

Francisco J. Carrillo Ph.D.

franjcf.github.io | franjcf@outlook.com | 512.574.5060 | franjcf@princeton.edu

EDUCATION

PRINCETON UNIVERSITY

PH.D. COMPUTATIONAL PHYSICS
& MACHINE LEARNING (ML)
2021 | Princeton, NJ

PRINCETON UNIVERSITY

MA, CHEMICAL ENGINEERING
2018 | Princeton, NJ

U.T. AUSTIN

BS, CHEMICAL ENGINEERING
2016 | Austin, TX
Magna Cum Laude
GPA: 3.93 / 4.0

TECHNICAL SKILLS

PROGRAMMING

Python • C++ • Matlab • Git • Bash

DATA ANALYSIS

Pandas • NumPy • SQL

MACHINE LEARNING

Scikit-Learn • TensorFlow

HIGH PERFORMANCE COMPUTING

Slurm • Google Cloud Platform

SOFT SKILLS

LEADERSHIP

COMMUNICATION

COLLABORATION

PROACTIVENESS

BILINGUAL

English • Spanish

AWARDS

Gordon Wu Fellow | \$28,000
Dean of Eng. Grant | \$15,000
Hack '69 Award | \$10,000
Azure Cloud Computing | \$5,000

LINKS

LinkedIn:// [Franjcf](#)
GitHub:// [Franjcf](#)
Publications: [Google Scholar](#)
Media Article: [ML + Fluid Dynamics](#)

EXPERIENCE

PRINCETON UNIVERSITY | RESEARCH SCIENTIST

2021 - Present (1 Year) | Princeton, NJ

- Developed end-to-end ML models for prediction of stochastic physical processes.
- Leveraged parallel cloud computing to process simulated and experimental data.
- Led international collaborations with Stanford University and ETH Zurich, Switzerland.
- Taught multiple engineering classes and trained incoming graduate students.

PRINCETON UNIVERSITY | PH.D. CANDIDATE

2016 - 2021 (5 Years) | Princeton, NJ

- Designed parallelizable open-source code to simulate fluid flow in soft porous media.
- Developed 6 publications focused on computational physics and machine learning.
- Presented research findings at over 12 scientific conferences (4X as featured speaker).
- Secured funding from competitive grants, including the Azure Cloud Computing Award.

UNIVERSITY OF TEXAS AT AUSTIN | RESEARCH ASSISTANT

2014 - 2016 (2 Years) | Austin, TX

- Researched novel water desalination technologies through microfluidic experiments.
- Reported findings to the project's business partner, "Okeanos Technologies".
- Obtained and analyzed data in order to set personal and group project objectives.

LEADERSHIP AND COMMUNITY SERVICE

ACADEMIC SERVICE AND LEADERSHIP | ORGANIZER AND TEACHER

2016 - Present (5 Years) | Princeton, NJ

- Organized four scientific conference sessions, each with over 100 participants.
- Taught Python programming for Stanford's "Code in Place" class in 2020 and 2021.
- Reviewer for *Physical Review Journals*, *Journal of Computational Physics*, *Journal of Fluid Mechanics*, *Transport in Porous Media*, and *Water Resources Research* (among others).

CATHOLIC ORGANIZATIONS | PRESIDENT

2014 - Present (7 Years) | Austin, TX and Princeton, NJ

- Organized weekly events attended by over 120 people.
- Directed a yearly 70 person, 5-day community service mission trips in Austin TX.
- Coordinated yearly 350-person Easter pilgrimages through Austin, TX.
- Arranged and secured funding for monthly community service activities.

MACHINE LEARNING PROJECTS | [PORTFOLIO LINK](#)

IMAGE PROCESSING | SCIKIT-LEARN, PANDAS, NUMPY

- Efficiency evaluation of face-recognition algorithms with PCA.
- Implementation of Kernel SVMs for identification of handwritten digits.

TIME SERIES FORECASTING | TENSORFLOW, WEB SCRAPING

- Prediction of commodity prices through LSTM Recurrent Neural Networks.

LANGUAGE PROCESSING | FEATURE ENGINEERING, DATA CLEANING

- Product sentiment analysis of Amazon customer reviews.
- Feature and "trendability" analysis of trending YouTube videos.

MISCELLANEOUS PROJECTS | C++, OOP, VECTOR CALCULUS

- Optimization of latent user classes based on 60,000 dating profiles through LDA.
- Unconstrained optimization of ridge regression using gradient descent.
- Modeling and prediction of stochastic clogging processes in randomly-generated porous media with Extremely Randomized Trees and Neural Networks.