Héctor Carrión

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Education

University of California, Santa Cruz — Santa Cruz, CA
Ph.D. | Computer Science and Engineering | 3.92 GPA — Present

University of Puerto Rico, Rio Piedras — San Juan, PR
B.Sc. | Computer Science | 3.75 GPA — Grad. 2021

University of Naples, Federico II — Naples, Italy
Apple Developer Academy, Software Engineering & Design — Grad. 2019

Experience

University of California, Santa Cruz — Santa Cruz, CA
Graduate Student Researcher | Medical AI Research, Generative AI — June 2020 – Present

- Achieved SOTA performance (↑18%) via generative methods (e.g. Diffusion) for image segmentation, classification and analysis in label-constrained scenarios (< 100 samples); published multiple first-author papers
- Managed collaboration across multi-disciplinary teams: Dr. Norouzi's Computer Vision, Dr. Gómez's Applied Mathematics & Dr. Rolandi's Electrical Engineering labs – funded by DARPA/BTO

Google Research — Mountain View, CA
Student Researcher (PhD) | Computer Vision, Large Language Models — June 2023 – September 2023

- Established foundation models for unified multi-modal video & image training, unlocking significantly higher performance compared to previously deployed single-modality encoders
- Integrated vision-language models (e.g. CLIP) for natural-language supervision via contrastive learning

Google X — Mountain View, CA
AI Resident (PhD) | Simulation, Edge Perception, Aerial Imaging — June 2021 – September 2022

- Exceeded performance expectations for aerial & ground perception systems under novel problem domains
- Granted multiple first-inventor patents for ecological agent behavioral simulation and edge sensing systems

Publications & Conference Presentations

- **H. Carrión**, et al. FEDD - Fair, Efficient, and Diverse Diffusion-based Lesion Segmentation and Malignancy Classification, MICCAI 2023
- **H. Carrión**, et al. Patch HealNet: Predicting Wound Stage from In Vivo Imaging, DARPA BETR Review 2023
- **H. Carrión**, et al. HealNet - Self-Supervised Acute Wound Heal-Stage Classification, MICCAI MLMI 2022
- **H. Carrión**, et al. Automatic Wound Detection and Size Estimation using Deep Learning Algorithms, PLOS Computational Biology 2022
- J. Chan, **H. Carrión**, et al. Honeybee Re-identification in Video: New Datasets and Impact of Self-supervision, VISAPP 2022
- H. Yang, M. Bagood, **H. Carrión**, et al. Photographs of 15-day wound closure progress in C57BL/6J mice, Data Dryad 2021
- **H. Carrión**, et al. Towards Classification of Wound Stages Using Deep Learning Algorithms, SACNAS 2020
- J. Chan, N. Alicea, M. Alvarez, **H. Carrión**, et al. Computer vision approaches to enable multi-faceted data collection of honeybees behavior in the field, SIDIM 2020

Skills, Awards & Advisorships

Technical: Python | C++ | Swift | PyTorch | TensorFlow | Keras | JAX | Numpy | Natural Language Processing | SW Eng
Soft: Strong communicator, presenter, collaborator | Diligent, organized **Languages:** English (native) | Spanish (native)
Awards: MICCAI STAR | SIDIM Outstanding Research Presentation | NIH BD2K | Google Patent Award
Advisorships: Technical Advisor @ visia.ai (2021-Present) & tera.earth (2023-Present) | ML Tutor (2020-2022)