

Emilia Ndilokelwa Weyulu

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“The function of freedom is to free someone else.” - Toni Morrison

Core Skills

Network Engineering	LAN/WAN, Congestion Control, TCP/UDP, QUIC, HTTP, IPv4/IPv6, DNS
Scripting	Python, Bash/Shell scripting (grep, sed, awk, sort, etc), P4
Tools	Linux networking, NS-3, KVM, DPDK, Git, Docker, LaTeX, VS Code, Cisco/Juniper IOS
Debugging	Wireshark, Ipsumdump, tcpdump, Zeek/Bro, GDB
Data Analysis	Jupyter Notebook, Pandas, Numpy, Scipy, scikit-learn
Research and Development	Academic research, data analysis, scientific writing, teaching/mentoring, analytical thinking
Languages	English (Fluent), German (Basic), Japanese (Beginner)

Professional Experience

Ph.D Candidate & Network Systems Researcher - Max Planck Institute for Informatics

Saarbruecken, Germany

SAARLAND UNIVERSITY

May 2019 - Current

- Designed and automated a robust and reproducible framework for systematic performance evaluations of network transport algorithms
- Developed a congestion control framework with programmable switches to obtain in-network telemetry as congestion feedback, achieving 60%+ performance improvement over existing methods
- Publication and presentation of research output at international conferences, including Internet standardization meetings
- Teaching Assistant responsible for a lecture in Data Networks and supervised masters thesis projects

Internship - Huawei Munich Research Center

Munich, Germany

APPLIED NETWORK TECHNOLOGY LABORATORY

Feb. 2023 - Jul. 2023

- Implemented and evaluated a Service Routing prototype in Linux Ubuntu using eBPF-based packet processing and user-space socket libraries.
- Researched use cases to demonstrate the benefits of Service Routing in practice using the ROSA mechanism.
- Published research findings at the 2024 IFIP Networking Conference in Thessaloniki, Greece.

Network Technician - Telecom Namibia

Windhoek, Namibia

IP/TDM/METRO-ETHERNET BACKHAULING

Mar. 2011 - Aug. 2015

- Provided Ethernet network services for corporate clients using copper and fiber optics technologies (MPLS and Metro-E).
- Configured, tested, and troubleshoot end-user equipment for use in corporate VPNs and internet access using Cisco/Juniper IOS.
- Provided 1st & 2nd level support and troubleshooting in Network Operation Center (NOC).

Network Systems Internship - Telecom Namibia

Windhoek, Namibia

DESIGN, ENGINEERING, PLANNING, AND IMPLEMENTATION

Feb. 2010 - Jan. 2011

- Supported network engineering team in implementing and operating Ethernet network services (MPLS and Metro-E).
- Gained experience in LAN and WAN configurations using Cisco/Juniper IOS, Network design and implementation, CPE installation

Education

Ph.D in Computer Science - Max Planck Institute for Informatics

Saarbuecken, Germany

ADVISOR: PROF. ANJA FELDMANN, PH.D., CO-ADVISOR: PROF. BALAKRISHNAN CHANDRASEKARAN, PH.D

Expected: Q2, 2025

Thesis: Robust and Reproducible Congestion Control Evaluations for the Internet

M.Sc in Informatics - Tokyo University of Information Sciences

Chiba, Japan

ADVISOR: PROF. DR. MOO WAN KIM

Mar. 2016 - Mar. 2018

Thesis: Asymmetric RTS/CTS for Exposed Node Reduction - **Best Masters Thesis**

M.Sc in Computer Science - Namibia University of Science and Technology

Windhoek, Namibia

ADVISOR: PROF. DR. GUY-ALAIN LUSILAO ZODI

Mar. 2014 - Oct. 2017

Thesis: A Rate Adaptive and Forward Error Correction Scheme for Video Streaming in 802.11b WLANs

B.Sc in Computer Science and Statistics - University of Namibia

Windhoek, Namibia

ADVISOR: MR. JOHN MUTUKU & DR. PETRUS T. IYAMBO

Feb. 2006 - Dec. 2010

Thesis: Server Resource Monitoring for the Computer Science Department

Honors & Awards

2024	Best Paper Award , Passive and Active Measurement Conference (PAM)	Illinois, USA
2018	Best Masters Thesis , Tokyo University of Information Sciences Graduate Excellence Award	Chiba, Japan
2017	Best Event Paper for Wireless Sensor Networks , FedCSIS	Prague, CR
2015	ABE Initiative Scholarship , Japan International Cooperation Agency (JICA)	Chiba, Japan
2006	Undergraduate Scholarship , Telecom Namibia	Windhoek, Namibia

Selected Talks

ICCRG - IETF 121

Dublin, Ireland

INVITED TALK FOR "PROMISES AND POTENTIAL OF BBRv3"

Nov. 2024

- Presented our research paper that investigated the potential impact of the new BBRv3 deployment in the Internet.

Passive and Active Measurement Conference (PAM)

Online, USA

PRESENTER FOR "PROMISES AND POTENTIAL OF BBRv3"

Mar. 2024

- Presented our research paper that investigated the potential impact of the new BBRv3 deployment in the Internet.

Federated Conference on Computer Science and Information Systems (FedCSIS)

Prague, Czech Republic

PRESENTER FOR "OPTIMIZING RTS/CTS TO IMPROVE THROUGHPUT IN AD HOC WLANS"

2017

- Presented our research paper that implemented an optimized RTS/CTS scheme for IEEE 802.11 wireless networks.

International Conference on Advanced Communication Technology (ICTACT)

PyeongChang, South Korea

PRESENTER FOR "AD HOC WLAN THROUGHPUT IMPROVEMENT BY REDUCTION OF RTS RANGE"

2017

- Presented our research paper that implemented an exposed node reduction for IEEE 802.11 wireless networks.

Selected Publications

2024	D. Zeynali, E.N. Weyulu , S. Fathalli, B. Chandrasekaran, and A. Feldmann, Promises and Potential of BBRv3. Passive and Active Measurement Conference (PAM) - Best Paper Award	Virtual, USA
2024	E.N. Weyulu , and D. Trossen, Exploring The Benefits of In-Band Service Routing. IFIP Networking	Thessaloniki, Greece
2019	A. Feldmann, B. Chandrasekaran, S. Fathalli, and E.N. Weyulu , P4-enabled network-assisted congestion feedback: A case for nacks. Workshop on Buffer Sizing (BS'19)	Palo Alto, USA
2018	E. Weyulu , M. Hanada, H. Kanemitsu, E.C. Park, and M.W. Kim, Cross-layer design for exposed node reduction in ad hoc WLANS. IEICE Transactions on Communications.	Tokyo, Japan
2017	E. Weyulu , M. Hanada, and M.W. Kim, Optimizing RTS/CTS to improve throughput in ad hoc WLANS. Federated Conference on Computer Science and Information Systems (FedCSIS) - Best Event paper	Prague, Czech Republic

References

Prof. Anja Feldmann, Ph.D - Ph.D. Advisor

Max Planck Institute for Informatics

DIRECTOR

Internet Architecture

- Address:** Saarland Informatics Campus, Campus E1.4, 66123 Saarbruecken
- Tel:** +49 681 9325 3501
- Email:** anja@mpi-inf.mpg.de

Prof. Balakrishnan Chandrasekaran, Ph.D - Ph.D. Co-Advisor

Vrije Universiteit Amsterdam

ASSISTANT PROFESSOR

Computer Systems

- Address:** De Boelelaan 1111, 1081 HV Amsterdam, Netherlands
- Email:** b.chandrasekaran@vu.nl

Dirk Trossen - Internship Supervisor

Huawei Munich Research Center

CHIEF NETWORK ARCHITECTURE RESEARCHER

Applied Network Technologies Lab

- Address:** Riesstraße 25, 80992 Muenchen
- Tel:** +49 89 158834 4100
- Email:** dirk.trossen@huawei.com