Lukas José Ferrer

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ABOUT ME

I studied Bio, EE, and AI to see neurons from all three perspectives. My work in deep learning, VR, and medical devices has given me experience bringing research into reality.

EDUCATION

M.S. BIOMEDICAL ENG.

USC | Viterbi
August 2017 | Los Angeles, CA
Focus: Electrophysiology, Medical Device Regulations, & Agile Software Development

B.S. BIOMEDICAL ENG.

USC | Viterbi
May 2016 | Los Angeles, CA
Focus: Medical Devices & Physiological Modeling

TOOLS

PYTHON

PyTorch | FastAI
TensorFlow | Keras
NumPy | SciPy | Faiss
Pandas | Matplotlib
Scikit-Learn

WEB DEVELOPMENT

REST | Requests
Ruby on Rails
TypeScript | React

SOFTWARE

Linux | Ubuntu | CentOS
Amazon Web Services
Docker
MATLAB
LabVIEW
SolidWorks

LINKS

LinkedIn lukas-ferrer
GitHub Ljferrer
Twitter @YungGraceHopper

EXPERIENCE

NEURALINK | Regulatory Software Engineer

Oct 2020 – Jan 2021 | Fremont, CA

- Recruited by Neuralink to establish critical protocols for GLP & cGMP compliance, such as 21 CFR Part 11 and 21 CFR 820.30 (Design Controls)
- Formulated a procedure for formalized, data-driven risk assessment
- Identified noncompliance in Neuralink's design workflows and proposed strategies on how to adapt while minimizing interruption to productivity
- Contributed code to Neuralink's Laboratory Information Management System in an effort to turn it into a compliant QMS tailored to existing processes, saving over $100K per year in licensing fees

INFORMATION SCIENCES INSTITUTE | Research Programmer

May 2018 – Oct 2020 | Marina del Rey, CA

- Improved ISI's existing Neural Machine Translation (NMT) system's performance to be competitive with Google Translate across several languages
- Integrated algorithms from several academic papers focusing on Transformers, a novel deep learning architecture, into ISI's in-house NMT training library
- Competed in SARAL, a multi-institution challenge with researchers across the country to make a functional, cross-lingual information retrieval system within a 10-day period
- Developed an automated ingestion pipeline to pull over 100,000 news articles per day from LexisNexis for ISI's geopolitical forecasting platform, SAGE
- Improved relevant document retrieval by 73% (recall@5)
- Served SAGE's research tool as a Dockerized Restful API on AWS

RECALL VR | Creator & Team Lead

Aug 2015 – May 2016 | USC GamePipe Lab

- Developed an experimental Virtual Reality tool designed to leverage a student's natural spatial awareness to increase memory and boost retention
- Led 16+ students with skill sets ranging from architecture and animation to computer science and business under an Agile development framework
- Won 1st place at the 2016 Viterbi Senior Design Expo

HEMODIALYSIS CATHETER | Final Project

May 2015 – Aug 2015 | USC MPTX 513

- Wrote a 510(k), simulating the process of obtaining FDA clearance to market
- Familiar with the continuous product life cycle and design controls of medical devices in compliance with the ISO 13485 standard and 21 CFR 820 regulation
- Designed a Class II, implantable hemodialysis catheter that was substantially equivalent to two predicate devices in terms of fabrication, materials, and labeled use, yet novel in its reversible blood-flow-separating tip design
- Modeled an implanted version of the device in SolidWorks and rendered blood flow simulations, showing evidence that the blood-flow-separating tip provided adequate care even if the catheter was hooked up to the hemodialysis machine backwards