Demetrius Hernandez

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Education

The University of Notre Dame — Notre Dame, IN
Ph.D. in Computer Science — *Expected: Dec. 2028*

- Advisor: Dr. Jane Cleland-Huang
- Research Focus: Autonomous drones for emergency response scenarios

The University of Texas at El Paso (UTEP) — El Paso, TX
B.S. in Computer Science, Minor in Mathematics (Cum Laude) — *Dec. 2022*

- Coursework in Research Methods, Machine Learning, Deep Learning, Data Structures, Data Mining, Database Management, Discrete Mathematics, Probability and Statistics, Matrix Algebra

Work Experience

Computer Scientist — Feb. 2023 – PRESENT
White Sands Missile Range, Counter Drone Team — *White Sands Missile Range, NM*

- Awarded FY 2023 DOD SMART Scholar of the Year Award
- Awarded the Commanders Coin for Excellence by the White Sands Test Center Commander
- Spearheaded automation of analysis processes, conducted research on Graph Theoretic Approaches for Evaluation of Counter Drone Systems, and developed a neural network-based simulation framework, reducing testing costs.

Undergraduate Researcher — Jan. 2022 – Dec. 2022
UTEP Computer Science Department — *El Paso, TX*

- Collaborated with interdisciplinary teams to enhance long-read alignments of DNA/RNA sequences and built neural network architectures, utilizing TensorFlow, to improve DNA assembly through encoding existing minimizer schemes.

Undergraduate Research Assistant — Sep. 2021 – Jan. 2022
UTEP Brain Computation Lab — *El Paso, TX*

- Researched and implemented a comprehensive decision-making model emulating brain circuits, contributing to the lab's objective of integrating big data analysis and behavioral physiology to investigate psychiatric and neurological disorders

Software Engineering Intern — May 2022 – Aug. 2022
White Sands Missile Range, Survivability and Vulnerability Directorate — *White Sands Missile Range, NM*

- Built software to control instrumentation and collect data from equipment such as antennas and spectrum analyzers. Ensured compliance with electromagnetic (EM) requirements for testing weapons systems in EM environments.

Research Experience for Undergraduates — Jul. 2021 – Sep. 2021
Oregon State University — *Corvallis, OR*

- Utilized machine learning techniques to conduct research in quantitative ecology, analyzing community science data and adapting occupancy modeling frameworks to emerging datasets from the eBird app.

Undergraduate Research Assistant — Jul. 2020 - Jul. 2021
UTEP Cyber-Share Center of Excellence — *El Paso, TX*

- Analyzed and visualized the Cafeteria Roenbergensis virus, employing high-performance computing resources to contribute to the understanding of its intricate structure composed of approximately 120 million atoms.

Disney College Program Intern — Aug. 2019 – Jan. 2020
The Walt Disney Company — *Lake Buena Vista, FL*

- Participated in Disney's Ultimate EnginEARing Exploration, Engineering Exploration seminars, and Disney Hackathon, developing transferable skills in problem-solving, teamwork, guest service, and effective communication.

Publications/Book Chapters

Graph Theoretic Approaches for Evaluating Counter Drone Systems, Hernandez, D. *17th NATO Operations Research and Analysis Conference Proceedings, 2023.*

Aquatic Ecotoxicology: Theoretical Explanation of Empirical Formulas, Hernandez D., Holguin G., Parra F., Sanchez V., Kreinovich V. *Uncertainty, Constraints, and Decision Making. Studies in Systems, Decision and Control, vol 484.*

Fellowships and Grants

(2024) National Science Foundation (NSF) CSGrad4US Fellowship: Awarded to persons in industry with demonstrated potential for doctoral research. $37,000 for 3 years with an additional $16,000 per year for cost-of-education.

(2023) Department of Defense (DoD) Creative Research and Engineering Advancing Technical Equity in STEM Grant: $10,000 award for custom drone development in support of enhancing counter-drone testing capabilities.

(2021) DOD SMART Scholarship: Full-tuition for undergrad and $25,000/year stipend.

(2018) UTEP Andalusite Award: $3,000 per year for 4 years.

Awards and Honors

(2024) DOD SMART Scholar of the Year: Department of Defense SMART Scholarship Program
(2022) Best Poster Presentation: UTEP Undergraduate Research Symposium
(2021) First Place: Association for Computing Machinery (ACM) Sunrise Hackathon

Research Talks

(2023) DOD Weapons System Software Summit: Machine Learning-Powered Software Safety Categorization Using Software Requirements Specifications (SRS) in DOD Weapon Systems
(2023) 17th NATO Operations Research and Analysis Conference: Graph Theoretic Approaches for Evaluating Counter Drone Sytems
(2022) Joint UTEP/NMSU Workshop of Mathematics and Computer Science: Efficient Minimizer Schemes using Deep Networks

Poster Presentations

(2022) Great Minds in STEM Conference: Improving DNA Assembly with Machine Learning
(2022) 26th International Conference on Research in Computational Molecular Biology: Improving DNA Assembly with Machine Learning

Leadership and Service

Co-founder Aug. 2021 – PRESENT
Growing Leaders Onward and Upward (Glo Up) *El Paso, TX*

- Glo Up is a non-profit program aimed at promoting academic success in underprivileged Hispanic communities through student-driven project-based learning and professional development workshops. I co-founded this non-profit with a former member of the Canutillo ISD School Board.

Mentor Aug. 2021 – PRESENT
Army Educational Outreach Gains in the Education of Mathematics and Science *White Sands Missile Range, NM*

- Mentored high school students in the AEOP GEMS summer program for the past two summers, providing guidance, facilitating workshops, and fostering a positive learning environment, with a commitment to continuing in the role.

Judge/Mentor Jan. 2019 – PRESENT
Local Robotics Competitions and Science Fairs *El Paso, TX*

- Judge for local middle and high school robotics competitions and science fairs, including annual competitions such as the Sun County Regional Science and Engineering Fair and the Canutillo ISD Robotics Competition. Collaborate with local non-profit, Insights El Paso