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: Decision-making and reasoning for autonomous drones in 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

Technical Skills

Proficient Programming Languages: Python, R, Julia, C++, MATLAB
Machine Learning & AI: TensorFlow, Keras, PyTorch, Scikit-learn, Reinforcement Learning, Deep Learning
Other Tools & Frameworks: Docker, Kubernetes, Git, .NET, Linux

Work Experience

PhD Researcher — Aug. 2024 – PRESENT
The University of Notre Dame — *Notre Dame, IN*

- National Science Foundation (NSF) Research Fellow
- Sorin Fellow, de Nicola Center for Ethics and Culture

Computer Scientist — Feb. 2023 – Aug. 2024
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.

Selected Publications & Policy Analysis

Navigating the Black Box: Operational Lenses for AI-Enabled Drone Governance, *MIT Science Policy Review.*

Public Comment (primary-author): Federal Aviation Administration (FAA) *Normalizing UAS Beyond Visual Line of Sight (BVLOS) Operations* (NPRM; Docket FAA-2025-1908)

Ambient Advisory Models: Augmenting Runtime Models Into Distributed Reasoning Agents, *ACM/IEEE International Conference on Model Driven Engineering Languages and Systems*

Project Lead (Notre Dame): ND–IBM Tech Ethics Lab project on ethical deployment of AI-enabled drones; **PI: Ricardo Morales (Brown University)**; awarded $38K.

Fellowships and Funding

(2025) Notre Dame-IBM Technology Ethics Lab Call for Proposals: Co-author and awarded $38,000 to support research on human-drone collaboration and AI ethics.

(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.

(2022) RECOMB Travel Fellowship: RECOMB Travel fellowship

(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

(2025) Best Poster Presentation: RISE AI Conference
(2025) Best Oral Presentation: Graduate Research Symposium, University of Notre Dame
(2025) Finalist: Three Minute Thesis (3MT) Competition, University of Notre Dame
(2025) Honorable Mention: Policy Pitch Competition, Notre Dame Science Policy Initiative
(2024) Congressional Recognition: Received a Certificate of Special Congressional Recognition
(2024) Commanders Coin for Excellence: Awarded by the Commander of White Sands Test Center
(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

Leadership

(2025-present) Communications Director, Notre Dame Science Policy Initiative
(2025-present) Graduate Student Board Member, Notre Dame Computer Science and Engineering Department
(2025-present) Inclusive Excellence and Engagement Committee Member, Notre Dame College of Engineering
(2024-present) Advisory Board Member, UTEP Center for Research in Engineering and Technology Education

Invited Talks/Panels

(2025) NSF CSGrad4US Mentoring Program, "What I Wish I Knew Before Applying" Panel [Virtual]
(2025) Notre Dame Office of Grants and Fellowships, Fellowship Winners Panel [Notre Dame, IN]
(2024) Governor's State University, Seminar Series [University Park, IL]
(2024) Department of Defense, Innovators Spotlight Series [Virtual]
(2024) DoD & New Mexico State University, Talking the Pentagon to the People Event [Las Cruces, NM]
(2024) Department of Defense, Civilian Careers and Professional Development Panel [Washington, D.C.]
(2023) NATO Operations Research and Analysis Conference, Evaluating counter-drone systems [Laurel, MD]