Simeon O. Adebola

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Department of Electrical Engineering and Computer Science, University of California, Berkeley. 629.800.4663

Passionate about the holistic, interdisciplinary use of knowledge to solve problems. Current research is in Agricultural robotics, Cloud robotics, and manipulation of deformable linear objects.

Worked on a deep-learning computer vision-based human-following robot for elderly fall detection. Explored additional interests in social robotics, low-cost robotics for STEM education, strategic foresight for Science Technology & Innovation (STI) policy, and the Maker Movement. Training and internship focused on implementing and developing tools to make OpenPTrack (a multi-module software for tracking many people in a large space drawing from computer vision and deep learning) easier to use in education, art, robotics etc.

Google Scholar: https://scholar.google.com/citations?user=rbTsDkAAAAAJ&hl=en Website: https://simeonoa.github.io

EDUCATION

University of California, Berkeley **Berkeley, CA**
PhD Candidate in Electrical Engineering and Computer Science **August 2021 – Present**
Graduate Student in Laboratory for Automation Science and Engineering (AUTOLAB). Supported by the Bakar Bioenginuity Impact Grant.

University of Southern Denmark, Odense **Odense, Denmark**
International Elite Summer School in Robotics and Entrepreneurship **Summer 2023**
- Study Abroad: Elite Summer School in Robotics and Entrepreneurship
- Fully funded by a scholarship from the Innovation Center Denmark (ICDK)

Middle Tennessee State University **Murfreesboro, TN**
Master of Science in Engineering Technology & Industrial Studies, GPA: 4.0/4.0 **December 2019**
Graduate Student Researcher in the Real-time and Embedded Control, Computing, and Communication (REC^3) Lab with Thesis focus "A Human Following Robot for Fall Detection."

Obafemi Awolowo University **Ile-Ife, Nigeria**
Bachelor of Science (B Sc.), Mechanical Engineering **March 2013**
Thesis: Design of An Improvised Robot Arm System

RESEARCH EXPERIENCE

Department of Teaching & Learning; Peabody College of Education & Human Development; Vanderbilt University **Nashville, TN**
Technical Support Specialist (Practical Training) **September 2019 – August 2021**
- Set up a new research lab space that utilizes a computer vision-based software (OpenPTrack) and consists of imagers, compute modules, cameras, and a projector amongst other engineering and computing components.
- Supporting the use of OpenPTrack in two NSF-funded grants focused on children learning through play.
- Testing and implementing new software and hardware within the lab space.
- Assisting ongoing and continued collaboration with the Center for Research in Engineering, Media, And Performance (REMAP); University of California, Los Angeles (UCLA).

KBB Consulting, LLC **Playa Del Rey, CA**
Technical Support **February 2021 – February 2021**

- Assisted with the integration of the computer vision system to be used for tracking in a project in Nashville.
- Oversaw the network of computers and sensors, calibrated the sensors and debugged the system when it was not working properly.

KBB Consulting, LLC **Playa Del Rey, CA**
Technical Support **April 2021 – April 2021**

- Assisted remotely with the troubleshooting of the computer vision system to be used for tracking in a deployed project.
- Repaired a problematic computer node and oversaw the network of computers and sensors being used.
- Provided technical support and supervision on calibration of the sensors and debugged the system when issues arose.

Center for Research in Engineering, Media, And Performance (REMAP); University of California, Los Angeles (UCLA)
Los-Angeles, CA
Graduate Intern **May 2018-August 2018**

- Completed/tested containerization ("dockerizing") OpenPTrack in collaboration with another student from UCLA to facilitate easy deployment onto many nodes and reduce deployment time by 85%.
- Shared / disseminated the new results by updating the wiki, making sure code is in Github, helping to automate docker image creation, etc.
- Participated in the Future of Storytelling Summer Institute (FSSI 2018), which is a 3-week workshop exploring the use of augmented reality (AR) in storytelling and theater.
- Worked on the integration, testing, and documentation of a Face Recognition module, in collaboration with a graduate student from UCLA
- Directed the expansion of a web-based user interface under development to support status monitoring and configuration in collaboration with a student from the University of Padova.

Scientific Preparatory Academy for Cosmic Explorers (SPACE) **Douglas, Isle of Man**
Virtual Intern **June 2013 – September 2015**

- Researched robotic mining technology that can be deployed on a specific designed mission
- Researched designated planetary bodies and the presence of designated constituents

National Centre for Technology Management **Ile-Ife, Nigeria**
Intern **October 2010– January 2011**

- Developed a knowledge map of the organization
- Researched an Annotated Bibliography on "Harnessing Indigenous Knowledge for Development in Nigeria."

TEACHING EXPERIENCE

University of California, Berkeley **Berkeley, CA**
Graduate Student Instructor **January 2024–May 2024**

- Graduate student Instructor for L&S 25: Beyond the Uncanny Valley: Art, AI and Robotics (Fall 2020) with responsibilities including teaching two sections weekly, and grading of assignments and projects for 51 students.

Middle Tennessee State University **Murfreesboro, TN**
Adjunct Faculty **September 2020–August 2021**

- Instructor for ET 4815: Heating, Ventilation and Air Conditioning (Fall 2020)
- Instructor for ENGR 3540: Introduction to Feedback Control (Spring 2021)

Middle Tennessee State University **Murfreesboro, TN**
Graduate Teaching Assistant **August 2017 – August 2019**

- Received a full-tuition scholarship, helped with weekly labs and grading for 20 students in ENGR 3520: Digital Circuits Fundamentals and for 40+ students in ENGR 3530: Electronics & Instrumentation.
- Team robotics exhibition and training for the first edition of the Tennessee Science, Technology, Engineering, Art, and Math (STEAM) festival.

The National Youth Service Corps **Agenebode, Nigeria**
Youth 'Corper' Deployed to Progress Secondary School **November 2013 – November 2014**

- Taught and imparted knowledge of basic engineering and science subjects to students
- Conducted extensive examination preparation and coaching of graduating students for the Senior Secondary Certificate Examinations (SSCE).
- Responsible for testing and assessment of examination scripts in Physics, Chemistry, and Basic technology.

PUBLICATIONS

G. Ji*, H. Polavaram*, L. Y. Chen*, S. Bajamahal, Z. Ma, **S. Adebola**, C. Xu, K. Goldberg, "OXE++: Scaling Robot Augmentation for Cross-Embodiment Policy Learning". **Preprint**.

S. J. Lee, X. Tu, **S. Adebola**, D. T. Keifert, N. Enyedy, and J. Danish, "How children blend feedback in a mixed-reality environment for collective embodied learning", International Journal of Computer-Supported Collaborative Learning, Oct. 2025. **Journal Paper.**

S. Adebola, C.M. Kim, J. Kerr, S. Xie, P. Akella, J.L. Susa Rincon, E. Solowjow, and K. Goldberg, "Botany-Bot: Digital Twin Monitoring of Occluded and Underleaf Plant Structures with Gaussian Splats", IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), October 2025**.**

S. Adebola, S. Xie, C.M. Kim, J. Kerr, B.M. van Marrewijk, M. van Vlaardingen, T. van Daalen, E.N. van Loo, J.L. Susa Rincon, E. Solowjow, R. van de Zedde, and K. Goldberg, "GrowSplat: Constructing Temporal Digital Twins of Plants with Gaussian Splats", IEEE 21st International Conference on Automation Science and Engineering (CASE), August 2025**.**

S. Adebola*, T. Sadjadpour*, K. El-Refai*, W. Panitch, Z. Ma, R. Lin, T. Qui, S. Ganti, C. Le, J. Drake, and K. Goldberg, "Automating Deformable Gasket Assembly," IEEE 20th International Conference on Automation Science and Engineering (CASE), August 2024.

A. O'Neill, A. Rehman, A. Gupta, A. Maddukuri, A. Gupta … **S. Adebola** … Z. Fu, Z. Lin, "Open X-Embodiment: Robotic Learning Datasets and RT-X Models", IEEE International Conference on Robotics and Automation (ICRA), May 2024. **Oral Presentation. Best Paper Award, Best Student Paper Award Finalist, Best Manipulation Paper Award Finalist**.

S. Adebola, M. Presten, R. Parikh, S. Aeron, S. Mukherjee, S. Sharma, M. Theis, W. Teitelbaum, E. Solowjow and K. Goldberg, "Automated Pruning and Irrigation of Polyculture Plants," IEEE Transactions on Automation Science and Engineering, April 2024**. Journal Paper.**

K. Chen, R. Hoque, K. Dharmarajan, E. LLontop, **S. Adebola**, J. Ichnowski, J. Kubiatowicz, K. Goldberg, "FogROS2-SGC: A ROS2 Cloud Robotics Platform for Secure Global Connectivity," IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), October 2023**.**

V. Kamat, S. Aeron, A. Gu, H. Jalan, **S. Adebola**, K. Goldberg, "PolyPoD: An Algorithm for Polyculture Seed Placement," IEEE 19th International Conference on Automation Science and Engineering (CASE), August 2023**.**

S. Adebola*, R. Parikh*, M. Presten, S. Sharma, S. Aeron, A. Rao, S. Mukherjee, T. Qu, C. Wistrom, E. Solowjow, and K. Goldberg, "Can Machine Garden? Systematically Comparing the AlphaGarden vs. Professional Horticulturalists", IEEE International Conference on Robotics and Automation (ICRA), May 2023**. Oral Presentation. Outstanding Paper (Automation) Award Finalist.**

J. Ichnowski, K. Chen, K. Dharmarajan, **S. Adebola**, M. Danielczuk, V. Mayoral-Vilches, N. Jha, H. Zhan, E. LLontop, D. Xu, C. Buscaron, J. Kubiatowicz, I. Stoica, J. Gonzalez, K. Goldberg, "FogROS2: An Adaptive Platform for Cloud and Fog Robotics Using ROS 2," IEEE International Conference on Robotics and Automation (ICRA), May 2023**.**

M. Presten, R. Parikh, S. Aeron, S. Mukherjee, **S. Adebola**, S. Sharma, M. Theis, W. Teitelbaum, and K. Goldberg, "Automated Pruning of Polyculture Plants," IEEE 18th International Conference on Automation Science and Engineering (CASE), August 2022**. Best Conference Paper Award.**

Sarah Lee, Xintian Tu, **Simeon Adebola**, Noel Enyedy, Joshua Danish, '"We Made Liquid!": How Children Blend Feedback in a Mixed-Reality Environment for Collective Embodied Learning,' 15th International Conference on Computer-Supported Collaborative Learning (CSCL), June 2022

S. Adebola and K. Goldberg, "Assisting Polyculture Farming in Africa," 2021 IEEE AFRICON, 2021, pp. 1-2, doi: 10.1109/AFRICON51333.2021.9570957.

S. O. Adebola, "A Human Following Robot for Fall Detection," M.S., Middle Tennessee State University, United States -- Tennessee, 2019.

A. Waldman-Brown, J. Wanyiri, **O. Adebola**, T. Chege, and M. Muthui, "Democratising Technology: The Confluence of Makers and Grassroot Innovators," presented at the 3rd International Conference on Creativity and Innovations at Grassroots (ICCIG), Indian Institute of Management, Ahmedabad, Jan. 2015.

O. Adebola, A. Waldman-Brown, B. Ghalib, and J. Wanyiri, "Current Trends in the African Maker Movement (Poster)," presented at the 10th Fab Lab Conference (FAB10), Barcelona, Jul. 2014.

S. O. Adebola, O. A. Odejobi, and O. A. Koya, "Design and implementation of a locally-sourced robotic arm," in 2013 IEEE Africon, Sep. 2013, pp. 1–4, doi: 10.1109/AFRCON.2013.6757721.

O. Adebola, "Climate Change and a Case for Renewable Energy Options," The Nigerian Guardian, Nigeria, Jul. 01, 2013

O. Adebola and S. Adebola, "Integrating Humanities Approaches to Shaping African Technological Development: The Case for an Indigenous Futures Component in the Science, Technology and Innovation Agenda in Africa," presented at the African Technology Policy Studies (ATPS) Network Annual Conference and Workshop, AUC Conference Center, Addis Ababa, Ethiopia, Nov. 2012**.**

AWARDS & HONORS

2025 Best Paper Finalist. Novel Approaches for Precision Agriculture and Forestry with Autonomous Robots Workshop, IEEE ICRA, 2025 for "*GrowSplat: Constructing Temporal Digital Twins of Plants with Gaussian Splats*"
2025 Bakar Bioenginuity Impact Grant**.** Funds late-stage doctoral candidates for two years. Four recipients are chosen yearly.
2024 Richard S. Muller Fellowship in EECS (UC Berkeley)
2023 Scholarship for the International Elite Summer School in Robotics and Entrepreneurship. Funded by the Danish Ministry of Higher Education and Science, Odense Municipality, the Innovation Centre Denmark, the Novo Nordisk Foundation, and private partners
2021 UC Berkeley EECS Excellence Award
2021 UC Berkeley BAIR Research Ignition Award (2021)
2019 Outstanding Masters Research Award, College of Basic and Applied Sciences, MTSU, Murfreesboro
2019 Project Alloy Grant Awardee Strange Loop 2019 Conference, St Louis
2014 Finalist, Global Fab Awards, The 10th International Fab Lab Conference, Barcelona
2012 1st Place Team Robotics Competition, IEEE Nigerian Section, Abuja
2012 Only African winner "10 Dollar Robot" Design Challenge, African Robotics Network https://bit.ly/2OQeDEh

CORE SKILLS & CERTIFICATIONS:

Computing: Experience with Python, Computer Vision, Linux Networking, scripting, Robot Operating System (ROS), Figma, Scratch, Scratch Jr. Have worked with Pytorch, Tensorflow, JavaScript, C, LabView, VHDL, PBASIC, Microsoft Visual C#.NET, Fortran.
Libraries: Tensorflow, Pytorch, Numpy, Matplotlib, Pandas, OpenCV
Systems: YOLO, Single-Shot Detector (SSD), MobileNets
Hardware: Nvidia GPU, Raspberry Pi, Arduino, Sensors, Cameras, Depth Sensors.
O/S: Windows XP/Vista/7/8/10, Linux, and Mac
Applications: Proficient with Microsoft Word, Excel, PowerPoint. Experience with Perforce and Unity.
Languages: English (Native), Yoruba (Native), French (Beginner)
Industry: Project Management, Lean Systems, Six Sigma.

CONFERENCE PROGRAM COMMITTEE SERVICE AND REVIEWING

IEEE Transactions on Field Robotics (T-FR), Reviewer 2025

Transactions on Machine Learning Research, Reviewer 2025

Harnessing Learning, Data, Foundation Models and Open Source: How African Scientists are Advancing Robotics Research (Robotics in Africa Forum) at IEEE International Conference on Robotics and Automation (ICRA) 2025, Co-Organizer, Atlanta, USA

IEEE Robotics and Automation Letters (RA-L), Reviewer 2024-2025

IEEE Transactions on Automation Science and Engineering (T-ASE), Reviewer 2025

IEEE/CVF Winter Conference on Applications of Computer Vision (WACV) 2025, Reviewer

IEEE International Conference on Robotics and Automation (ICRA), Reviewer 2023-2025

IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Reviewer 2022-2025

IEEE International Conference on Automation Science and Engineering (CASE), Reviewer 2023-2025

IEEE Robotics & Automation Magazine (RAM), Reviewer 2024

Robotics in Africa Forum at IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) 2024, Co-Organizer, Abu Dhabi, UAE

Tutorial on Cloud and Fog Robotics: A Hands-on Tutorial with ROS2 and FogROS2 at IEEE International Conference on Robotics and Automation (ICRA) 2024, Co-Organizer, Yokohama, Japan

Workshop on Lowering Barriers for Robotics Research at the Robotics: Science and Systems (RSS) Conference 2023, Co-Organizer, Daegu, Republic of Korea

Conference on Robot Learning (CORL) 2022, Associate General Chair (Organizing Committee)

IEEE International Conference on Automation Science and Engineering (CASE) 2022, Reviewer (Delegate)

IEEE International Conference on Robotics and Automation (ICRA) 2022, Reviewer (Delegate)

IEEE AFRICON 2021, Moderator – Moderated the 'Uhuru: Industrial Electronics, Control, Autonomous Systems, Instrumentation and Consumer Applications I' Session, September 2021

COMMUNITY OR VOLUNTEER WORK (NON-PAID)

Black in Robotics (BiR) Bay Area Chapter, Leadership, June 2022- Present

UC Berkeley Black in BAIR First-Years PhDs, Facilitator, August 2021 – August 2022

The Scratch Nigeria Translation Project, Co-founder- Project to translate the Scratch Programming Language into Nigerian languages starting with Hausa, Igbo, Yoruba and Pidgin, September 2020-Present

Intro to Robotics, Black in Robotics Workshop, Teaching Assistant - Helped and supported workshop participants in building the Hadabot robot and Arduino kits used in 10+ virtual workshops, November 2020 - Present

MIT Policy Hackathon 2020, Participant- Competed on the Planning (Future of Work) Track, October 2020

Expanding Your Horizon (EYH) Conference, MTSU, Tennessee Workshop Leader- Facilitated a workshop titled 'Introduction to Machine Learning,' partnering with Mathworks to bring their training workshop to the conference, October 2020

HackMIT 2020 Mentor- Assigned as mentor to two beginner teams and helped with questions from other hackers during the hackathon, September 2020

ENGR 4580 Senior Design 1 Final Presentation, Middle Tennessee State University, Murfreesboro, Tennessee Judge- Only Graduate Student Judge, together with other staff and faculty, at this presentation of projects by students in the Mechatronics Major, December 2019

Expanding Your Horizon (EYH) Conference, MTSU, Tennessee Workshop Leader- Led a workshop titled 'Introduction to Machine Learning with Scratch,' September 2019

STEM Robotics Challenge, Wilson County Fair, Tennessee Judge- Judged, together with other MTSU students and faculty, at the inaugural edition of this robotics challenge that included Robot Roundup and SUMO-Lego® Mindstorms Robot Challenge events, August 2019

Impact Church Kids' Camp, Tennessee Organizer and Facilitator Intro to Robotics- Organized and facilitated an Intro to Robotics session with about 60 participants with ages ranging from 6-13 years working with Scratch Jr, Scratch, Microbit and Makey Makey, June 2019

CONFERENCES AND EXHIBITIONS

TeachAThon Conference **A 24-hour conference held fully online**
Presenter **September 14-15, 2020**
• Presented Talk "Learning by Doing: Fostering Creative Learning and Creative Thinking Through Coding and Robotics"
• Presented Talk "The Scratch Nigeria Translation Project"

Scratch Africa 2019 Global Conference **Nairobi, Kenya**
Presenter **October 16-18, 2019**
- Hosted Workshop "Introduction to Machine Learning with Scratch"
- Presented Ignite Talk "Leveraging Creative Learning for the Emerging African Youth Generation"
- Only other facilitator from the United States joining the Media Lab team and several other facilitators from around the world represented on such a global platform.
- Live-tweeted talks from the event

Strange Loop 2019 Conference **St. Louis**
Presenter **September 12-14, 2019**
- Presented Lightning Talk "Why Africa Should Have Locally Sourced Robotic Kits"
- Blogged and live-tweeted talks from the event

Observe, Hack and Make (OHM) 2013 **Netherlands**
July 31 – August 4, 2013
- Accepted to give a lecture and demonstration on the robotic arm developed as a final year project

Saraba Magazine (An Online Literary Magazine) **http://sarabamag.com/**
Writer
- Published in three issues- Issue 10 (Music), Issue 11(Sex), Issue 12(Justice).

African Regional Centre for Space Science and Technology Education (ARCSTEE-E) **Ile-Ife, Nigeria**
November 2012
- Presented a seminar on the robotic arm developed as a final year

Maker Faire Africa **Lagos, Nigeria**
Exhibitor **November 5-6, 2012**
- Exhibited the improvised robot arm system developed as a final year project

ADDITIONAL PROFESSIONAL EXPERIENCE

Biscordint Travel Agency and Tours **Ibadan, Nigeria**
Operations Analyst **May 2015 – August 2017**
- Worked with a team of 14 people, directly supervising as many as 7 of them at a point, achieving an annual company revenue of over 487 Million Naira (1.5 Million USD).
- Helped successfully migrate core financial and accounting processes to a digital platform, thus improving accountability, accessibility and ease of operations.
- Assisted in the bi-weekly analysis of sales, expenditures, and profits.
- Assisted in overseeing day-to-day operations.
- Developed input pathways for a robust data management system

Neubridges **Lagos, Nigeria**
Product Development Intern **October 2014 – May 2015**

- Assisted in training on CAD software for prototyping, esp. SketchUp
- Supported 3D printing and other advanced manufacturing activities
- Helped successfully train 28 participants in GE Garage pilot project