Lekan Ogunmolu

Robotics | Control Systems | ML

Rerum Cognoscere Causas: To know the causes of things.

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Education

2014–2019 **PhD in Electrical and Computer Engineering**, *University of Texas at Dallas*, Richardson, USA.
"A Multi-DOF Soft Robot Mechanism for Patient Motion Correction and Beam Orientation Selection in Cancer Radiation Therapy." Advisors: Nick Gans (UTD) and Steve Jiang (UT Southwestern Medical Center.) | Committee Members: Drs. Mark Spong, Tyler Summers, Dinesh Bhatia, and Yonas Tadesse. | External Examiner: Prof. Phillip Anderson.

2012 **Master of Science in Engineering in Control Systems**, *The University of Sheffield*, Sheffield, United Kingdom. "*Autonomous Navigation of a Rotorcraft Unmanned Aerial Vehicle using Machine Vision*.". Advisor: Tony J. Dodd. | Committee Members: Drs. George Panoutsos and Robin Pursehouse. | Dissertation reviewed by Mahdi Mahfouf.

Experience

Research

Summer '18 **Research Intern**, Preferred Networks, Otemachi, Chiyoda-ku, Tokyo, Japan.
"Preferred Networks is one of a tiny handful of Japanese 'unicorns', or technology startups valued at more than $1 billion." – The Wall Street Journal, 10/15/2018
Research Intern within the Robotics Team. Worked on stable learning of complex robot motion-planning/manipulation tasks.
Implemented Khansari-Zadeh's CLF-DM on the Tokyo Robotics 7-DoF Arm. Proposed a DP approach for better complex robot trajectory imitation.

Fall '17 - Spring '19 **Research Assistant**, Medical Aritificial Intelligence and Automation Laboratory, Division of Medical Physics and Engineering, Radiation Oncology Department, UT Southwestern Medical Center.
Research Assistant for Dr. Steve Jiang, Barbara Crittenden Professor of Cancer Research, UTSW Department of Radiation Oncology.
Developed a multidisciplinary approach (spanning Deep learning, optimal control, dynamic programming, and game theory) in order to solve the classic beam orientation optimization (BOO) problem.

Summer - Fall '17 **Research Assistant**, Dr. Tyler Summers, Mechanical Engineering, UT Dallas.
Dynamic Programming, Decision Theoretic Control, Machine/Reinforcement Learning.
Developed a conservative controller for mitigating the lack of robustness in multi-stage decision policies.

Fall '14 - Now **Research Assistant**, Dr. Nick Gans, Electrical Engineering, University of Texas at Dallas.
Control Systems, Systems Identification, State Estimation and Computer Vision.
Conceived the prototypical testbed, procured hardware, integrated components to simulate soft robot compensating systems for patients in intensity modulated radiotherapy.

Summer '16 **Hardware Integration Intern**, Amazon Robotics LLC.
SLAM, Software and Hardware Integration Intern.
Helped integrate the hardware and software for the P3-DX robot used as a recreational robot in the Amazon Robotics office.

Spring '16 **Hardware Integration Intern**, Advanced Robotics Lab, Amazon Robotics LLC.
Hardware Integration Intern.
Wrote the codebase for the line scanners used in tracking objects in amazon warehouse assembly lines.

Teaching:

Fall '14 - '16 **Teaching Assistant, Introduction to Robotics**, *University of Texas at Dallas.*
Guided students during laboratories in programming the Robai Cyton 300R2 Robot and graded homeworks.

Spring '15 **Teaching Assistant, Linear Systems (M.S. Class)**, *University of Texas at Dallas.*
Responsible for helping Masters students with linear control theory applications; graded homeworks and midterms.

Spring '14 **Instructor, Analysis and Design of Digital Systems**, *Adekunle Ajasin University*.
Developed course modules, sole instructor for sophomore students, graded homeworks, designed and graded exams.

Summer '14 **Instructor, Digital Logic Design**, *Adekunle Ajasin University*.
Co-developed course modules, joint-instructor for junior students, graded homeworks, designed and graded exams.

Awards and honors

- **Google AI Travel and Conference Grant** — October 2018
- **IEEE RAS/IROS Travel Award (IROS 2018)** — August 2018
- Finalist at the 3rd Entrepreneurship Forum and Startup Competition — August 2017
  Sponsored by IEEE Robotics and Automation Society, KUKA AG, and Univ. Hamburg
- **NSF Doctoral Consortium Award (IROS 2017)** — August 2017
- **Mary and Richard Templeton Graduate Fellowship** — August 2017
- **ROSCon Scholarship** (Open Software for Robotics Foundation) — July 2017
- President's **Teaching Excellence Award** for Teaching Assistants — Nom. Feb. 2017
- **Golden Key International Honour Society** — Inducted Dec. 2016
- **IEEE RAS/ISAM Travel Award (CASE 2016)** — August 2016
- **Ericsson Graduate Fellowship** — 2015 - 2016
- **Jonsson Scholarship** — 2014 - 2015
- **Achievement Award, University of Florida** *(Declined)* — Fall 2014
- **PTDF Overseas Scholarship Award, *£25,500+ for one year*.** (~1.7% acceptance) — 2011
- **Federal Government (of Nigeria) Scholarship** (~3.6% acceptance) — 2002
- **Ondo State (Nigeria) Scholarship** (~10% acceptance) — 2004

Peer Reviewing Activities (Research)

2017-Present **Reviews**, International Federation of Automatic Control (IFAC) Automatica Journal – IEEE Access Journal – Journal of Neural Computing and Applications (NCAA) – IFAC World Congress – IEEE International Conference on Robotics and Automation (ICRA) – IEEE International Conference on Decision and Control (CDC) – IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) – Dynamic Systems and Control Conference (DSCC) – American Control Conference (ACC) – International Conference on Machine Learning (ICML).

Miscellaneous

2017 **Invited Contributor**, *IEEE/RSJ International Conference on Robots and Intelligent Systems (IROS)*, Abstract Only Track, Vancouver, BC, Canada.

2017 – Now **Member**, **IEEE Robotics and Automation Society**.

2016–Now **Member**, *IEEE Boston*, Greater Boston, USA.

2015 – 2016 **Science instructor**, *IEEE Dallas Shoulder of Giants Workshops*, Dallas, TX.
Participant at IEEE Dallas Young Professionals community outreaches in promoting STEM education and awareness in the Dallas/Fort-Worth Metroplex.

2015 **Summer Science Program**, *University of Texas at Dallas*, Richardson, TX.
Trained high-school kids in basic robots control and programming with the Berkeley Snap! kit and arduino.

Mentoring

Undergraduate mentoring:

Summer 2017 Rachael Thompson. Plano High School Student. Currently an undergrad at MIT's CSAIL. Class of 2021

2016 - 2017 Alex Tomkovich. Computer Engineering Junior.

Spring 2015 Grant Carr. Computer Engineering Junior.

Masters mentoring:

2016 – 2017 Adwait Kulkarn. Mechanical Engineering Masters student (Currently at Drov Technologies, MN).

2015 Ajith Venkateswaran. Computer Engineering Masters student (Currently Senior Robotics Software Engineer, Samsung Research, America).

Computing

Programming C++, Python, Lua, MATLAB, LabVIEW.

Libraries Point Cloud Library, OpenCV, Torch7, Eigen, Docker, PyTorch, OpenAI Gym, MuJoCo, Numpy, SciPy, Scikit-Learn, C++11/14 standards.

OS OSX, Debian, Windows.

OSRF ROS hydro, indigo, jade, kinetic, and melodic distros. ROS Bouncy Bolson.

Web HTML, Markdown, socket.io, node.js, and express.js.

Languages

English Reads, writes, and speaks fluently *Lived in Nigeria, United Kingdom and United States.*

Japanese Basic proficiency *Lived in Japan for 3 months.*

Yoruba Reads, writes, and speaks fluently. *Native Nigerian Language. Spoken at home.*

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