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 organizing Masters and Bachelors courses for Data Networks and Hot Topics in Data Networks Seminar.

Internship - Huawei Munich Research Center

Munich, Germany

APPLIED NETWORK TECHNOLOGY LABORATORY — *Feb. 2023 - Aug. 2023*

- Research use cases to showcase the benefits of Service Routing in practice using the ROSA mechanism.
- Implement and evaluate a Service Routing prototype in Linux Ubuntu using eBPF-based packet processing and user-space socket libraries.
- Published research output 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.
- Installation and updating of software on cluster servers, mapping of network drives, joining of users to Active Directory.

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 — *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. 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. 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. IIYAMBO — *Feb. 2006 - Oct. 2017*

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*
2023	**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
ACSAC, '24   *International*
SIGCOMM, '20   *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   *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

Prof. Anja Feldmann - Ph.D. Supervisor   *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. co-Supervisor   *Vrije Universiteit Amsterdam*
Assistant Professor   *Computer Systems*
- **Address:** De Boelelaan 1111, 1081 HV Amsterdam, Netherlands
- **Email:** b.chandrasekaran@vu.nl