

Pedro A. Colón-Hernández, Ph.D.

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Rapid prototyper and full-stack engineer who takes AI capabilities from research to products people use. Previously prototyped and user-tested LLM and multimodal experiences at Apple. Ph.D. in conversational AI from the MIT Media Lab.

EDUCATION

Massachusetts Institute of Technology

Ph.D. Media Arts and Sciences

(2018 – 2023)

Thesis: [A Conversational Agent for Dynamic Procedural Interactions](#)

Advisor: Dr. Cynthia Breazeal, Readers: Dr. Y. Choi, Dr. H. Lieberman, Dr. R. Moore, Dr. P. Piernot

MS Media Arts and Sciences

(2016 – 2018)

Thesis: Hover: [A Wearable Object Identification System](#)

Advisor: Dr. V. Michael Bove

University of Puerto Rico Mayagüez Campus

Bachelor of Science in Computer Engineering (*magna cum laude*)

(2011 – 2016)

TECHNICAL SKILLS

- Proficient: Python (primary), JavaScript, Java, C#
- Familiar: TypeScript, React, React Native, C, C++, SQL, Swift, Objective-C
- Model fine-tuning, training, and deployment with PyTorch, PyTorch Lightning, and Hugging Face
- Knowledge graph construction, retrieval and RAG systems, and evaluation set design
- Android and iOS development
- Web server development with Node.js and Flask
- Familiar with build systems such as Maven, Gradle, Xcode, and Makefiles
- Familiar with graph-based Dialogflow and Flowise prompt and conversational design tools
- Embedded systems design and development
- Experience with Roo Code, Claude Code, Antigravity, Codex
- Experience with AI-first software development and testing pipelines

WORK EXPERIENCE

Hypha, Cortex Group

Member of Technical Staff

(May 2026 – present)

Full stack development enabling agent testing for commercial real estate (CRE) covenant analysis, shipped to internal users, with testing and iteration beginning on external ones

- Agents that extract covenant terms from loan documents and check compliance against live data
- Evaluation of agent accuracy on covenant tasks, AI-first software development workflow throughout
- Tasks interfaces throughout the system for missing documents, reviews, and other assignments
- UI development in TypeScript and React for analyst review of agent output, validated through UX testing

Apple, Intelligence Design

Senior HI Designer

(Oct 2025 – May 2026)

HI Designer

(June 2023 – Oct 2025)

Designing effective AI powered proof-of-concept experiences through cross-team collaboration, developing robust development tools, and advancing projects from concept to production

- LLM and multi-modal LLM experience design and prototyping
- Developed tooling (servers, web tools) for experience prototyping
- User studies for validation of experiences
- Collaborated cross-functionally to identify needs and deliver design solutions

Massachusetts Institute of Technology Media Lab, Personal Robots Group

Graduate Research Assistant

(2018 – 2023)

Designed an agent capable of dynamically utilizing and adapting commonsense knowledge to perform inference and provide users with task guidance, including timely error handling

- Fine-tuned transformer models for structured knowledge graph generation and commonsense inference
- Fine-tuned language models to generate procedural steps from structured knowledge, with a graph-to-step planning system
- Conversational agent design, implementation, and testing, including patterns for audio guidance
- RAG-powered assistant that could help with unseen procedures
- Research stack in Python (PyTorch, PyTorch Lightning, Hugging Face), React Native app built for user testing

Apple, Siri Conversational Interaction Group

Summer Graduate Prototyping Intern

(Summers 2019, 2020, 2022)

Prototyped conversational experiences, dictation, and Siri capabilities and developed tooling for these.

- Conversational design pattern development
- User studies on developed experiences for validation

Massachusetts Institute of Technology Media Lab, Object-Based Media Group

Graduate Research Assistant

(2016 – 2018)

Researched content and interactions for 8K resolution and HDR coloring, and built Hover, an object-detecting wearable delivering scanned-object information through a bone-conduction headset

- Radar, spectrometer, and camera sensor fusion for object detection and classification
- Custom fabrication of bracelet chassis and electronics; audio augmented-reality information access
- Mouse, touch, and Kinect integration for manipulation of point clouds
- Unity and HoloLens application development; group interactions for visual data analysis

Massachusetts Institute of Technology Lincoln Laboratory, Group 59

Graduate Summer Researcher

(Summers 2016, 2017)

Developed tools to automate fuzzing of avionics, and data verification algorithms for an insider threat corpus

SELECTED PUBLICATIONS

- Can Language Models Take a Hint? Prompting for [...] (Arxiv, 2024)
- Modeling Empathic Similarity in Personal Narratives (EMNLP, 2023)
- Adversarial Transformer LMs for Commonsense Inference (Arxiv, 2023)
- A Conversational Agent for Dynamic Procedural Interactions (MIT Thesis, 2023)
- Getting Help from the Neighborhood: Local Semantic [...] (ACS, 2022)
- Practical Guidelines for Intent Recognition: BERT [...] (HRI, 2021)
- A Survey on Pre-trained LMs and Structured Knowledge (Arxiv, 2021)
- RetroGAN: Incorporating Knowledge Into Word Embeddings [...] (ACL, 2021)
- Does a Dog Desire Cake? [...] (Poster) (KR2ML & LatinX @NeurIPS, 2019)
- I-vector Speaker and Language Recognition System on Android (IEEE-HPEC, 2016)

LEADERSHIP EXPERIENCE

Undergraduate Student Mentorship

(2022 – present)

Mentored 5 students in research, thesis work, and guided some of them into professional paths

AAAI-MAKE Conference Chair

(2023 – present)

Helped coordinate and review work submitted to the AAAI Spring Series Symposium

AI Latin American SumMIT Conference

(2020)

Helped coordinate speakers, venue, finances, and website for a 3-day, 100+ person event at MIT

CERTIFICATIONS, AWARDS, AND FELLOWSHIPS

- Passed the FE and PE exams and was a certified EIT in Puerto Rico
- UPRM ECE Department Graduation Prize
- NSF Graduate Research Fellowship Recipient
- GEM Fellowship Recipient
- PR College of Engineers Scholarship