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, 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 framework to systematically assess transport algorithm's performance in terms of latency and throughput cost.
- Developed a congestion control framework using programmable switches to collect in-network telemetry and generate congestion feedback.
- 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).
- Collaborated with several teams to plan, design, and implement telecom network services including IP planning and CPE installation.
- Configured, tested, and troubleshot 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: Redefining Congestion Control Evaluations for the Modern 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 (ICACT) — *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*

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