FAITH OGUNWOYE

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RESEARCH INTERESTS

Multimodal 3D perception under sparse, partial and occluded observation: LiDAR and depth-camera scene completion, sensor-invariance of learned perception models, and robot learning from real-world human demonstration.

EDUCATION

Skolkovo Institute of Science and Technology (Skoltech), Russia Sept 2025 - Jun 2027

MSc, Internet of Things and Wireless Technologies. Supervisor: Prof. Dzmitry Tsetserukou.

Expected completion 30 June 2027. ECTS-weighted result: 3.69/4.0 (self-calculated); Skoltech grades A-F.

Abiola Ajimobi Technical University, Nigeria Jan 2018 - Feb 2023

BEng (Hons), Mechanical Engineering. GPA 4.77/5.0.

SELECTED PUBLICATIONS

Robotics and machine learning

1. Faith Ogunwoye, Didar Seyidov, Konstantin Gubernatorov, and Dzmitry Tsetserukou. **JitterVLA: A Replay Benchmark for Motion Quality in VLA-Driven Human-Robot Manipulation**. arXiv:2610.13628, 2026. Submitted to ACM/IEEE HRI 2027, Short Contributions; under review.
Contribution: Built the Python/ROS 2 paired-replay benchmark, extracted VLA streams, conducted statistical analyses and physical UR3 sessions.

2. Faith Ogunwoye, Iana Zhura, Hajira Amjad, Timofei Kozlov, Didar Seyidov, Dmitrii Plotnikov, Fedor Fedorov, and Dzmitry Tsetserukou. **SmellDiffusion: Diffusion-Based Quadruped Navigation with Olfactory Scene Graphs**. arXiv:2609.20624, 2026. Submitted to IEEE ICRA 2027; under review.
Contribution: First author; gas-source localisation and diffusion planning through olfactory scene graphs.

3. Mikhail Sannikov, Ilya Mikhalchuk, Konstantin Gubernatorov, Petr Kovalev, Faith Oluwatobi Ogunwoye, and Dzmitry Tsetserukou. **HapticWAM: Distilling Imagined Touch into a World-Action Model without Inference-Time Tactile Sensing**. arXiv:2609.23888, 2026. Submitted to IEEE ICRA 2027; under review.
Contribution: Co-author on tactile world-action modelling for contact-rich manipulation.

4. Konstantin Gubernatorov, Mikhail Sannikov, Ilya Mikhalchuk, Egor Kuznetsov, Makar Artemov, Faith Oluwatobi Ogunwoye, Marcelino Fernando, Artem Asanov, Ziang Guo, and Dzmitry Tsetserukou. **HapticVLA: Contact-Rich Manipulation via Vision-Language-Action Model without Inference-Time Tactile Sensing**. Accepted at IEEE/RSJ IROS 2026. arXiv:2603.15257.
Contribution: Collected contact-rich real-robot demonstrations using dual-arm teleoperation.

5. Chidera Agbasiere, Mikhail Sannikov, Faith Ogunwoye, Erik Shaikhiev, Alex Kozinov, Ilya Mikhalchuk, Iana Zhura, and Dzmitry Tsetserukou. **CloudDiffusion: Diffusion-Based Scene Completion in the Point Cloud Domain**. Accepted at IEEE SMC 2026. arXiv:2606.16048.
Contribution: Developed the monocular-depth branch using Depth Anything V2 and back-projection into pseudo-LiDAR.

Mechanical engineering publications

6. Oluwaseyi O. Alabi, Faith O. Ogunwoye, Oluwatoyin J. Gbadeyan, Ayotunde O. Fasina, and Nirmala Deenadayalu. **Exploring the impact of diesel-vegetable oil blends as an alternative fuel in combustion chambers**. Biofuels, 16(2), 142-149, 2025; published online 30 July 2024. DOI: 10.1080/17597269.2024.2386482.
Contribution: Second author.

7. R. A. Adewuyi, J. O. Aweda, F. O. Ogunwoye, P. O. Omoniyi, and T. C. Jen. **Prediction of Impact Strength of TIG Welded Cr-Mo Steel Using Artificial Neural Networks**. Metallurgical and Materials Engineering, 30(1), 2024. DOI: 10.56801/MME1031.

8. K. O. Abdulrahman, S. P. Oghenetega, F. O. Ogunwoye, S. J. Olawale, S. O. Abdulazeez, and S. A. Yahaya. **Design and Fabrication of a Mechanical Sweeper**. Nigerian Journal of Technological Development, 21(4), 2024. DOI: 10.63746/njtd.v21i4.2781.

RESEARCH EXPERIENCE

Rover UGV SLAM and Path Planning · Sintez, Moscow 2026

- Intensive research internship on SLAM and path planning for an unmanned ground vehicle, working on the gap between what onboard sensing covers and what the planner requires.

VLA Mobile Robot Manipulation · Skoltech 2026

Supervisor: Prof. Dzmitry Tsetserukou

- Operator for real-world dataset collection using dual-arm teleoperation on contact-rich pick-and-place tasks (egg from crate, can and waffles to box).
- Worked alongside the simulation, SLAM and mechanics teams to produce demonstration data of sufficient quality for successful policy inference.

Research Assistant · "AI for Clean Energy" (AI4CE) 2020 - 2022

GBP 155,464 UK Royal Academy of Engineering project

- Analyzed clean energy generation datasets using AI-based methods to study performance trends across operating conditions.
- Smart automatic solar tracking system using LDR-based sensing and control logic; 42% efficiency increase over a fixed-axis panel.

SELECTED PROJECTS

4WD Mobile Robot, ROS 2 Simulation 2026

- Full ROS 2 and Gazebo simulation of a 4WD differential-drive robot modelled from real hardware measurements, covering URDF, control and the navigation stack.

Coded Compressive Sensing · Skoltech Oct - Dec 2025

- Compressive sensing framework decoding simultaneous wireless transmissions from 100+ users. Error rate Pe ≤ 0.05, outperforming a 4× ALOHA baseline.

Adaptive Antenna Beamforming for MU-MIMO · Skoltech Oct - Dec 2025

- Learnable beamforming for 64-antenna arrays (ULA vs UCA) serving 8 simultaneous users, validated across 100 channel realisations.

TECHNICAL SKILLS

- **Robotics**: ROS 2, Gazebo, RViz, URDF, SLAM, path planning, dual-arm teleoperation; functional working knowledge of Isaac Sim
- **Machine learning**: PyTorch, Scikit-Learn, diffusion models, vision-language-action models, monocular depth estimation
- **Languages**: Python, MATLAB/Simulink, C++ (basic), HTML/CSS
- **Systems and tools**: Linux, Git, Django REST framework
- **Design and laboratory**: Fusion 360, CAD/CAM, FEA, CFD, Unity, 3D printing, CNC lathe, PLC programming
- **Human languages**: English (fluent), French (Diploma)

TEACHING AND PROFESSIONAL EXPERIENCE

Mechanical Engineer · Dangote Fertilizer Ltd, Nigeria Mar - Aug 2025

Graduate Assistant · University of Ilorin, Nigeria Apr 2023 - Mar 2024

Planned lectures and seminars; graded coursework and project work.

CAD Instructor · Abiola Ajimobi Technical University Aug - Oct 2022

Ran laboratories on machine design, 3D printing and CNC machining.

Automation Engineer · Automation and Engineering Academy 11 Nov 2022 - 21 Aug 2023

Programmed PLCs and developed Python Django REST framework services.

AWARDS AND LEADERSHIP

- **Top Paper Award** with stipend and **Community Scholarship**, Skoltech 2026.
- Project Executive, Nigerian Innovative Engineers, Scientists and Applied Technologists, 2023-2024.
- Leadership Volunteer, Aspire Leaders Program 2022.
- Millennium Campus Fellowship, **United Nations Academic Impact**, 2021.