

DeGraffth Palmore

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Education and Honors

2018 – 2025

The Ohio State University - [Columbus, OH]

Doctor of Philosophy in Electrical Engineering

GPA: 3.3

National Consortium for Graduate Degrees for Minorities in Engineering (GEM) Fellowship
College of Engineering Discovery Scholars Fellowship

2013 – 2018

The University of Akron - [Akron, OH]

Bachelor of Science Electrical Engineering - Cooperation with Honors (Cum Laude) and a Mathematics Minor

GPA: 3.57

2018 University of Akron Top-Ten Senior
IDEAs Excellence Award
The Milton L. Kult Award
Space Grant Consortium (OSGC) STEM Scholarship
Wells Family Foundation Scholarship
Choose Ohio First STEM Scholarship
Dr. Luis Hill Mayor's Banquet Award
Minority Engineering Scholarship
ECE Department David Tucker Scholarship
OMNOVA Scholarship
The University of Akron Student Success Scholarship

Research Experience

Refractivity-from-Clutter, Software-Defined, Coherent-on-Receive Marine Radar, 2020

- Faulty advisor: Dr. Caglar Yardim
- Sponsored by Coastal Land-Air-Sea Interaction (CLASI), low-cost, software-defined, coherent-on-receive remote sensing Refractivity from Clutter (RFC)-capable Radar sensitive to low clutter power returns from the sea surface and land terrain using multiple launch angle

Using Passive Radar for UAV Traffic Management, 2018

- Faulty advisor: Dr. Graeme Smith
- Sponsored by Ohio Department of Transportation (ODOT), Using passive radar to detect, locate and track UAVs while exploiting digital television (DTV) as illuminators.

Triangulation Using Antennas in the Near-Field, 2018

- Faulty advisor: Distinguish Professor Dr. Nathan Ida

- Sponsored by Space Grant Consortium (OSGC), Calculation of complex waves and its application analysis of low frequency Near-Field reflected waves.

Stud Finder Using Reflected Waves in the Near Field, 2018

- Senior design project, Sponsored by The University of Akron, Design a Stud Finder using reflection waves from a large bifilar coil to compare an incoming signal to an electrically isolated reflected signal.

Advanced Signal Processing Circuit, 2014

- Sponsored by National Space Foundation (NSF) and Space Grant Consortium (OSGC), Simulated, Designed, manufactured, and constructed gain amplifiers, antenna, antenna arrays, and directional beam-forming antennas.

Publication and Presentations

A Comparison Between Multiple Launch Angle Method (MLAM) and Single Launch Angle Refractivity-from-Clutter (RFC) Technique— 2022 IEEE

International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting (AP-S/URSI)

- Lower atmospheric ducts in ocean and littoral regions can be retrieved using sea surface backscattering. This technique is called Refractivity-from-Clutter (RFC). Improving currently available RFC techniques is an active area of research. The duct effects on an EM signal depends on the angle that the signal is launched. Hence, using multiple launch angles might be a good way to improve the RFC inversion technique. This paper is a theoretical study of how using multiple launch angles in RFC inversion can improve the duct estimation with respect to using a single launch angle.

LATPROP Radar Modifications for CLASI Experiment— 2021 XXXIVth

General Assembly and Scientific Symposium of the International Union of Radio Science (URSI GASS)

- This paper describes the modifications made to a commercially available marine radar and how it was retrofitted to measure Refractivity-from-Clutter (RFC) from the sea surface in order to better understand atmospheric refractivity profiles. A Koden MDS63R marine radar was updated with a horizontal and vertically polarized 3 meter dish antenna that has a 48 dB gain, two options for PRF and pulse width, both long and short, the ability to discretely step in both azimuth and elevation to study 2-D spatial mapping and grazing angle respectively and the capability to perform Coherent-on-Receive (CoR) integration.
- Presented this paper at 2021 XXXIVth General Assembly and Scientific Symposium of the International Union of Radio Science (URSI GASS)

Refractivity-from-Clutter, Software-Defined, Coherent-on-Receive Marine Radar— 2020 Consortium on Electromagnetics and Radio Frequencies (CERF)

- Presented research on RFC-capable Radar sensitive to low clutter power returns from the sea surface using a low-cost, software-defined, coherent-on-receive remote sensing radar

Using Passive Radar for Unmanned Aerial Traffic Management for the State of Ohio — 2019 National GEM Consortium Annual Conference, 2019 Consortium on Electromagnetics and Radio Frequencies (CERF),

2019 Consortium of Ohio Universities on Navigation and Timekeeping (COUNT)

- Presented research on the detection, location and tracking unmanned aerial vehicles (UAVs) using Passive Radar and exploiting digital television (DTV) as illuminators of opportunity.

Palmore, DeGrafth, A, “Triangulation Using Antennas in the Near-Field,” Ohio Space Grant Consortium Annual Research

2017-2018 Annual Student Research Symposium Proceedings XXVI (pp. 201-205), (Cleveland, OH), March 23, 2018

Presentation on Triangulation Using Antennas in the Near-Field — 2018 Ohio Space Grant Consortium

- Presented research on the detection and location of body parts, such as a hands, using antennas in the near-field. The three antennas must operate on different frequencies. The unit will use an antenna, an oscillator circuit, a filter and other detection circuits.

Presentation on Omnidirectional Bi-conical Multi-beam Waveguide Antenna — 2018 Choose Ohio First Scholar Showcase,

2016 Ohio Space Grant Consortium

- Presented research on the modification of a bi-conical antenna which had the ability to produce a directional narrow-beam far-field pattern and a classical omnidirectional bi-conical pattern.

Industry Experience

Leidos Inc. — Jr. Signal Processing Engineer

May 2022 — Present

- Development of Signal Processing techniques including array processing and radar simulations

Electrical Sector Engineering Co-Op— Eaton Cooper Lighting

May 2016 — August 2016

- Designed and implemented a test procedure to quantify flicker using Fast Fourier Transform (FFT)
- Adapted wireless control lighting to experimental fixture products

Aircraft Sensors & Integrated Systems (SIS) Co-Op— United

January 2016 — August 2017

Technology Aerospace

- Designed, documented, and fabricated circuits
- Designed testing fixtures for specific active products
- Performed testing and documentation on failed field parts

COF Tutor and Mentor — The University of Akron

August 2014 — May 2018

- Tutored and mentored collegiate students in higher level STEM courses for retention purposes

Relevant Courses

The Ohio State University — Columbus, Ohio

Remote Sensing	Medical Imaging and Processing	Stochastic Var. and Det. Est.
Intro to Digital Signal Processing	Probability & Random Variables	Intro Radar System
Antennas	Propagation & Remote Sensing	Microwave Circuits
EM Field Theory I & II	Computational EM	

University of Akron — Akron, Ohio

Electromagnetic Compatibility	Control Systems I & II	Antenna Theory
Electromagnetics I & II	Intro to Communication Systems	Electronic Design

Software

MATLAB	MATLAB Simulink	Program in C	Python
LaTeX	Microsoft Office		

Membership and Organization

Ohio State University Club Football — Safety Officer	December 2021 — December 2022
Ohio State University Club Football — Player	August 2021 — December 2022
Black Graduate and Professional Student Caucus — Treasure	May 2021 — Present
Black Graduate and Professional Student Caucus — Participant	August 2018 — Present
Black Organization for STEM Students — President/Co-Founder	May 2015 — May 2018
Black Excellence Commission — Community Outreach Chair	December 2016 — May 2018
The National Society of Black Engineers — Vice President	May 2015 — January 2016
Choose Ohio First — STEM Scholar	May 2013 — May 2018