

Robert Kasumba

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EDUCATION

Ph.D. in Computation and Data Sciences, Washington University in St. Louis (2022 - to date) **Mentors:** Dr. Chien-Ju Ho and Dr. Dennis Barbour.

Master of Science in Computer Science, Washington University in St. Louis (2020 - 2022, CGPA: 3.84/4.00)

Bachelor of Science in Software Engineering, Makerere University, Uganda (2014 - 2018, CGPA: 4.81/5.00)

AWARDS & HONORS

McDonnell International Scholars Academy Fellowship, Washington University in St. Louis (2022 - 2027)
Dean's Select Ph.D. Fellowship, McKelvey School of Engineering, Washington University in St. Louis (2022 - 2028)

Graduate Scholarship, McKelvey School of Engineering, Washington University in St. Louis (2020 - 2022).

Research Assistant Fellowship, International Center for Child Health and Development, Brown School, Washington University in St. Louis (2020 - 2022).

Government of Uganda Undergraduate Scholarship, Makerere University (2014 - 2018).

WORK EXPERIENCE

Graduate Research Assistant, Laboratory of Sensory Neuroscience and Neuroengineering, McKelvey School of Engineering, Washington University in St. Louis (Feb 2022 to Aug 2022) **Mentor:** Dr. Dennis Barbour

- I used Bayesian active learning with Gaussian Processes (GPs) and Neural Networks to speed up testing and minimize the data needed to learn and estimate contrast sensitivity functions (CSF), and cognitive executive functions.

Graduate Research Assistant, International Center for Child Health and Development, Brown School, Washington University in St. Louis (Aug, 2021 - Feb, 2022) **Mentor:** Dr. Fred Ssewamala

- Coordinated the Youth Health SMS study that examines the use of mobile technology to prevent HIV and related Youth Health problems: Sexual health, Mental health, and Substance use in southwest Uganda.

IT manager, International Center for Child Health and Development (ICHAD), Uganda (2020 -2021)

- Spearheaded the redesign of ICHAD's network into a single connected network across all the center's office buildings which cut down network breakdowns to at most once a month even with increased dependency.
- Designed and supported the Human Resource Records Database using Microsoft Access Provided IT technical support as ICHAD transitioned to the virtual environment to ensure continuity of work in the COVID-19 pandemic.

Software Engineer, Cabral Tech Limited (2019 - 2020)

- Led the team of engineers to develop the Crop Manager App, a native Android application developed in Java that supports crop farmers to manage their crop farms by keeping records and estimates farm input/output.
- Developed the back-end of the Livestock Manager App using the Laravel PHP framework.

Software Engineer, Thin Void Limited (July 2018 -December 2018):

- Developed a visualization dashboard of the Educate! using Laravel, MySQL that parses data from Survey CTO and Telerivet into the system database.

Software Engineer Intern, WIMEA-ICT (July 2018 -December 2018):

- Developed and configured a tool that sends data from Automatic Weather Stations to the repository.

TEACHING EXPERIENCE

Teaching Assistant, ESE 415 Optimization, Washington University in St. Louis (Spring 2022)

Teaching Assistant, CSE 417T Introduction to Machine Learning, Washington University in St. Louis (Fall 2021)

Teaching Assistant, Uganda Martyrs' Secondary School Namugongo (2014 - 2017)

Teaching Assistant, St. Andrew's Secondary School Matala (2012 - 2014):

LEADERSHIP

Board Member, Harambee Center, OR, USA (2022 - to date)

Board Member, Kingdom Home, WA, USA (2023 - to date)

Board of Governors Member, St. Andrew's Secondary School Matala (2018 - 2021)

Chairman, St. Andrew's SS Matala Alumni Association (2015 - to date)

Class Representative, Makerere University (2014 - 2018)

PUBLICATIONS

1. **Robert Kasumba**, Dom CP Marticorena, Anja Pahor, Geetha B. Ramani, Imani Masters Goffney, Susanne M. Jaeggi, Aaron R Seitz, Jacob R Gardner, and Dennis L Barbour. Distributional latent variable models with an application in active cognitive testing. 2023. URL <https://api.semanticscholar.org/CorpusID:266335286>. [Preprint]
2. **Robert Kasumba** and Marion Neumann. Practical sentiment analysis for education: The power of student crowdsourcing. Accepted at EAAI-24, 2024
3. Philip Kreniske, Olive Imelda Namuyaba, **Robert Kasumba**, Phionah Namatovu, Fred Ssewamala, Gina Wingood, Ying Wei, Michele L Ybarra, Charlotte Oloya, Costella Tindyebwa, Christina Ntulo, Vincent Mujune, Larry W Chang, Claude A Mellins, and John S Santelli. Mobile phone technology for preventing hiv and related youth health problems, sexual health, mental health, and substance use problems in southwest uganda (youth health sms): Protocol for a pilot randomized controlled trial. *JMIR Research Protocols*, 12:e49352, 2023. doi: 10.2196/49352. URL <https://doi.org/10.2196/49352>
4. Robert Kasumba, Saugat Pandey, Vishesh Patel, Micah Wolfson, and Alvitta Ottley. User engagement with covid-19 visualizations on twitter. 2022. URL <https://doi.org/10.31219/osf.io/es6ua>. [Preprint, Presented at the VisComm Workshop, IEEE VIS 2022]
5. Maya Topitzer, Yueming Kou, **Robert Kasumba**, and Philip Kreniske. How differing audiences were associated with user emotional expression on a well-being app. *Human Behavior and Emerging Technologies*, 2022, 2022. URL <https://doi.org/10.1155/2022/4453980>
6. **Robert Kasumba**. Application of crowdsourcing and machine learning to predict sentiments in textual student feedback in large computer science classes. 2022. URL https://openscholarship.wustl.edu/eng_etds/708/
7. Mary Nsabagwa, Isaac Mugume, **Robert Kasumba**, Joshua Muhumuza, Steven Byarugaba, Eugene Tumwesigye, and Julianne Sansa Otim. Condition monitoring and reporting framework for wireless sensor network-based automatic weather stations. In *2018 IST-Africa Week Conference (IST-Africa)*, pages Page–1. IEEE, 2018a. ISBN 25768581. URL <https://ieeexplore.ieee.org/abstract/document/8417352>
8. Mary Nsabagwa, Joshua Muhumuza, **Robert Kasumba**, Julianne Sansa Otim, and Roseline Akol. Minimal idle-listen centralized scheduling in tsch wireless sensor networks. In *2018 41st International Conference on Telecommunications and Signal Processing (TSP)*, pages 1–5. IEEE, 2018b. doi: 10.1109/TSP.2018.8441425. URL <https://ieeexplore.ieee.org/abstract/document/8441425>

PROJECTS

Automatic Weather Station Condition Monitoring tool (Undergraduate Final year project)

- Developed (using C and PHP) a Condition Monitoring tool for wireless sensor network-based Automatic Weather Stations under the WIMEA-ICT project. Configured the tool to send the device state data automatically to the server which is used to send automatic notifications to the station manager in case of failure.

Mubali Music Streaming App (2016 - 2021):

- Developed and supported a music streaming app (Web and Android) using PHP and Java as a side project during my undergraduate study.

Farmers App (August 2016 - November 2016)

- Worked with an interdisciplinary team of students at Makerere University to develop an android application in Java that provides information about common crop/animal diseases and good practices.

SKILLS

Programming Skills: Java, C, R, Python, C++, PHP, JavaScript, HTML, Ionic, Android Development, Swift and IOS development, Web development, Machine Learning

Languages: English (Full language proficiency), Luganda (Native Language)