



Personal information

Almaz Assire Demise

Desired occupation/Professional sector

Researcher–Distributed Acoustic Sensing (DAS) and Fiber Optic Monitoring for Infrastructure Applications

Professional / Research experience

May 2022 – July 2022

Traineeship – Erasmus+ Student Mobility

Scuola Superiore Sant'Anna, Pisa (PI), Italy

- Conducted hands-on research on distributed fiber optic applications
- Performed experiments, data acquisition, and signal processing
- Collaborated with the research team on project methodology

Project

Fiber Optic Monitoring Techniques for Railway Applications

Bologna, Italy

- Participated in railway monitoring projects, conducting distributed acoustic measurements for railway monitoring, data acquisition, signal processing, performance evaluation, and acoustic signal characterization.

Education and training

October 2022 – Present

PhD student in Emerging Digital Technology

Institute of Mechanical Intelligence, Scuola Superiore Sant'Anna, Pisa (PI), Italy

Thesis title: Distributed Acoustic Sensing (DAS) for monitoring large infrastructures and the environment

October 2017 – March 2021

Master's degree in Railway Engineering (Traction and Train control)**Thesis title:** Reliability, Availability, and Safety Analysis for Railway Interlocking Systems.

October 2017 – March 2021

Bachelor's degree in Electrical and Computer Engineering**Language****English**
Italian

Comprehension		Spoke		Written
listening	Reading	Oral interaction	Oral production	
Excellent	Excellent	Excellent	Excellent	Excellent
Basic User				

Organizational skills and abilities

Organized and executed lab activities and coursework, ensuring precise documentation of experiments and results.

Technical skills and abilities

experimental design, signal processing, data acquisition, analog/digital electronics, and lab instrumentation (lasers, oscilloscopes, spectrum analyzers, etc.).

Computer skills and competencies

- MATLAB, Python, LabVIEW, Lumerical for data analysis, simulation, and visualization
- Linux (basic), MS Office, LaTeX, reference managers (EndNote, Mendeley, Zotero)

Publications**Journals**

- **Demise, A.**, Di Pasquale, F., & Muanenda, Y., Strategies for Mitigating Polarization Fading in a DAS with Homodyne Detection and Delayed Self-Mixing. *Journal of Physics: Photonics* – In Press (2025).
- Nur, A., **Demise, A.** & Muanenda, Y., "Design and Evaluation of a Cloud Computing System for Real-Time Measurements in Polarization-Independent Long-Range DAS Based on Coherent Detection." *Sensors (Basel, Switzerland)* 24.24 (2024): 8194.

Conferences

- **Oral presentation:** **Demise, A.**, Di Pasquale, F., and Muanenda, Y., "Phase Combining Strategies for Polarization-Independent Demodulation in a DAS Using Homodyne Detection with Delayed Self-Mixing in a Non-Stabilized Mach-Zehnder Interferometer", In Proceedings of the 13th International Conference on Photonics, Optics and Laser Technology (PHOTOPTICS 2025), pages 49-56. DOI: 10.5220/0013185000003902. **Best Paper Candidate Award**
- **Oral presentation:** **Demise, A.**, Di Pasquale, F., and Muanenda, Y., "A Compact DAS Based on a Low Phase Noise DDS and Mini-EYDFA for Real-Time Vibration Measurements" In *2024 IEEE Sensors Applications Symposium (SAS)*, pp. 1-6. IEEE, 2024.
- **Demise, A.**, Di Pasquale, F., and Muanenda, Y., "A compact source for a distributed acoustic sensor using a miniaturized EYDFA and a direct digital synthesis module" In *SPIE Future Sensing Technologies 2023*, vol. 12327, pp. 368-374. SPIE, 2023.

Other Professional Experience

January 2015 – September 2022

Technical Support Advisor and Mobile Money Specialist

Ethiotelecom Company

- Provided technical support for telecom and mobile money services, resolving system and customer issues while ensuring regulatory compliance and developing expertise in digital payments platforms.

July 2015 – January 2016

Teaching Assistant – Applied Electronics

- Designed and independently delivered lectures for undergraduate Electrical and Computer Engineering students.
- Guided students in fundamental electronics concepts, practical applications, labs, and assessments

Attachments

- Degree certificates, academic transcripts, and letters of reference are available upon request.

Place and date

024/09/2025, Pisa, Italy