

# Lukas José Ferrer

<https://github.com/Ljferrer>  
lukasjferrer@gmail.com || 310.801.8751

## ABOUT ME

I studied Bio, EE, and AI to see neurons from all three perspectives. My work in deep learning, medical devices, and VR gave me experience bringing research into reality. As a self taught programmer, I currently focus on Natural Language Processing applied towards Information Retrieval.

## 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  
TensorBoard  
Numpy  
SpaCy  
Faiss  
REST | Requests

### SOFTWARE

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

## ONLINE

LinkedIn | [lukas-ferrer](#)  
GitHub | [Ljferrer](#)  
Twitter | [Lukas](#)

## EXPERIENCE

### INFORMATION SCIENCES INSTITUTE | RESEARCH PROGRAMMER

May 2018 – Present | Marina del Rey, CA

- Improved our 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 AND 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

### SYNTOUCH | ROBOTICS INTERN

Feb 2014 – Nov 2014 | Los Angeles, CA

- Fabricated a robotic test fixture to explore applications in manufacturing of SynTouch's new tactile sensor, the NumaTac
- Documented build and buy decisions along the entire design process, from the Bill of Materials to assembly
- Reported weekly progress at the Medical Device Development & Fabrication Lab at USC under the direction of Dr. Gerald E. Loeb, the principal engineer of the first cochlear implant