Keneni Worku Tesema

Swansea, UK | +447519722658 | k.w.tesema@swansea.ac.uk | Portfolio | GitHub

Professional Summary

Ph.D. candidate in Computer Vision with a strong foundation in 3D point cloud processing, machine learning, and generative AI. Published in top-tier journals including *IEEE TVCG* and *Computers & Graphics*. Experienced in developing robust 3D deep learning models for real-world applications such as subsea surveys. Passionate about building scalable, intelligent systems that bridge research and industry. Currently focused on advancing 3D vision-language models and multimodal AI.

Technical Skills

- **Programming & Frameworks:** Python, PyTorch, TensorFlow, CUDA, C, C++
- **Workflow Optimization:** Parallel computing, containerization (Docker, Singularity), reproducible environments (Anaconda, Conda), SLURM job scheduling, remote development (SSH, PuTTY, Remote Desktop), version control (Git, GitHub)
- **Development Tools:** VS Code, Nvidia-smi, JupyterLab , Tmux, Unreal Engine (CARLA)
- **3D Processing & Computer Vision:** OpenCV, Open3D, MeshLab, CloudCompare, Point Cloud Library (PCL), COLMAP, PyTorch3D, NeRFs, Gaussian Splatting
- **Scientific & Engineering Software:** MATLAB, Simulink, Proteus, SIMATIC Step 7
- **Specialized Expertise:** Point Cloud Completion, Denoising, Segmentation, Diffusion Models, Object Recognition, Large Language Models (LLMs)
- **High-Performance Computing:** Extensive experience with Supercomputing Wales using NVIDIA A100 PCIe 80GB GPUs; additional hands-on work with RTX 3090 (cluster-based), GeForce RTX 3050, GTX 1080, and RTX A6000 GPUs across Windows and Unix systems for distributed training and 3D data processing
- **Certifications**: **NVIDIA DLI** (*Rapid Application Development with Large Language Models (LLMs), Data Parallelism: How to Train Deep Learning Models on Multiple GPUs, Generative AI with Diffusion Models),* **University of Bern:** *Bern Winter School on Deep Learning*

Publications

- Keneni Worku Tesema, Lyndon Hill, Mark W. Jones and Gary K.L. Tam, **Denoising-While-Completing Network (DWCNet): Robust Point Cloud Completion under Corruption**, accepted for Computers and Graphics, Sep. 2025. https://dx.doi.org/10.48550/arXiv.2507.16743
- Keneni W. Tesema, Lyndon Hill, Mark W. Jones, Muneeb I. Ahmad and Gary K.L. Tam, **Point Cloud Completion: A Survey**, in IEEE Transactions on Visualization and Computer Graphics, vol. 30, no. 10, pp. 6880-6899, Oct. 2024. https://dx.doi.org/10.1109/TVCG.2023.3344935

Education

Ph.D. Human-centered Point Cloud Completion for Subsea Survey | *Oct 2022– Present*
Department of Computer Science, Swansea University, UK

The primary aim of this research is to develop robust, multimodal and generalizable 3D point cloud completion algorithms suitable for real-time, real-world deployment.

- The research is conducted in collaboration with the marine survey company Vaarst (rebranded as Beam in 2024).
- **Conferences:** Northern Lights Deep Learning Conference 2025; International Conference on 3D Vision (3DV 2025) – poster presentation; 3D Object Retrieval Conference (3DOR) – scheduled paper presentation; Doctoral Consortium at the International Conference on Computer Vision (ICCV)
- **Awards:** UKRI International Bursary; EPSRC CDT Award 2019/20,Ep/S021892/1

M.Sc. Enhancing Human Interactions and Collaborations with Data and Intelligence Driven Systems | *Sep 2021– Oct 2022*
Department of Computer Science, Swansea University, UK

Taught modules include Immersive Systems, Abuses, Biases and Blessing of Data, Machine Learning and Scientific Computing in Health Care, Human Centered Visual Analytics.

- **Dissertation** on Human-Centered Big Data and Artificial Intelligence
- **Grade:** Distinction
- **Awards:** EPSRC CDT Award 2019/20 -Ep/S021892/1

B.Eng. in Electrical Engineering and Automation | *Sept 2017 – July 2021*
China Three Gorges University, China

Taught modules include Probability and Statics, Linear Algebra, Advanced Mathematics, Numerical analysis and MATLAB, Analog and Digital Electronics, Classical and Modern Control Theory, Power Electronics, Auto-CAD, Electric Machines, Power Systems

- **Dissertation:** Designed a high voltage DC Power Supply based on aseries-resonant constant-current charging capacitor: Investigated grid integration of Thevenin model of distributed generators; designed a functional Signal Generator
- **Siemens Cup China, 2019- manufacturing competition:** Simulated an S-400, S-1200, and S-300 PLC based machines with TIA-PORTAL and STEP-7 software
- Designed a line following robot with an 8051microprocessor and Arduino board
- **GPA:** 3.82
- **Awards:** Chinese Scholarship Council One Road One Belt Full Scholarship, Most Outstanding International Student of CTGU 2020, Outstanding Student Cultural Exchange Scholarship

Certificate in Electromechanical Engineering | *Sept 2015 – July 2017*
Addis Ababa Science and Technology University (AASTU), Addis Ababa, Ethiopia

Taught modules include Applied Mechanics, Engineering Mechanics, Logic and Critical Thinking, Strength of Materials, Mechanical Workshop Practice (GPA: 3.72)

Work Experience

Teaching Assistant | *Jan 2021 – Present*
Department of Computer Science, Swansea University, Swansea, UK

- supported undergraduate and postgraduate lab sessions in subjects such as Big Data, Machine Learning, Python, and Visual Analytics, marked coursework, presentations and exams, and led workshops to reinforce key concepts and tools.

TV Program Monitor | *Oct 2023 – Present*
NHK World Japan (Remote), Japan

- Evaluated and provided detailed feedback on television programs, focusing on content quality, audience engagement, and educational value.

Sales Associate | *June 2021 – Aug 2021*
BeU, Addis Ababa, Ethiopia

- As one of the first four sales hires, I was responsible for recruiting the first 120 restaurants to the platform and played a key role in launching Beu's market presence by helping shape initial sales and onboarding processes.

Leadership/ Teamwork Experience

Vice President – CTGU International Students Association (ISA) | *Dec 2018 – Dec 2019*
China Three Gorges University, Yichang, Hubei, P. R. China

- Organized international conferences and community events (including sports and science competitions); recruited new members; and supervised sub-departments.

Vice President – CTGU EENE International Community | *Mar 2019 – July 2021*
China Three Gorges University, Yichang, Hubei, P. R. China

- Organized cultural and academic events for 200+ students and led sports, debate, and science festivals

Languages

- English (Full Professional), Amharic (Native), Chinese (Working Proficiency)

Interests

- Creative Writing • Reading • Volleyball • Running