

Emilia Ndilokelwa Weyulu

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

Summary

I am an adaptable, self-motivated Networked Systems Researcher with extensive experience in optimizing algorithms for efficient data transmission and enhancing reliability in communication networks, focusing on congestion control. I have over 4 years of professional work experience as a data transmission technician in a telecommunications company, specializing in carrier service provisioning and routing. I seek opportunities to deepen my expertise in networking technologies, particularly in congestion control and flow control for low-latency, high-throughput applications.

Professional Experience

Graduate Researcher (Ph.D) - Max Planck Institute for Informatics

Saarbruecken, Germany

SAARLAND UNIVERSITY

May 2019 - Current

- PhD Student in Internet Architecture researching the performance and evaluation of congestion control algorithms on the Internet.
- Mentoring undergraduate and graduate students for thesis and semester projects on network transport protocols.
- Publication and presentation of research output at international conferences, including IETF meetings.
- Teaching Assistant responsible for a lecture in Data Networks and a seminar on Hot Topics in Data Networks.

Internship - Huawei Munich Research Center

Munich, Germany

APPLIED NETWORK TECHNOLOGY LABORATORY

Feb. 2023 - Aug. 2023

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

Market Research Internship - SoftBank Group

Tokyo, Japan

GLOBAL BUSINESS DEVELOPMENT

Mar. 2018 - Jul. 2018

- FinTech: Research into mobile money and the e-payment ecosystem in Africa and South East Asia.
- Development of a FinTech business strategy tailored for the African market.

Network Technician - Telecom Namibia

Windhoek, Namibia

IP/TDM/METRO-ETHERNET BACKHAULING

Mar. 2011 - Aug. 2015

- VPN implementation for corporate clients using copper and fiber optics technologies (MPLS and Metro-E).
- Network planning, design, and implementation including IP planning and customer site equipment installation.
- Configuring, testing, and troubleshooting end-user equipment for use in corporate VPNs and internet access using Cisco/Juniper IOS.

Network Systems Internship - Telecom Namibia

Windhoek, Namibia

DESIGN, ENGINEERING, PLANNING, AND IMPLEMENTATION

Feb. 2010 - Jan. 2011

- Internship in Design, Engineering, Planning, and Implementation (DEPI) department supporting engineering team in implementation and operation of network solutions, e.g. VPN installation and 1st level support and troubleshooting in Network Operation Center.
- 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

May 2019 - Current

Thesis: Designing a benchmark for identifying and overcoming the shortcomings of congestion control algorithms

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 (Computer Science): Server Resource Monitoring for the Computer Science Department

Publications

TBD	S. Fathalli, E.N. Weyulu , D. Zeynali, B. Chandrasekaran, and A. Feldmann, Network-assisted Congestion Feedback, Under Submission	TBD
2024	D. Zeynali, E.N. Weyulu , S. Fathalli, B. Chandrasekaran, and A. Feldmann, BBRv3 in the public Internet: a boon or a bane? Applied Networking Research Workshop (ANRW)	Vancouver, Canada
2024	E.N. Weyulu , and D. Trossen, Exploring The Benefits of In-Band Service Routing. IFIP Networking	Thessaloniki, Greece
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
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
2017	S. Hashimoto, E.N. Weyulu , K. Hajikano, H. Kanemitsu, and M.W. Kim, Evaluation of task clustering algorithm by FFT for heterogeneous distributed system. International Conference on Advanced Communication Technology (ICACT)	PyeongChang, South Korea
2017	E. Weyulu , T. Iwabuchi, M. Takeshi, M. Hanada, and M.W. Kim, Ad hoc WLAN throughput improvement by reduction of RTS range. International Conference on Advanced Communication Technology (ICACT)	PyeongChang, South Korea
2017	H. Kanemitsu, M. Hanada, E.N. Weyulu , and M.W. Kim, On the performance of a clustering-based task scheduling in a heterogeneous system. Advances in Science, Technology and Engineering Systems Journal (ASTESJ)	California, USA
2016	E.N. Weyulu , and G.A. Lusilao-Zodi, A dynamic forward error control scheme for video streaming over wireless networks. International Conference on Computing, Networking and Communications (ICNC)	Kauai, HI, USA

Technical Skills

Programming Languages	Python, C, C++, Bash/Shell scripting, P4
Tools	Linux networking, NS-3, KVM, DPDK, Git, LaTeX, Cisco/Juniper IOS, Programmable Switches (P4 + Tofino)
Data Analysis Tools	Jupyter Notebook, Pandas, Numpy, scikit-learn, Zeek/Bro, tcpdump, Wireshark, Ipsumdump
Communication Protocols	TCP/UDP, QUIC, HTTP, IPv4/IPv6, DNS
Areas of Expertise	Congestion Control, Network Data Analysis, System Design, Research-based Development, Debugging

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
2010	Best Student in Statistical Quality Control , University of Namibia	Windhoek, Namibia
2006	Undergraduate Scholarship , Telecom Namibia	Windhoek, Namibia

Academic Service

PRE-REVIEW COMMITTEE

USENIX NSDI, '25

Spring, Fall
Deadline

TECHNICAL PROGRAM COMMITTEE - STUDENT SCRIBE

ACM CoNEXT, '20

International

(CO)REVIEWER

Annual Computer Security Applications Conference (ACSAC), '24

International

PARTICIPATION IN EVENTS

Online	IETF 120 Meeting, '24	Vancouver, Canada
Online	PAM, '21 '22 '23 '24	International
Online	IETF 116 Meeting, '24	Yokohama, Japan
Online	ACM Sigcomm, '21	International
Online	ACM IMC, '21	International
Online	ACM HotNets, '21	International
In-Person	ACM IMC, '19	Amsterdam, NL
In-Person	QUIC Symposium, '19	Diepenbeek, BE
In-Person	FedCSIS, '17	Prague, CR
In-Person	IEICE General Conference, '17	Nagoya, Japan
In-Person	ICACT, '17	PyeongChang, KR
In-Person	SATNAC, '16	George, ZA

References

Dirk Trossen - Internship Supervisor

CHIEF NETWORK ARCHITECTURE RESEARCHER

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

Huawei Munich Research Center
Applied Network Technologies Lab

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

DIRECTOR

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

Max Planck Institute for Informatics
Internet Architecture

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

ASSISTANT PROFESSOR

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

Vrije Universiteit Amsterdam
Computer Systems