Dante E. Navarro

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SUMMARY

Biomedical engineer with experience developing and validating data-driven and AI-enabled systems under medical device regulatory constraints. Proven record of building Python-based analytics, automation and clinical data tooling to accelerate verification, decision-making and regulatory submissions. Background spans clinical analytics, physical prototyping and cross-functional leadership in medical devices.

EDUCATION

Johns Hopkins University **2020**
M.S.E./ B.S. in Biomedical Engineering – Imaging and Medical Devices *Baltimore, MD*

Purdue University **2025**
Certification in Applied Generative AI Specialization - Building LLM Applications and Agentic Frameworks *Online*

SKILLS

AI & Data Systems
- LLM-enabled analytics and workflow integration
- Machine learning and predictive modeling
- Data pipelines, automation and model evaluation

Software Engineering
- Python-based analytical and visualization tooling
- Algorithm development and verification
- User-facing tools for engineering and clinical workflows

Physical Systems
- 3D modeling and rapid prototyping for test systems
- CAD-based fixture and experimental setup design
- Sensor-integrated prototyping for system-level evaluation

Regulated MedTech & Verification
- Design Verification (DV) strategy and execution
- Medical device standards and test traceability (ISO 5840)
- Experimental design and statistical rigor

WORK EXPERIENCE

Medtronic **2020-Present**
Senior R&D Engineer – Testing and Data Analysis *Orange County, CA*
- Apply large language models (LLMs) within engineering analysis workflows to synthesize DV data, compare historical results and accelerate technical reporting under regulatory constraints
- Design and deploy Python-based data aggregation and automation pipelines to process large verification datasets, reducing manual processing and accelerating engineering analysis throughput
- Re-architected a one-year critical-path DV strategy by leveraging legacy data and risk-based test rationales, enabling FDA submission two months ahead of schedule
- Lead cross-site, cross-disciplinary engineering teams to plan and execute DV studies supporting global market expansion
- Design and fabricate rapid 3D-printed fixtures and test components in SolidWorks to replicate in-vivo boundary conditions, integrating explanted patient device data to improve hydrodynamic test realism
- Author formal technical rationales and test justifications incorporated into regulatory submissions to eliminate redundant testing while preserving traceability and risk posture
- Manage and mentor direct reports while defining technical hiring criteria to scale verification and data-focused teams

Corrie Health **2018-2021**
Software Developer *Remote*
- Developed and deployed patient-facing iOS applications for secure collection, visualization and longitudinal tracking of physiological data used by clinicians for monitoring trends and patient-reported outcomes
- Integrated Bluetooth-enabled medical devices to stream real-time physiological signals into mobile applications, working with physicians and engineers to validate clinical requirements and manage production App Store releases

RESEARCH EXPERIENCE

Medtronic **2023**
Journal of the American College of Cardiology (JACC) *Orange County, CA*
- Published peer-reviewed research applying quantitative analysis to characterize device performance in explanted clinical samples: “Hydrodynamic Assessment of Explanted Degenerated Transcatheter Aortic Valves: Novel Insights Into Noncalcific and Calcific Mechanisms.”

Johns Hopkins University **2016-2021**
Institute of NanoBiotechnology: Project Lead *Baltimore, MD*
- Built machine learning models, including random forest classifiers, to predict patient outcomes using ambulatory and physiological datasets collected in clinical settings
- Developed iOS and watchOS applications to support remote collection of patient-reported pain metrics and physiological signals, enabling analysis of trends and temporal patterns
- Led hospital-based clinical studies under a funded Research Award, coordinating multidisciplinary teams and ensuring adherence to approved clinical protocol