

# Gloire Rubambiza, M.S.

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## Education

**Ph.D. in Computer Science.** August 2024 (Expected).

Cornell University – Ithaca, NY

*Towards Resilient Rural Networking Infrastructure for Digital Agriculture*

Advisors: Hakim Weatherspoon, Phoebe Sengers

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

Cornell University – Ithaca, NY

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

Grand Valley State University – Allendale, MI

## Research Interests

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

## Publications

### Refereed Conference and Journal Papers

- **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, To Appear**), 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\***, 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
- **Gloire Rubambiza**, Phoebe Sengers, and Hakim Weatherspoon, “Seamless Visions, Seamless Realities: Anticipating Rural Infrastructural Fragility in Early Design of Digital Agriculture”, ACM Conference on Human Factors in Computing Systems (**ACM CHI ’22**), 2022

## In Review

- Jen Liu, Phoebe Sengers, Lara Roeven, **Gloire Rubambiza**, Donny Persaud, Hakim Weatherspoon, and Steven Wolf, “Material Anticipation: How Realities Are Imagined and Produced in Networking Infrastructure Development for Digital Agriculture”, Submitted to **ACM CSCW**, 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”, Submitted to *Smart Agricultural Technology*, 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**, 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

## Presentations

### Conference Talks

- 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 Human Factors in Computing Conference (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 for Digital Agriculture. Princeton University CS HCI Seminar. Princeton, NJ, 2024
- Towards Resilient Rural Networking Infrastructure for Digital Agriculture. UIUC CS Systems Seminar. Urbana-Champaign, IL, 2023
- Towards Resilient Rural Networking Infrastructure for Digital Agriculture. University of Texas at Austin CS Systems Seminar. Austin, TX, 2023
- Towards Resilient Rural Networking Infrastructure for Digital Agriculture. Stanford University HCI Lunch. Stanford, CA, 2023
- Comosum: An Extensible, Reconfigurable, and Fault-Tolerant Platform for Digital Agriculture. Northeastern University pre-OSDI/ATC Workshop. Boston, MA, 2023
- Towards Resilient Rural Networking Infrastructure for Digital Agriculture. University of Washington CSE Systems Seminar. Seattle, WA, 2022
- 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
- Paradoxes in Producing the Future of Farm Work: Anticipating Social Impact through the Lens of Early Adopters. FarmBeats User Community Workshop (Virtual). 2021
- Towards a Software-Defined Farm. Cornell Life Sciences Lecture Series. Ithaca, NY, 2019

## Posters

- 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

- An IoT-friendly Blockchain for Coordination and Accountability. Public Safety Broadband Stakeholder Meeting (PSCR). 2019
- Measurement and Statistical Analysis of Submarine Internet Cable Performance. Grand Valley State University Student Scholars Day. 2018
- Measurement and Statistical Analysis of Submarine Internet Cable Performance. Michigan AGEP Alliance Fall Conference. 2017
- Improving African Internet Traffic through Maximization of Node Centrality. Grand Valley State University Student Scholars Day. 2017
- Improving African Internet Traffic through Maximization of Node Centrality. Grand Valley State University Summer Scholar Symposium. 2016

## Honors and Awards

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

## Travel Grants

<b>Tapia Celebration of Diversity in Computing Conference (\$600)</b>	September 2023
<b>NextProf Nexus 2023 (\$660)</b>	August 2023
<b>USENIX Annual Technical Conference 2023 (\$600)</b>	July 2023
<b>CSST Summer Research Institute 2023 (\$600)</b>	June 2023
<b>Networked Systems Design and Implementation 2022 (\$800)</b>	April 2022
<b>Symposium on Operating Systems Principles 2019 (\$1,365)</b>	October 2019
<b>CRA URMD Grad Cohort 2019 (\$1200)</b>	March 2019

**ACM Symposium on Cloud Computing 2018 (\$700)**  
**Tapia Celebration of Diversity in Computing Conference (\$600)**

October 2018  
September 2018

## Professional Service

**ACM CHI 2024**  
**ACM SIGCOMM SNIP2+**  
**ACM CSCW 2023**  
**IEEE ICDSN**

Reviewer  
Workshop Co-organizer  
Reviewer  
Student Volunteer

October 2023  
September 2023  
February 2023  
June 2017

## Industry Experience

**IBM Research**                      Research Intern                      September 2022 - December 2022

- Architected scalable methods for data and workload management on millions of edge devices
- Filed patent application (pending) on state and workload management at the edge

**Meta (Facebook)**                      UX Research Intern                      May 2022 - August 2022

- Improved engineering experience with code deletion projects using internal tools
- Executed new research on engineering pain points at the intersection of code and data deletion

**IBM Research**                      Research Intern                      May 2021 - August 2021

- Implemented a Kubernetes-native data mining platform for dozens of AI hardware engineers
- Research results uncovered \$11,000 in potential AWS cloud consumption savings per week

**Collective Idea**                      Software Development Intern                      August 2016 - December 2016

- Developed a predictive cron job failure algorithm for the Dead Man's Snitch application
- Pair-programmed with senior developers on in-house projects such as add.a.lingua

## 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

**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

<b>University of Colorado Boulder SMART Program</b>	June 2017 - August 2017
<b>Ronald E. McNair Scholars Summer Research Program</b>	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 Owussu (CS)  
 Ysabel Tan (ECE), Christine Ahn (ECE)  
 Pablo Fiori (CS)

## Mentoring and Service

Cornell CIS Diversity Council	Graduate Representative	2019 - 2021
GSGIC/WICC/GradSWE Graduate School Panel	Panelist	April 2021
Cornell CS PhD Mentoring Program	Mentor	2019 - 2020
Cornell URM Career Fair Prep	Graduate Reviewer	September 2019
Cornell, Maryland, Max Planck Summer School	Cornell Representative	August 2019
SoNIC Summer Research Workshop	Graduate Panelist	June 2019
Cornell McNair Scholars Graduate Application Panel	Graduate Panelist	October 2018

## Volunteering and Leadership Experience

IBM P-TECH Program	Presenter	July 2021
The Village at Ithaca	Student Achievement Coach	2019
The Immigrant Connection	Citizenship Class Tutor	2017
Samaritas	Cultural Mentor/ESL Tutor	2016
GVSU Office of Undergraduate Research & Scholarship	Session Host	April 2016