

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, medical devices, and VR have 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 – Present | 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
- Contributing code to Neuralink's Laboratory Information Management System to turn it into a compliant Quality Management System 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