

Dr. Amreesh D. Phokeer

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| CONTACT INFORMATION | amreesh.phokeer@gmail.com www.linkedin.com/in/amreeshphokeer amreesh.github.io | |
| ABOUT ME | My research interests are in the broad area of computer networking, security, and telecommunication policy, with an emphasis on Internet measurements. I am focused on efforts around designing new tools and techniques to study the global health of the Internet including Internet resilience, routing security issues, Internet shutdowns, and other market trends that impact the growth of the Internet. With over 15 years of experience in Internet engineering, I have an in-depth understanding of core Internet protocols (TCP/IP, UDP, BGP, DNS). At AFRINIC, I have designed and implemented PKI-based security frameworks namely RPKI and DNSSEC. I have managed multiple research projects with different organizations. I also have experience in teaching and supervising doctoral/master-level students. | |
| AREAS OF EXPERTISE | Internet protocols, Internet Policy Formulation, Risk Assessment, Project Leadership, Product Management. | |
| EDUCATION | Ph.D. in Computer Science | 2021 |
| | <i>University of Cape Town, South Africa</i> | |
| | Supervisory Committee: Nick Feamster, David Johnson | |
| | Research Areas: Internet performance evaluation in developing regions | |
| | M.Sc. in Information Security (Distinction) | 2013 |
| | <i>Royal Holloway, University of London, UK</i> | |
| | Advisor: Keith Martin | |
| | Thesis: RPKI adoption challenges | |
| | Diplôme d'Ingénieur (M.S.) (Concours Mines-Télécom) | 2008 |
| | <i>Telecom Nancy, University of Lorraine, France</i> | |
| WORK EXPERIENCE | Internet Society (ISOC) | |
| | <i>Project Leader - ISOC Pulse</i> | 2024 to present |
| | <i>Internet Measurement and Data Expert</i> | 2021 to present |
| | <ul style="list-style-type: none">• Subject Matter Expert in the areas of Internet shutdowns, Internet concentration, Internet resilience, Internet Governance and Internet policy, currently leading the Measuring the Internet (Pulse) project at ISOC (team of 10+ staff). | |
| | <ul style="list-style-type: none">• Designed and built the Internet Resilience Index (IRI), the IXP Tracker and Popular Content Locality measurement tool. | |
| | <ul style="list-style-type: none">• Managing the Pulse Research fellowship program, including supervising research fellows. | |
| | African Network Information Center (AFRINIC) | |
| | <i>Research Manager</i> | 2014 to 2021 |
| | <i>Software Engineering Manager</i> | 2011 to 2014 |
| | <ul style="list-style-type: none">• Responsible for Internet security and measurement research projects, leading a team of software and data engineers. | |

- Managed the AFRINIC research program to foster relationships with academic institutions. Collaborated with international researchers to conduct in-depth Internet measurement campaigns to better understand the African Internet infrastructure development and challenges from security, performance, and economic perspectives.
- Designed and implemented the DNSSEC and RPKI infrastructure at AFRINIC for DNS reverse zone signing and resource certification.

National Institute of Standards and Technology (NIST)

Guest Researcher

2008 to 2010

- Assisted Computational biologists in developing tools and techniques for better image analysis. Integrated legacy applications into modern image processing tools.
- Developed a project management portal to help researchers keep track of project deliverables, finance and other resources.

TEACHING EXPERIENCE

Curtin University (Mauritius branch)

Adjunct Faculty

2024 to present

Taught Introduction to Machine Learning to 3rd year students. Courses included: Linear regression/classification, Decision Trees, Neural networks, Transformers, Clustering, Self-supervised learning, Computer vision, NLP.

University of Cape Town

Teaching assistant

2017 to 2018

Taught the Networking course with focus on Internet protocols (BGP, DNS, HTTP, TCP/IP) and Internet measurements.

COMMUNITY WORK

Organizing Committee Membership

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|---|------|
| ACM IMC - Diversity co-chair | 2024 |
| ACM COMPASS - Industry and Practitioner co-chair | 2023 |
| EAI Africomm - General Chair | 2020 |

Program Committee Membership

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|-------------------------------------|------------------------|
| European Science Foundation | 2024 |
| USENIX SECURITY | 2022, 2023, 2024 |
| ACM IMC | 2019, 2020, 2023, 2024 |
| PAM | 2022 |
| TMA IFIP | 2021, 2023, 2024 |
| ACM SIGCOMM CCR (Additional) | 2020 |
| ACM AINTEC | 2022, 2023, 2024 |
| JSys Journal | 2022 - Present |

Other Forums

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| IRTF ANRP - Award Committee Member | 2025 |
| GFCE Research Committee - Member | 2020, 2021 |
| Mauritius Cybersecurity Committee - Member | 2023 - Present |
| Mauritius Internet Exchange Point Board - Vice Chairman | 2022 - Present |

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| HONORS | Fellowships | |
| | • Heidelberg Laureate Forum | Sep 2023 |
| | • CISPA Research Fellowship | Apr 2022 |
| | Awards | |
| | • IEEE INFOCOM 2018 Best-in-Session Presentation Award | May 2018 |
| | • IEEE AFRICON 2017 Most Outstanding Paper Award | Nov 2017 |
| SUPERVISORY EXPERIENCE | Scholarships | |
| | • PhD Scholarship from Hasso-Plattner Institute, Germany | Feb 2016 - Jun 2019 |
| | • Royal Holloway Scholarship for MSc in Information Security | Dec 2012 - Dec 2013 |
| | • Merit French Government postgraduate Scholarship | Jun 2005 - Jul 2008 |
| | Other | |
| | • Ranked 16th at National A-Level Cambridge Exams in Mauritius | Feb 2003 |
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| | Ph.D. Project Supervision | |
| | • Martin Thody (Uni. of Cape Town, co-advised by Josiah Chavula) 2022 to Present | |
| | Pulse Research fellowship mentees | |
| SOFTWARE SKILLS | • James Madeley (Loughborough University, Topic: Measuring Content Locality) | 2024 |
| | • Sadia Nourin (Uni. of Maryland, Topic: Censorship measurements) | 2023 |
| | • Aravindh Raman (Telefonica Research, Topic: LEO satellite performance) | 2023 |
| | • Alagappan Ramanathan (UC Irvine, Topic: Internet resilience) | 2023 |
| | MANRS Research fellowship mentees | |
| | • Thomas Holterbach (Uni. of Strasbourg, Topic: Forged origin hijacks) | 2023 |
| | • Jediel Adefoulou (IFRI, Topic: MANRS Supply chain visualization) | 2023 |
| | • Ioana Livadariu (Simula Research, Topic: RTBH and RPKI) | 2022 |
| | • Tijay Chung (Virginia Tech, Topic: ROV measurements) | 2022 |
| | • Zubair Sediqi (MPI, Topic: RPKI Validation measurements) | 2022 |
| | • Romain Fontugne (IIJ Labs, Topic: Routing Security) | 2021 |
| | • Dibya Khatiwada (PCH, Topic: Routing Security) | 2021 |
| | M.S. Project Supervision | |
| | • CMU - Using the Internet Resilience Index to predict Internet outages | 2024 |
| | • CMU - ML-based approach to predict Internet Shutdowns | 2023 |
| | • CMU - Using nightlights to infer Internet shutdowns | 2023 |
| | • CMU - Methods for understanding traffic locality | 2022 |
| | • CMU - Internet Resilience Composite Indicator | 2021 |
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| MEMBERSHIPS | Computer Programming | |
| | • Python, Perl, C, C++, Java, JavaScript, PHP, UNIX shell scripting and others | |
| | • Jupyter, pandas, numpy R, matplotlib, d3 | |
| LANGUAGES | <hr/> | |
| | • IEEE Membership | |
| | • IEEE Communication Society Membership | |
| | • Internet Society Membership | |
| LANGUAGES | <hr/> | |
| | English (Fluent), French (Native) | |

1. Anirudh Tagat, **Amreesh Phokeer**, and Hanna Kreitem. 2024. Net Loss: An econometric method to measure the impact of Internet shutdowns. *ACM Journal Computing and Sustainable Societies* (April 2024).
2. Sen, R., Ahmad, S., **Phokeer, A.**, Farooq, Z.A., Qazi, I.A., Choffnes, D. and Gummadi, K.P., 2017. Inside the Walled Garden: Deconstructing Facebooks Free Basics Program. *ACM SIGCOMM Computer Communication Review*, 47(5). **[BEST CCR AWARD]**

Conference

1. Livadariu, I., Fontugne, R., **Phokeer, A.**, Candela, M., Stucchi, M., A tale of two synergies: Uncovering RPKI practices for RTBH at IXPs, *Passive and Active Measurement Conference 2024*.
2. Holterbach, T., Alfroy, T., **Phokeer, A.**, Dainotti, A. and Pelsser, C., A System to Detect Forged-Origin BGP Hijacks. In *21st USENIX Symposium on Networked Systems Design and Implementation (NSDI 24)*
3. Li, W., Lin, Z., Ashiq, M.I., Aben, E., Fontugne, R., **Phokeer, A.** and Chung, T., 2023, October. RoVista: Measuring and Analyzing the Route Origin Validation (ROV) in RPKI. In *Proceedings of the 2023 ACM on Internet Measurement Conference* (pp. 73-88).
4. Fontugne, Romain; **Phokeer, Amreesh**; Pelsser, Cristel; Vermeulen, Kevin; Bush, Randy; RPKI Time-of-flight: tracking delays in the management and data planes, *Passive and Active Measurement Conference 2023*.
5. Hemanthindra, A., **Phokeer, A.**, Ramsurrun, V., Katsina, P., Anantwar, S. and Seeam, A.K., 2020, December. DNSSEC as a service - A prototype implementation. In *2020 32nd International Conference on Microelectronics (ICM)* (pp. 1-4). IEEE.
6. Arouna, A., **Phokeer, A.** and Elmokashfi, A., 2021. A first look at the Africans ccTLDs technical environment. In *12th EAI International Conference, AFRICOMM 2020, December 2-4, 2020, Proceedings 12* (pp. 305-326).
7. Akanho, Y., Alassane, M., Houngbadji, M. and **Phokeer, A.**, 2021. African nameservers revealed: characterizing DNS authoritative nameservers. In *12th EAI International Conference, AFRICOMM 2020, December 2-4, 2020, Proceedings 12* (pp. 327-344).
8. Kristoff, John; Bush, Randy; Kanich, Chris; Michaelson, George; **Phokeer, Amreesh**; Schmidt, Thomas C; Whlisch, Matthias; On Measuring RPKI Relying Parties, *Proceedings of the ACM Internet Measurement Conference 484-491 2020*
9. **Phokeer, Amreesh**; Chavula, Josiah; Johnson, David; Densmore, Melissa; Tyson, Gareth; Sathiaselan, Arjuna; Feamster, Nick; On the potential of Google AMP to promote local content in developing regions, *2019 11th International Conference on Communication Systems & Networks (COMSNETS) 80-87 2019 IEEE*
10. Isah, Musab; **Phokeer, Amreesh**; Chavula, Josiah; Elmokashfi, Ahmed; Asrese, Alemnew Sheferaw; State of internet measurement in Africa-A survey, *International Conference on e-Infrastructure and e-Services for Developing Countries, 121-139, 2019 Springer, Cham*

11. Formoso, Agustin; Chavula, Josiah; **Phokeer, Amreesh**; Sathiaseelan, Arjuna; Tyson, Gareth; Deep diving into africa's inter-country latencies, IEEE INFOCOM 2018-IEEE Conference on Computer Communications 2231-2239 2018 IEEE
12. Calandro, Enrico; Chavula, Josiah; **Phokeer, Amreesh**; Internet development in Africa: a content use, hosting and distribution perspective, International Conference on e-Infrastructure and e-Services for Developing Countries 131-141 2018 Springer, Cham
13. Chavula, Josiah; **Phokeer, Amreesh**; Calandro, Enrico; Performance barriers to cloud services in Africas public sector: A latency perspective, International Conference on e-Infrastructure and e-Services for Developing Countries 152-163 2018 Springer, Cham
14. Singh, Siddharth; Nanda, Vedant; Sen, Rijurekha; Ahmad, Sohaib; Sengupta, Satadal; **Phokeer, Amreesh**; Farooq, Zaid Ahmed; Khan, Taslim Arefin; Kumaragaguru, Ponnurangam; Qazi, Ihsan Ayyub; An empirical analysis of facebook's free basics, Proceedings of the 2017 ACM SIGMETRICS/International Conference on Measurement and Modeling of Computer Systems 37-38 2017
15. Chavula, Josiah; **Phokeer, Amreesh**; Formoso, Agustin; Feamster, Nick; Insight into Africa's country-level latencies, 2017 IEEE AFRICON 938-944 2017 IEEE
16. Sen, Rijurekha; Pirzada, Hasnain Ali; **Phokeer, Amreesh**; Farooq, Zaid Ahmed; Sengupta, Satadal; Choffnes, David; Gummadi, Krishna P; On the free bridge across the digital divide: Assessing the quality of facebook's free basics service, Proceedings of the 2016 Internet Measurement Conference 127-133 2016
17. Hadzic, Senka; **Phokeer, Amreesh**; Johnson, David; TownshipNet: A localized hybrid TVWS-WiFi and cloud services network, 2016 IEEE International Symposium on Technology and Society (ISTAS) 01-Jun 2016 IEEE
18. **Phokeer, Amreesh**; Densmore, Melissa; Johnson, David; Feamster, Nick; A first look at mobile internet use in township communities in South Africa, Proceedings of the 7th Annual Symposium on Computing for Development 01-Oct 2016
19. **Phokeer, Amreesh**; Aina, Alain; Johnson, David; DNS Lame delegations: A case-study of public reverse DNS records in the African Region, International Conference on e-Infrastructure and e-Services for Developing Countries 232-242 2016 Springer, Cham
20. **Phokeer, Amreesh**; Aina, Alain; A survey of anti-spam mechanisms and their usage from a Regional Internet Registry's perspective, 2016 IST-Africa Week Conference 01-Nov 2016 IEEE

Workshop

1. Madeley, J.I., **Phokeer, A.**, Siddiqui, A. and Benson, T.A., 2024, July. Towards Measuring Content Locality. In Proceedings of the 2024 Applied Networking Research Workshop (pp. 88-90).

Technical reports

1. Johnson, D., Cloete, L., Hadzic, S., Kiden, S., Rens, A. and **Phokeer, A.**, 2022. African Open Source Digital Infrastructures: Evaluating the Landscape. Research ICT Africa 30 June 2022.
2. **Phokeer, A.**, Chege, K., Chavula, J., Elmokashfi, A. and Gueye, A., 2021. Measuring Internet Resilience in Africa (Mira). Internet Society.

Posters

1. Thodi, Martin; **Phokeer, Amreesh**; Chavula, Josiah; A Dataset on Peering Policies of Autonomous Systems, ACM IMC 2024
2. Zirikana, Jules; **Phokeer, Amreesh**; Predicting Internet Shutdowns: A Machine Learning Approach; ACM IMC 2024
3. **Phokeer, Amreesh**; Hadzic, Senka; Nitschke, Eric; Van Zyl, Andre; Johnson, David; Densmore, Melissa; Chavula, Josiah; iNethi Community Network: A first look at local and Internet traffic usage, Proceedings of the 3rd ACM SIGCAS Conference on Computing and Sustainable Societies 342-344 2020
4. Calandro, Enrico; Chavula, Josiah; **Phokeer, Amreesh**; The impact of remote hosting on Internet performance, 2018 CPRSOUTH