

# Francisco Huizar

Data-driven drug discovery  
scientist



## Contact

### Address

Camarillo, CA, 93012

### Phone

(661) 706-9931

### E-mail

fhuizar@nd.edu

[LinkedIn](#) 

[Google Scholar](#) 

[ORCID](#) 

[Personal Website](#)

## Skills

Innovative problem solver



Excellent

Collaborate cross-functionally



Excellent

Project management



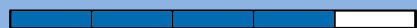
Excellent

Information and data management



Excellent

S.M.A.R.T. goals and objectives



Very Good

Leadership and initiative



Very Good

Professional self-awareness



Very Good

Communicate effectively



Very Good

Biostatistics and data analysis



Excellent



## Mission statement

- I am a collaborative cross-functional scientist with expertise in computational biology, mathematical modeling, science-based decision making, and interdisciplinary communication.
- **The core mission of my professional endeavors is to serve patients** afflicted by genetic-related disease with therapeutic approaches and innovative biotechnology in a clinical setting.
- Helping, guiding, leading, lifting, and loving others fills my heart, gives me motivation, and creates unbounding feelings of significance.
- To achieve **my mission** of service, I aim to utilize **my talents** of communication, execution, and discernment to perform **my passion** of planning, solving, and analyzing by using data-driven approaches to discover novel therapeutics for patients.



## Summary of qualifications

- Articulate communicator with expertise in data visualization and scientific presentation resulting in 1 [academic journal front cover](#), 14 conference and 5 seminar presentations.
- Self-motivated project manager with excellent written communication, strategic planning, innovation, and problem solving abilities resulting in 3 first-author publications, 1 first-author review, and 5 fellowships totaling in \$96,000 in funding.
- Flexible, adaptive, and versatile learner committed to professional development as evidenced by participation in 3 training workshops specific to computational modeling, pharmacometrics, genomics, computational biology, and clinical therapeutic development.
- Inspiring leader with experience to foster listening, patience, encouragement, collaborative environments, and achieving success together as evidenced by participation in 2 lead mentoring training workshops, mentoring 8 undergraduate and 9 graduate students.
- Risk management expertise with proficiency in analytical reasoning, prioritization, time appropriation, organization, and executive decision making to solve problems resulting in 4 optimized high throughput methodologies.
- Dedicated, dependable, and ethical scientist committed to integrity, reproducibility, responsibility, and accountability resulting in 3 unique discoveries in relation to drug discovery research for oncology and neurodegenerative preclinical disease modeling.



## Professional experience

### Quantitative systems biologist, model simulation and drug discovery

*As Graduate Research Assistant (Jul 2018 - Current)*

*University of Notre Dame, Indiana*

- Responsible for collaborative relationship building by leading 4 cross-functional teams spanning simulation techniques, drug discovery, and machine learning for application to computational biology, biostatistics, simulation, and mathematical modeling.
- Developed a Gaussian process surrogate model for prediction and simulation of therapeutic viability of 1,498 compounds to 172 kinase targets for cancer research.
- Deployed bioinformatics, data processing, and data science methods for analysis of phenotypic datasets to identify 4 lead therapeutic candidates using Python and MATLAB.
- Implemented 2 machine learning approaches for de novo therapeutic design as a scientific approach for identification and simulation of new therapeutics using generative models.

Computational biology and model simulation	<div><div></div><div></div><div></div><div></div><div></div></div>	Very Good
Bioinformatics, single-cell genomics	<div><div></div><div></div><div></div><div></div><div></div></div>	Actively Learning!
Pharmacometrics and PKDM	<div><div></div><div></div><div></div><div></div><div></div></div>	Actively Learning!
Model-informed drug development	<div><div></div><div></div><div></div><div></div><div></div></div>	Actively Learning!
PK/PD and pharmacology modeling	<div><div></div><div></div><div></div><div></div><div></div></div>	Actively Learning!
Exposure-response modeling of discrete and time-to-event data using Bayesian methods	<div><div></div><div></div><div></div><div></div><div></div></div>	Actively Learning!

## Software

R for biostatistics	<div><div></div><div></div><div></div><div></div><div></div></div>	Excellent
Python	<div><div></div><div></div><div></div><div></div><div></div></div>	Excellent
MATLAB	<div><div></div><div></div><div></div><div></div><div></div></div>	Excellent
Unix and Linux	<div><div></div><div></div><div></div><div></div><div></div></div>	Very Good
NONMEM modeling software	<div><div></div><div></div><div></div><div></div><div></div></div>	Actively Learning!
STAN	<div><div></div><div></div><div></div><div></div><div></div></div>	Actively Learning!
PyTorch for Machine Learning	<div><div></div><div></div><div></div><div></div><div></div></div>	Good
GitHub	<div><div></div><div></div><div></div><div></div><div></div></div>	Good
MySQL	<div><div></div><div></div><div></div><div></div><div></div></div>	Good
C++	<div><div></div><div></div><div></div><div></div><div></div></div>	Good

- Utilized machine learning, mathematical modeling, and cloud computing for rapid simulation and data classification of 4 unique calcium signatures in developmental biology.
- Operated differential equation modeling tools to discover 2 distinct cell populations in developing epithelial tissue via simulation and analytic techniques.
- Hands-on experience and innovation in data democratization by generating biotechnology modeling software for utilization of packages by non-technical users as demonstrated by 2 open-source repositories for biological simulation and biostatistics.
- Computed categorical data analysis and generalized linear regression to discover a 2 fold increase in cellular proliferation in cells with upregulated Gαq protein.
- Completed quantitative reverse transcription PCR of 21 genes to collaborate with other scientists to identify therapeutic targets not yet recorded in literature.
- Designed 6 cloning vectors for creating transgenic model organisms to optimize a drug development platform for human disease models of cancer.
- Designed and developed a platform for rapid in vivo *Drosophila* drug development assay to evaluate up to 8 novel therapeutics per month.
- Produced datasets with confocal microscopy to discover an 11 percent increase in *Drosophila* brain size modeled after human neurodegenerative disease.
- Served as a leader to communicate clearly the standard operating procedures and collaborate with 3 new graduate trainees on laboratory operations.
- Organized, scheduled, and executed collaborative weekly group meetings for 7 colleagues.

## Computational biologist, data management and data science

*As Undergraduate Research Assistant (Jan 2017 - May 2018) University of Notre Dame, Indiana*

- Performed in vivo gene expression of 425 human disease related genes in *Drosophila* with fluorescent microscopy and the GAL4/UAS system.
- Spearheaded design and innovation of a more efficient coverslip plating protocol for in vivo calcium signaling imaging that increased throughput by a factor of 2.
- Participated in cross-function teams to collaborate with other scientists that led to development of a cloud computing project to manage datasets consisting of 13,324 images.
- Implemented biostatistics to discover a power-law scaling relationship between calcium signaling and tissue size by a power of 0.8 during using a Box-Cox transformation.
- Optimized a genetic screening protocol to identify 4 key regulatory genes of calcium signaling by developing an innovative data collection procedure.



## Training and education

### Doctor of Philosophy / Doctorate, Bioengineering

*University of Notre Dame, South Bend, Indiana*

*Jul 2018 – Current*

### Master of Science, Applied Computational Mathematics and Statistics

*University of Notre Dame, South Bend, Indiana*

*Jul 2018 – Current*

### Bachelor of Science, Chemical and Biomolecular Engineering

*University of Notre Dame, South Bend, Indiana*

*Aug 2013 – May 2018*

### Bachelor of Science, Applied Computational Mathematics and Statistics

*University of Notre Dame, South Bend, Indiana*

*Aug 2013 – May 2018*