



Alemu Sisay Nigru

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Gender: Male | **Date of birth:** Aug 30 1993 | **Nationality:** Ethiopia

PREFERRED JOB

ML & AI junior researcher | Medical Image Analyst | Data Analyst

WORK EXPERIENCE

[09/2024 - 12/2024]

AI for Medicine (AI on spine MRI imaging + Generative AI)

Center for Digital Health & Implementation Science (CDHI) - ADDIS ABABA Ethiopia

Company sector: R&D and patents

Business or sector: healthcare

Main activities and responsibilities: • Data Analysis & Model Development: Analyze MRI data and develop robust DL models for disc severity grading.

- EMR System Collaboration: Contribute to the design and integration of AI tools in the EMR system, so as to similarly support integration of developed AI tools in X-Ray Service srl EMR.
- UI Design: Create a graphical interface for seamless deployment of the DL model, so as to facilitate the DL model adoption in routine medical activities by physicians and medical personnel at X-Ray Service srl.
- Research Engagement: Participate in research activities at CDHI, enhancing research experience and contributing to the research community.

[05/2022 - 12/2022]

Extraordinary Internship

Poliambulatorio Oberdan, Via Oberdan 126 - BRESCIA (BS) Italy

Company sector: R&D and patents

Business or sector: education, training, research and development

Main activities and responsibilities: Acquisition of digital medical images, follow-up therapeutic and image data analysis for medical diagnosis activities.

Acquired skills and achieved objectives: Medical Image acquisition

Medical Image analysis

Medical Image segmentation

Deep learning methods for Medical image analysis

[09/2016 - 09/2019]

Assistant Lecture

University of Gondar, Maraki, Gondar, Ethiopia - GONDAR, ETHIOPIA Ethiopia

Company sector: R&D and patents

Business or sector: education, training, research and development

Main activities and responsibilities: During my tenure as an Assistant Lecturer at the University of Gondar from 2016 to 2018, I conducted teaching activities in an academic context, specifically in the department of Electrical and Computer Engineering. I delivered courses on both theoretical and practical aspects, covering a range of subjects such as Introduction to computer programming (C++), signal and system analysis, Fundamental of electrical circuits, Digital logic design, and Introduction to communication systems.

Acquired skills and achieved objectives: * Computer programming skills (basic notions of Microsoft Office, Java, C, C++, C#, JavaScript, SQL database, Matlab, Python, R)

* Web development skills (ASP.NET, JavaScript, PHP)

* Networking skills (Cisco packet tracer)

[03/2015 - 07/2015]

Telecom Company

Ethio telecom, Addis Ababa, Ethiopia, Legehar - ADDIS ABABA Ethiopia

Company sector: Customer service

Business or sector: communication and telecommunications

Main activities and responsibilities: -Handle the customer's Complaints

-Troubleshoot Technical Difficulties

-Oversee Billing and Payments of Customers

Acquired skills and achieved objectives: I have been assigned to a supervised and mentored internship program in ethiotelecom and coached by the respective supervisor in the domain. I had the opportunity to visit the main central office of Information system of the company in which it is responsible for managing every signal traffic, activate and deactivate SIM cards, activate and deactivate mobile cards and all security related issues are managed and performed. So during my visit I have noticed some problems on their application software and I tried to develop a new system for them based on the employers requirement. They gave me an appreciation letter for doing the project. SO during my stay I got a lot of Technical skills , interpersonal and managerial skills.

EDUCATION AND TRAINING

[2022 - 2026]

Artificial Intelligence in Medicine and Innovation in Clinical Research and Methodology

Università degli Studi di BRESCIA

Town: BRESCIA

EQF level: 8

NQF level: Doctor of Philosophy (Ph.D.)

[2019 - 2022]

COMMUNICATION TECHNOLOGIES AND MULTIMEDIA

Università degli Studi di BRESCIA

Town: BRESCIA

2nd level degree in Telecommunications engineering

Final degree mark: 110/110 cum laude

EQF level: 7

NQF level: 2nd cycle degree/Master of Science (2 years)

Dissertation/thesis title: Deep learning method for MRI image search

Principal subjects/occupational skills covered:

- Computer programming skills (Python, Java, C++, C, C#, ASP.NET, JavaScript, SQL, Matlab, R)
- Machine and Deep learning skills (Pytorch, Tensorflow, Nibabel, Nipype)
- Medical Image Analysis (MRI neuroimage)
- Lesion classification (CNN, Deep learning)
- Image compression (CNN based autoencoder)

[2020 - 2021]

5 months Erasmus+ mobility study at Mid Sweden university, Sweden

Mid Sweden University

Town: Sweden

EQF level: 7

NQF level: 2nd cycle degree - Master

Principal subjects/occupational skills covered:

Sensor Network programming (Contiki)

Physical Modeling of Embedded systems (Finite Element Method and SPICE)

Business English

[2012 - 2016]

Electrical and Computer Engineering (Communication Engineering Specialization)

University of Gondar

Town: Ethiopia

Final degree mark: 3.89/4

EQF level: 6

NQF level: 1st cycle degree - Degree/Bachelor

Dissertation/thesis title: FINGERPRINT ATTENDANCE SYSTEM (FAS)

OTHER POSTGRADUATE STUDIES

[2024 - 2024]

PHD SCHOOL

Duration: 6 days

Statistical Methods & Data Analysis in Medical Research

Università degli Studi di BRESCIA

Description:

The course is designed for doctoral students and medical students who regularly deal with clinical data and require the fundamentals to analyse them using parametric or non-parametric methodologies.

[2023] **SUMMER SCHOOL**
Duration: 3 months
Oxford Machine Learning Summer School
AI for Global Goals & University of Oxford
Description:

MLx Fundamentals:

Particularly for those who are new to the theory and fundamentals of modern ML -- during this module, the program aims to provide everyone with training in the following topics:

- Linear Algebra and Mathematics of machine learning
- Optimisation
- Fundamentals of statistical / probabilistic ML
- Fundamentals of representation / deep learning

MLx Cases:

The aim of ML x Cases track is to provide you with a training on real-world issues and processes related to ML development/implementation process. We run ~5 different cases, led by experienced ML / data scientists,

MLx FINANCE & NLP:

Focuses on the application of AI in finance and the advancement and real-time impact of NLP, including topics: Advanced topics in representation learning, Natural language processing...

MLx HEALTH: Focuses on the application of AI in healthcare, including Graph neural networks, and geometrical deep learning, Computer vision, drug discovery, Neuro-symbolic AI, and many more..

[2023] **PH.D. SCHOOL**
Duration: 6 days
IEEE ComSoc eHealth TC Ph.D. School
IEEE Communication Society
Description:

As a participant in the IEEE ComSoc eHealth TC Ph.D. School, I anticipate a transformative experience that will enrich my academic and professional journey. This program is designed to empower Ph.D. students like myself by providing a structured academic curriculum, allowing for a deepening of scientific and technical foundations directly applicable to my ongoing research. Beyond academic pursuits, I look forward to engaging with keynotes and lecture series that will not only broaden my skill sets but also enhance my interpersonal abilities. The emphasis on international networking within this program is particularly exciting as it aligns with my aspirations for future professional activities. In essence, the IEEE ComSoc eHealth TC Ph.D. School promises to be a holistic and invaluable experience, equipping me with the knowledge, skills, and connections necessary for a successful academic and professional trajectory.

[2022 - 2022] **DATA SCIENCE SHORT COURSE**
Duration: 6 months
Applied Data Science Lab
WorldQuant University
Description:

This badge has been earned by me, indicating completion of eight end-to-end, applied data science projects. In each project, data was accessed from files, SQL and NoSQL databases, and APIs. My ability to explore and clean data, create functions and ETL pipelines to prepare training sets was demonstrated. Machine learning models were built by me for supervised and unsupervised learning tasks, and visualizations were created to explain data characteristics and model predictions for non-technical audiences.

[2017 - 2017] **TRAINING COURSE**
Duration: 10 months
Advanced diploma
University of Gondar
Description:

Higher Diploma Program Certificate in Teaching Methods, The training focuses on how to manage the class while teaching and how to make an interactive learning activity in the class room.

PRE-UNIVERSITY STUDIES

[2016] Secondary school diploma taken abroad

LANGUAGE SKILLS

Mother tongue(s): Amharic

Other language(s)

English

LISTENING: C1 **READING:** C1 **WRITING:** C1

SPOKEN INTERACTION: B2 **SPOKEN PRODUCTION:** B2

Italian

LISTENING: B1 READING: B1 WRITING: B1
SPOKEN INTERACTION: B1 SPOKEN PRODUCTION: B1

Diploma(s) or certificate(s)

Italian: Corso di Lingua e cultura italiana di livello A1 - Universita Degli Studi di Brescia, 06 02 2020 - European level: A1
Italian: Corso di lingua e cultura italiana di livello A2 - Presso il CPIA1 di Brescia., 15 06 2023 - European level: A2
Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2: Proficient user
Common European Framework of Reference for Languages

OTHER SKILLS

Organisational / managerial skills

In my two years of leadership experience, I served as the chairperson of the Communication Engineering focus area at the University of Gondar. During that time I oversaw more than 100 students and 30+ lecturers.

DIGITAL COMPETENCES

SELF-ASSESSMENT				
INFORMATION AND DATA LITERACY	COMMUNICATION AND COLLABORATION	DIGITAL CONTENT CREATION	SAFETY	PROBLEM SOLVING
Proficient user	Independent user	Independent user	Independent user	Independent user

Digital competences - Self-assessment grid

Basic digital competence:

COMPUTER PROGRAMMING

Development Models: Pytorch, Tensorflow, Nibabel, Nypipe, (Advanced) | **Programming languages:** C, C++, C#, Java, Python, Matlab, Javascript, R (Advanced) | **Web Programming:** ASP.NET, CSS, HTML (Intermediate)

DATA MANAGEMENT

Database Design: SQL (Intermediate)

GRAPHICS AND MULTIMEDIA

Rendering: Blender, Unity, Opengl (Intermediate) | **Web graphics:** (Intermediate)

PUBLICATIONS

Journal articles "External Validation of SpineNetV2 on a Comprehensive Set of Radiological Features for Grading Lumbosacral Disc Pathologies." ; Nigru, Alemu Sisay, Sergio Benini, Matteo Bonetti, Graziella Bragaglio, Michele Frigerio, Federico Maffezzoni, and Riccardo Leonardi ; North American Spine Society Journal (NASSJ) ; Elsevier (2024)
doi.org/10.1016/j.xnsj.2024.100564

ATTACHMENTS

- * Certificate of Special Recognition from University of Gondar Students Association, for giving tutorial classes for the students.
- * Letter of Appreciation from Ethio telecom, for the excellent job I have done for the company during my internship stay, The project was named as 'Automating SIM card profile data management system'.
- * Certificate of Award from Ethiopian Space science and Technology, for my 3rd level Ranking in Question and Answer competition among students of 7 different university students.
- * Certificate of recognition and Gold medal from University of Gondar for my 1st ranking and for graduating with very great distinction for my Bachelors study.