: 4.0/4.3

B.Sc. in Statistics & Computer Science

African School of Economics (ASE), Benin

Thesis: “Impact of Digitalization on the Economy of WAEMU Countries.”

Supervisor: Nicodème Atchadé

Sep 2018 – Jul 2021

GPA: 15.65/20

Working Papers

Climate Extremes and Economic Stressors as Predictors of Conflict in Central America (2012–2024)

Built a 20-country monthly panel linking climate shocks, economic stress, and conflict events; estimated distributed-lag panel fixed-effects models.

Does Exposure to Climate Change Affect Attitudes? A Contingent Yes

Developed a theory-driven framework linking extreme weather exposure to climate change attitudes; proposed multi-specification inference strategies.

Socio-Economic Impact of COVID-19 on African Economies, Social Cohesion, and Governance

Cross-country study using food-security and governance indicators from Benin, Burkina Faso, and South Africa.

The Economic Impact of COVID-19 on Food Security in Benin and South Africa

Analyzed household-level food security using FCS, DDS, and rCSI indicators from large-scale survey data.

Research Experience

Pre-Doctoral Research Fellow

Jan 2025 – Present

Penn Development Research Initiative (PDRI-DevLab), University of Pennsylvania

Supervisors: Erik Wibbels, Guy Grossman & Irina Marinov

- Constructed cross-country monthly climate-conflict panel datasets integrating ERA5, SPEI, MLEED, EM-DAT, and FAO food-price series across 20 Central American countries (2012–2024).
- Designed and estimated econometric models including distributed-lag specifications, panel fixed effects, interaction terms, and climate-threshold models to test climate-conflict pathways.
- Developed automated geospatial extraction workflows for temperature, precipitation, and drought indicators at the administrative-unit level.
- Applied ElasticNet regularization to data-driven lag selection, improving model parsimony and out-of-sample fit.
- Applied Python-based data analysis techniques to assess climate impacts on agriculture and migration in Central America, contributing to the Global Climate Security Atlas (Marinov Lab, Penn EII); work named in *Penn Today* and *Phys.org* (Jul. 2025) and supported by the Goldsmith Sustainable Agriculture Fund, Kleinman Center for Energy Policy.
- Contributed to a cluster-randomized evaluation of a school- and community-based intervention targeting sexual violence against children in Liberia (150 school-community dyads; 2,160 girls, 1,187 caregivers); conducted independent high-frequency data quality checks (HFCs), monitored safeguarding trigger variables ensuring 26 sensitive disclosures were escalated under the differentiated referral protocol, and identified instrument assignment errors across 8 schools corrected prior to endline.
- Evaluated GPT-4 and Gemini for geographic entity extraction from conflict-related news text; benchmarked accuracy against CLIFF-CLAVIN and human-coded data across Central American sources (2026).

Pre-Doctoral Research Assistant

Sep 2023 – Dec 2024

African School of Economics (ASE), Benin

- Led data harmonization across large-scale multi-country surveys for COVID-19 socio-economic impact studies in Benin, Burkina Faso, and South Africa.

- Produced food security analyses using FCS, DDS, and rCSI indicators, informing monitoring reports and policy briefs submitted to development partners.

Research & Teaching Assistant

Sep 2021 – Sep 2023

Institute for Empirical Research in Political Economy (IERPE), ASE

- Collected, cleaned, and processed data for multiple research projects; conducted econometric and geospatial analyses using R, Stata, Python, and QGIS.
- Coordinated field teams and ensured data quality across survey rounds.
- Served as Teaching Assistant for Mathematics for Economics, Linear Algebra, Econometrics, and Algorithms & Computation (R, Stata, Python, QGIS).

Teaching Experience

African School of Economics (ASE)

Benin

- *Quantitative Economics* (Thomas Sargent, John Stachurski, Matt McKay) Summer 2023, 2024
- *Computational & Algorithmic Methods* (R) — Gabor Nyéki (Princeton) & Zimé Songbian Fall 2023, Spring 2024
- *Computational & Algorithmic Methods* (Python) Fall 2023, Spring 2024
- *Econometrics* — Tamoghna Hader 2024
- *Numerical Analysis* — Guy Degla Spring 2023
- *Mathematics for Economics* — Guy Degla Fall 2023
- *Linear Algebra* — Jonas Doumate Spring 2023

Presentations & Workshops

PRIO Research Workshop — Master Thesis Presentation

2023

University of Pennsylvania Research Seminar — Climate-Conflict Project

Fall 2025

Professional Experience

Intern, Customer Experience Service

Apr 2021 – Jul 2021

MTN Benin, Cotonou, Benin

- Designed and supervised an online customer satisfaction survey; applied predictive modeling to identify drivers of churn and produced actionable recommendations adopted by the CES team.

Assistant to the Technical Director

Apr 2023 – Jul 2023

Ministry of Digitalization, Cotonou, Benin

- Developed machine learning tools for plant pathology detection; contributed to disease-detection projects (including malaria) and supported cross-departmental project coordination.

Scholarships & Awards

World Bank Excellence Scholarship	2021 – 2023
ASE Excellence Scholarship	2018 – 2021

Certifications

- CITI Program: Social & Behavioral Research Refresher — University of Pennsylvania (2025)
- CITI Program: Human Research & Social/Behavioral Research — University of Pennsylvania (2025)
- Macroeconomics Diagnosis — International Monetary Fund
- Financial Markets for Public Policy — Princeton University
- Data Science: Machine Learning — Harvard University
- Impact Evaluation & Reproducible Research — World Bank Group

Technical Skills

Programming	R, Python, Stata, MATLAB, C, HTML, MySQL
Software	RStudio, Stata, Jupyter Notebook, QGIS, L ^A T _E X, VS Code, PyCharm
Methods	Econometrics, Causal Inference, Panel Data, Time Series, Machine Learning, Geospatial Analysis

References

Available upon request.