

# Gloire Rubambiza, Ph.D.

IBM Research  
Research Scientist  
LinkedIn Profile

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Google Scholar Profile

## Education

**Ph.D. in Computer Science;** Minor – Information Science. 2024.

Cornell University – Ithaca, NY

**Thesis Title:** *Towards Resilient Rural Networking Infra: Seamless Visions, Seamful Realities*

**Advisors:** Dr. Hakim Weatherspoon, Dr. Phoebe Sengers

**M.S. in Computer Science.** 2022.

Cornell University – Ithaca, NY

**B.S. in Computer Science;** Minor – Math. 2018.

Grand Valley State University – Allendale, MI

## Research Interests

Computer Systems & Networking, Human-Computer Interaction (HCI)

## Publications

### Refereed Conference Papers

It is standard in computer science papers for lead student authors and advisors to go first and last, respectively

- **Gloire Rubambiza**, Phoebe Sengers, Hakim Weatherspoon, and Jen Liu, “Seam Work and Simulacra of Societal Impact in Networking Research: A Critical Technical Practice Approach”, ACM Conference on Human Factors in Computing Systems (**ACM CHI ’24**), 2024
- **Gloire Rubambiza**, Shiang-Wan Chin, Sachille Atapattu, Mueed Rehman, José F. Martínez, and Hakim Weatherspoon, “Comosum: An Extensible, Reconfigurable, and Fault-Tolerant IoT Platform for Digital Agriculture”, USENIX Annual Technical Conference (**USENIX ATC ’23**), 2023
- **Gloire Rubambiza**, Braulio Dumba, Andrew Anderson, and Hakim Weatherspoon, “EdgeRDV: A Framework for Edge Workload Management at Scale”, IEEE International Conference on Edge Computing and Communications (**IEEE Edge ’23**), 2023
- **Gloire Rubambiza**, Phoebe Sengers, and Hakim Weatherspoon, “Seamless Visions, Seamful Realities: Anticipating Rural Infrastructural Fragility in Early Design of Digital Agriculture”, ACM Conference on Human Factors in Computing Systems (**ACM CHI ’22**), 2022

### Refereed Journal Papers

- Vesna Bacheva, Imani Madison, Mathew Baldwin, Mark Beilstein, Douglas F. Call, Jessica A. Deaver, Kirill Efimenko, Jan Genzer, Khara Grieger, April Z. Gu, Mehmet Mert Ilman, Jen Liu, Sijin Li, Brooke K. Mayer, Anand Kumar Mishra, Juan Claudio Nino, **Gloire Rubambiza**, Phoebe Sengers, Robert Shepherd, Jesse Woodson, Hakim Weatherspoon, Margaret Frank, Jacob Jones, Rosangela Sozzani, and Abraham Stroock. “Transdisciplinary collaborations for advancing sustainable and resilient agricultural systems”. *Global Change Biology*, 2025

- Lara Roeven, Steven Wolf, Phoebe Sengers, Jen Liu, **Gloire Rubambiza**, Donny Persaud, and Hakim Weatherspoon, “Analyzing abstraction in critical agri-food studies and computer science: Toward interdisciplinary analysis of digital agriculture innovation”. *Agriculture and Human Values*, 2024
- Shiang-Wan Chin, **Gloire Rubambiza**, Yifan Zhao, Keyvan Malek, and Hakim Weatherspoon, “Realtime Optimization and Management System (ROAM): A Decision Support System for Digital Agriculture Systems”, *Smart Agricultural Technology*, 2024
- **Gloire Rubambiza\***, Fernando Romero Galvan\*, Ryan Pavlick, Hakim Weatherspoon, and Kaitlin M. Gold, “Towards Cloud-Native, Machine Learning Based Detection of Crop Disease with Imaging Spectroscopy”, *Journal of Geophysical Research, Biogeosciences*, 2023

## Thesis

- **Gloire Rubambiza**. “Towards Resilient Rural Networking Infrastructure: Seamless Visions, Seamful Realities”, Cornell University Dissertation and Theses, 2024.

## Workshop Papers

- **Gloire Rubambiza**, Phoebe Sengers, and Hakim Weatherspoon, “Paradoxes in Producing the Future of Farm Work: Anticipating Social Impact through the Lens of Early Adopters”, *Automation Experience at the Workplace Workshop at ACM CHI ’21*, 2021

## Technical Reports

- Danny Adams, **Gloire Rubambiza**, Pablo Fiori, Xinwen Wang, Hakim Weatherspoon and Robbert Van Renesse, “Tamperproof Provenance-Aware Storage for Mobile Ad Hoc Networks”, 2020

## Extended Abstracts

- **Gloire Rubambiza**. “Towards Resilient Rural Networking Infrastructure for Digital Agriculture”. Doctoral Consortium at CMD-IT/ACM Richard Tapia Celebration of Diversity in Computing Conference (**ACM TAPIA ’23**). 2023
- **Gloire Rubambiza**, Hakim Weatherspoon, José F. Martínez, and Abraham Stroock, “WaterGuard: Toward Cheap Automated Irrigation Systems Powered by the Cloud and TV White Spaces”, CMD-IT/ACM Richard Tapia Celebration of Diversity in Computing Conference (**ACM TAPIA ’20**), 2020
- Martin Matias Perez, **Gloire Rubambiza**, Brandon Barker, Hakim Weatherspoon, and Julio O. Giordano, “Automated real-time integration of data from multiple sensors and nonsensor systems for prediction of dairy cow and herd status and performance”, *Journal of Dairy Science*, Vol. 103, Suppl. 1, 2020
- Kolbeinn Karlsson, Danny Adams, **Gloire Rubambiza**, Zangyueyang Xian, Robbert Van Renesse, Hakim Weatherspoon, and Stephen Wicker, “Untethered: Deployable Blockchains for IoT Environments”, In Proceedings of the ACM Symposium on Cloud Computing (**ACM SoCC ’18**), 2018

## Funding

- **2025-2026** NASA STTR Phase I (with Satlyt and Ricardo Lent, University of Houston). \$150,000

# Presentations

## Conference Talks

- Experience in Designing & Implementing a Cloud Native Framework for Farm Data Analytics. Kube-Con/CloudNativeCon North America 2024. Salt Lake City, UT, November 2024
- Seam Work and Simulacra of Societal Impact in Networking Research: A Critical Technical Practice Approach. ACM Conference on Human Factors in Computing Systems (ACM CHI). Honolulu, HI, May 2024
- Towards Resilient Rural Networking Infrastructure for Digital Agriculture. Doctoral Consortium at CMD-IT/ACM Richard Tapia Celebration of Diversity in Computing Conference. Dallas, TX, September 2023
- Comosum: An Extensible, Reconfigurable, and Fault-Tolerant IoT Platform for Digital Agriculture. USENIX Annual Technical Conference (USENIX ATC). Boston, MA, July 2023
- EdgeRDV: A Framework for Edge Workload Management at Scale. IEEE International Conference on Edge Computing and Communications (IEEE Edge). Chicago, IL, July 2023
- Seamless Visions, Seamful Realities: Anticipating Rural Infrastructural Fragility in Early Design of Digital Agriculture. ACM Conference on Human Factors in Computing Systems (ACM CHI). New Orleans, LA, May 2022
- Measurement and Statistical Analysis of Submarine Internet Cable Performance. Leadership Alliance National Symposium. Hartford, CT, August 2017
- Improving African Internet Traffic through Maximization of Node Centrality. 22<sup>nd</sup> Annual University at Buffalo McNair Summer Research Conference. Buffalo, NY, July 2016

## Seminar Talks

- Towards Resilient Rural Networking Infrastructure: Seamless Visions, Seamful Realities.
  - Cornell CS Colloquium. Remote, 2024
  - GVSU College of Computing Distinguished Speaker Series. Grand Rapids, MI, 2024
  - Cornell CS PhD Defense Seminar. Ithaca, NY, 2024
- Towards Resilient Rural Networking Infrastructure for Digital Agriculture.
  - Princeton University CS HCI Seminar. Princeton, NJ, 2024
  - UIUC CS Systems Seminar. Urbana-Champaign, IL, 2023
  - University of Texas at Austin CS Systems Seminar. Austin, TX, 2023
  - Stanford University HCI Lunch. Stanford, CA, 2023
  - University of Washington CSE Systems Seminar. Seattle, WA, 2022
- Scalable Field Computing — the Software-Defined Farm (SDF). Center for Research on Programmable Plant Systems (CROPPS) Annual NSF Site Visit. Ithaca, NY, 2024
- Comosum: An Extensible, Reconfigurable, and Fault-Tolerant Platform for Digital Agriculture. Northeastern University pre-OSDI/ATC Workshop. Boston, MA, 2023
- Seamless Visions, Seamful Realities: Anticipating Rural Infrastructural Fragility in Early Design of Digital Agriculture. University of Washington ICTD Seminar. Seattle, WA, 2022
- Paradoxes in Producing the Future of Farm Work: Anticipating Social Impact through the Lens of Early Adopters.
  - IBM Hybrid Cloud Academic Project Forum (Virtual). 2021
  - FarmBeats User Community Workshop (Virtual). 2021
- Towards a Software-Defined Farm. Cornell Life Sciences Lecture Series. Ithaca, NY, 2019

## Posters

- Toward Comprehensive Crop Health Monitoring Engineered *in planta* Reporters and Rural Field Sensing Systems. Center for Research on Programmable Plant Systems (CROPPS) Yearly Symposium. 2024.
- Experience in Designing and Implementing a Cloud Native Framework for Farm Data Analytics. KubeCon/CloudNativeCon North America. 2024
- SDF 2.0: Towards a Cloud-Native, Scalable and Fault-Tolerant Platform for Digital Agriculture. KubeCon/CloudNativeCon Europe. 2024
- Toward Cheap Automated Irrigation Systems Powered by the Cloud and TV White Spaces. CMD-IT/ACM Richard Tapia Celebration of Diversity in Computing Conference. 2020
- An IoT-friendly Blockchain for Coordination and Accountability.
  - The Cornell, Maryland, Max Planck Pre-doctoral Research School. 2019
  - Public Safety Broadband Stakeholder Meeting (PSCR). 2019
- Measurement and Statistical Analysis of Submarine Internet Cable Performance.
  - Grand Valley State University Student Scholars Day. 2018
  - Michigan AGEP Alliance Fall Conference. 2017
- Improving African Internet Traffic through Maximization of Node Centrality.
  - Grand Valley State University Student Scholars Day. 2017
  - Grand Valley State University Summer Scholar Symposium. 2016

## Honors and Awards

Cornell Commencement CIS Ph.D. Degree Marshal	May 2024
SUNY Provost Diversity Fellowship (\$31,313)	November 2023
Graduate School Dean's Scholar	November 2023
Best Doctoral Presentation - Tapia Doctoral Consortium (\$1000)	September 2023
NSF-NRT Digital Plant Science Fellowship (\$72,658)	March 2023
Cornell Bowers CIS Distinguished Leadership in Service (\$500)	April 2023
Microsoft Cornell Digital Agriculture Fellowship (\$11,250)	June 2020
NSF-GRFP Honorable Mention	March 2020
NSF-NRT Digital Plant Science Fellowship (\$140,350)	February 2020
Diversifying LEAdership in the Professoriate (LEAP) Fellowship	April 2018
Cornell University Fellowship (\$62,678)	April 2018
Achievement Rewards for College Scientists (\$17,500, Decl.)	April 2018
UF Graduate School Preeminence Award (\$38,319, Decl.)	March 2018
Paul G. Allen School First-Year Ph.D. Fellowship (\$43,836, Decl.)	January 2018
Grand Finish Grant (\$1000)	August 2017
Upsilon Pi Epsilon Honor Society	October 2017
Eric Jon Gillette Memorial Scholarship (\$3000)	April 2016
Ronald E. McNair Scholar	October 2015
Grand Valley Grant (\$8500)	August 2014
Grand Valley Laker Scholarship (\$4000)	August 2014
Michigan State Competitive Scholarship (\$3000)	August 2014
Rivertown Community Commitment Scholarship (\$1000)	April 2014

## Travel Grants

KubeCon/CloudNativeCon North America 2024 (\$1300)	September 2024
Tapia Celebration of Diversity in Computing Conference (\$600)	September 2023
NextProf Nexus 2023 (\$660)	August 2023
USENIX Annual Technical Conference 2023 (\$600)	July 2023
CSST Summer Research Institute 2023 (\$600)	June 2023
Networked Systems Design and Implementation 2022 (\$800)	April 2022
Cornell Research Travel Grant (\$2000)	March 2022
Symposium on Operating Systems Principles 2019 (\$1,365)	October 2019
CRA URMD Grad Cohort 2019 (\$1200)	March 2019
ACM Symposium on Cloud Computing 2018 (\$700)	October 2018
Tapia Celebration of Diversity in Computing Conference (\$600)	September 2018

## Professional Service

Reviewer	ACM Conference on Computer-Supported Cooperative Work (CSCW)	2023, 2026
	Special Recognition for Outstanding Review: 2023	
Reviewer	International Transactions in Operational Research (ITOR)	2025
Reviewer	ACM Conference on Human Factors in Computing Systems (CHI)	2024, 2026
	Special Recognition for Outstanding Review: 2024	
Co-Organizer	ACM Conference on Data Communications (SIGCOMM) SNIP2+ Workshop	2023
Student Volunteer	IEEE International Conference on Dependable Systems & Networks	2017

## Industry Experience

Satlyt	Head of Engineering	October 2024 - Present
	<ul style="list-style-type: none"><li>Grew eng. team 3X to implement Satlyt's edge computing MVP, CI/CD, and security</li><li>Led execution on \$2,000,000 in NASA STTR/SBIR grant writing on mobile edge clouds in space</li><li>Led technical partnership with Catalyx Space to deploy Satlyt MVP on satellites</li></ul>	
IBM Research	Research Scientist Intern	September 2022 - December 2022
	<ul style="list-style-type: none"><li>Architected scalable methods for data and workload management on millions of edge devices</li><li>Filed successful patent application on state and workload management at the edge</li></ul>	
Meta (Facebook)	UX Research Intern	May 2022 - August 2022
	<ul style="list-style-type: none"><li>Improved engineering experience with code deletion projects using internal tools</li><li>Executed new research on engineering pain points at the intersection of code and data deletion</li></ul>	
IBM Research	Research Scientist Intern	May 2021 - August 2021
	<ul style="list-style-type: none"><li>Implemented a Kubernetes-native data mining platform for dozens of AI hardware engineers</li><li>Research results uncovered \$11,000 in potential AWS cloud consumption savings per week</li></ul>	
Collective Idea	Software Development Intern	August 2016 - December 2016
	<ul style="list-style-type: none"><li>Developed a predictive cron job failure algorithm for the Dead Man's Snitch application</li><li>Pair-programmed with senior developers on in-house projects such as add.a.lingua</li></ul>	

## Patents

IBM Research	Scalable Mechanisms For Workload Management in Edge Computing	2025
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## Teaching Experience

Machine Learning Application to Plant Science (PLSCI 7202)	Fall 2021
Pre-Sophomore Summer Program in Computer Science (CS 3410)	June 2020
Computer System Organization and Programming (CS 3410)	Spring 2020
SoNIC Summer Research Workshop	June 2019

## Media

### 2025

- **TechCrunch:** “Google announces latest AI American Infrastructure Academy cohort” July 10, 2025
- **NASA:** “Latest SBIR/STTR Phase I Selections” July 7, 2025
- **Snowflake:** “Snowflake Startup Challenge 2025: Meet the Top 10” April 9, 2025

### 2024

- **GVSU College of Computing:** “The first College of Computing alumnus graduates with a PhD from Cornell University” September 30, 2024
- **GVSU Office of Undergraduate Research and Scholarship (OURS):** “OURS Student Spotlights” August 14, 2024
- **Cornell Bowers CIS:** “‘Architects of the Future’ Recognized During Cornell Bowers CIS Ceremonies” May 28, 2024

### 2023

- **Cornell Bowers CIS:** “Rubambiza receives best doctoral presentation at TAPIA conference for digital ag work.” November 8, 2023
- **Los Angeles Times:** “NASA technology can spot wine grape disease from the sky. The world’s food supply could benefit.” September 5, 2023
- **NASA Earth Press Release:** “NASA helps spot wine grape disease from skies above California.” August 4, 2023
- **NASA JPL Media Office:** “NASA Helps Spot Wine Grape Disease From Skies Above California” August 4, 2023 - Picked up by Wine Business, SlashGear, The Sacramento Bee, Hot Hardware, KTLA, Hacker News
- **Cornell Bowers CIS,** “Cornell Bowers CIS celebrates second annual DEIB Awards”, May 4, 2023

### 2022

- **Cornell Chronicle:** “Researchers consider invisible hurdles in digital ag design.” June 22, 2022
- **Cornell Bowers CIS:** “Digital Ag Systems Won’t Be Plug-and-Play - And That’s Okay” June 21, 2022

### 2021

- **School News Network:** “I’m hoping the world will be my oyster” April 23, 2021

### 2019

- **Cornell Bowers CIS:** “Inspire - Innovate - Impact: CIS@20 Celebratory Video” October 2019

## **Undergraduate Research Experience**

**University of Colorado Boulder SMART Program**  
**Ronald E. McNair Scholars Summer Research Program**

June 2017 - August 2017  
May 2016 - August 2016

## **Masters Students Advised**

Kevin Huang (CS), Yifan Zhao (CS)

## **Undergraduate Student Independent Project Advisee**

Annie Kimmel (ECE), Mueed Ur Rehman (ECE), Steven Long (CS)  
Raheel Yanful (CS), Steven Owusu (CS)  
Ysabel Tan (ECE), Christine Ahn (ECE)  
Pablo Fiori (CS)

## **Mentoring and Service**

<b>Cornell CS PhD Student-Applicant Support Program</b>	Reviewer	November 2024
<b>Cornell CIS Diversity Council</b>	Graduate Representative	2019 - 2021
<b>GSGIC/WICC/GradSWE Graduate School Panel</b>	Panelist	April 2021
<b>Cornell CS PhD Mentoring Program</b>	Mentor	2019 - 2020
<b>Cornell URMC Career Fair Prep</b>	Graduate Reviewer	September 2019
<b>Cornell, Maryland, Max Planck Summer School</b>	Cornell Representative	August 2019
<b>Sonic Summer Research Workshop</b>	Graduate Panelist	June 2019
<b>Cornell McNair Scholars Graduate Application Panel</b>	Graduate Panelist	October 2018

## **Volunteering, Outreach, and Leadership Experience**

<b>CROPPS at Ithaca Farmers' Market</b>	Representative	September 2024
<b>IBM P-TECH Program</b>	Presenter	July 2021
<b>The Village at Ithaca</b>	Student Achievement Coach	2019
<b>The Immigrant Connection</b>	Citizenship Class Tutor	2017
<b>Samaritas</b>	Cultural Mentor/ESL Tutor	2016
<b>GVSU Office of Undergraduate Research &amp; Scholarship</b>	Session Host	April 2016