

# Jesse Amoako Asimeng

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## EDUCATION AND TRAINING

MAR 2024 – CURRENT Bonn, Germany  
**PHD. COMPUTATIONAL LIFE SCIENCES** University of Bonn & The German Centre for Neurodegenerative Diseases

**Thesis** Swarm Learning and Single-Cell Omics: Advancing Global Precision Medicine in Infectious Diseases

MAR 2021 – MAR 2023 Cape Town, South Africa  
**MSC. MOLECULAR BIOLOGY (BIOINFORMATICS)** Stellenbosch University

**Website** [www.sun.ac.za](http://www.sun.ac.za) | **Final grade** Cum Laude (89/100) | **Thesis** Pipeline and Tools for the Analysis of Multiplexed ELISA Data

SEP 2014 – JUN 2018 Kumasi, Ghana  
**BSC. BIOLOGICAL SCIENCES** Kwame Nkrumah University of Science and Technology


**Website** [knust.edu.gh](http://knust.edu.gh) | **Final grade** Degree classification: Second Class Honours (Upper Division)

## WORK EXPERIENCE

 **SOLDERSMITH INTELLIGENCE** – CAPE TOWN, SOUTH AFRICA  
**Website** <https://soldersmith.com/>

**DATA SCIENTIST INTERN** – JUN 2023 – FEB 2024

- Assisted in the research, development, and optimization of artificial intelligence (AI) and computer vision algorithms, enhancing their performance and accuracy.
- Assisted with the development and improvement of website features and functionality to support project objectives

 **STELLENBOSCH UNIVERSITY WRITING LAB** – STELLENBOSCH, SOUTH AFRICA  
**WRITING CONSULTANT** – FEB 2023 – FEB 2024

- Guided and supported students in enhancing their writing skills through personalized feedback and targeted instructional strategies

 **KUMASI CENTRE FOR COLLABORATIVE RESEARCH IN TROPICAL MEDICINE** – KUMASI, GHANA  
**RESEARCH ASSISTANT** – SEP 2018 – JUN 2021

- Utilised molecular techniques like DNA extraction, conventional and real-time PCR to identify microbes associated with meningococcal and influenza infections
- Contributed to developing standard operating procedures (SOPs) for the "Febrile Illness in Sub-Saharan Africa" study
- Reviewed scientific literature for my research group
- Collected data through administration of questionnaires

## HONOURS AND AWARDS

MAY 2025  
**Travel Grant – Pandemic Sciences Institute, University of Oxford**

Grant totaling £1,100 awarded to attend the International Pandemic Sciences Conference in Oxford, United Kingdom, held from 30th June - 2nd July 2025

MAR 2024  
**Novartis Next Generation Scientist Fellowship Awardee – Novartis**

Awarded this fellowship, but declined it after relocating from a Low- and Middle-Income Country (LMIC), resulting in ineligibility under the program's residency requirements.

OCT 2023

### Rector's Award for Excellent Achievement – Stellenbosch University

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Recognized as the top master's student within the Faculty of Medicine and Health Sciences, Stellenbosch University, for exceptional academic excellence and scholarly achievement.

JUL 2021

### DAAD In-Region Scholarship – German Academic Exchange Services

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Awarded this scholarship to pursue MSc studies in Molecular Biology (Bioinformatics) at Stellenbosch University, from July 2021 to June 2023.

## ● TECHNICAL SKILLS

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### Computational and analytical skills

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- **Programming & Tools:** R, R Shiny, Python, Django, Git
- **Statistical Modeling:** Linear models, Generalised Linear Mixed Models (longitudinal data), Bayesian methods (familiar)
- **Machine Learning & Artificial Intelligence:** Graph Neural Networks, Explainable AI (model interpretation), Federated Learning
- **Data Science Workflow:** Nextflow, High-Performance Computing (HPC), Containerisation (Docker & Singularity)
- **Data Visualisation:** ggplot2, R Shiny (Interactive Dashboard)
- **Domain expertise:** Transcriptomic (Bulk & Single-cell RNA-seq) Data Analysis, Multiplexed ELISA Data Analysis, Clinical Data Analysis

### Other Skills

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- Scientific Writing
- Oral presentations

## ● PROJECTS

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### R package: LuminexR

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I led the development of an R package for the reproducible processing and analyses of Luminex (Multiplex ELISA) data. Some functionalities of the package include:

- Importing raw Luminex files (.txt files)
- Data cleaning and tidying
- Computing statistical summaries
- Recording metadata (e.g., values beyond detectable limits)
- Managing missing values

Link: <https://github.com/Asimeng/LuminexPipeline>

CURRENT

### Graph-based deep learning for COVID-19 classification using Single cell RNA-seq data

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This project forms part of my PhD research, where I am:

- Training a graph attention network (scGAT) model to classify COVID-19 cases versus healthy controls using single-cell RNA sequencing (scRNA-seq) data
- Interpreting the trained model to identify key biomarkers and critical cell types implicated in COVID-19 pathogenesis, facilitating the discovery of potential targets for precision therapy
- Adapting analytical methods to analyse longitudinal data collected from six German university hospitals
- Implementing the training process in a federated learning setting to preserve patient data privacy by enabling decentralized model training across multiple institutions without sharing sensitive raw data

### Other Projects

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Please visit my GitHub page at <https://github.com/asimeng> to explore additional projects and repositories that showcase my work and technical expertise

● **CONFERENCES AND SEMINARS**

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30 JUN 2025 – 2 JUL 2025 Oxford, United Kingdom  
**International Pandemic Sciences Conference**

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Presentation title: Swarm Learning for Precision Medicine and Pandemic Preparedness (**Oral presentation**)

28 AUG 2023 Hamburg, Germany  
**Education and Research Oriented Training in Health Sciences Summer School Conference**

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Presentation title: LuminexR: a Tool for the Robust and Reproducible Analysis of Multiplexed ELISA Data (**Oral presentation**)

APR 2022 Stellenbosch, South Africa  
**BIO2022: Bioscience, Big Data & the 4th Industrial Revolution Conference**

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Presentation title: Pipeline and Tools for the Robust and Reproducible Analysis of Multiplexed ELISA Data (**Poster presentation**)

● **LANGUAGE SKILLS**

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Mother tongue(s): **TWI (LOCAL GHANAIA N LANGUAGE)**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
<b>ENGLISH LANGUAGE</b>	C2	C2	C2	C2	C2
<b>GERMAN</b>	A2	A2	A2	A2	A2

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

● **TRAINING**

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2 AUG 2023 – 29 AUG 2023  
**Education and Research Oriented Training in Health Sciences Summer School, Hamburg University of Applied Sciences, Germany**

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- Topics covered:
- Digitalization, Artificial Intelligence, and Global Health
  - Statistics in Health Sciences
  - Epidemiology and Study Design
  - Interactive Teaching Methods
  - Introduction to German Language and Culture

OCT 2021 – NOV 2021  
**Introduction to Data Science and Computational Thinking, School for Data Science and Computational Thinking, Stellenbosch University**

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- Completed modules:
- Data structures
  - Data manipulation
  - Summary statistics
  - Data visualisation
  - Hypothesis testing
  - Linear modelling & introduction to machine learning