

ALBERTO NAVA

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Experience

PhD Student

Aug. 2018 - present

Keasling Lab

- Metabolic engineering of various industrial hosts for retrobiosynthesis of industrially-relevant polyketides
- Developed automated synthetic biology Design-Build-Test-Learn platform incorporating robotic liquid handlers
- Engineered enzyme specificity and solubility through *in silico* protein design utilizing modern evolutionary and structural models as well as traditional biophysical simulations
- Performed genome mining for phylogenetic analyses as well as discovery of improved enzymes
- Deployed several web applications that disseminate next-gen sequencing analysis, protein folding, and lab automation tools

Software Engineering Intern

Dec. 2017 - Aug. 2018

Bioelectronics

- Developed cloud-hosted GPU-assisted computer vision program with OpenCL and OpenCV
- Built interface between microfluidic device and cloud-hosted computer vision application with Python

Undergraduate Researcher

Aug. 2015 - May 2018

Vasquez Lab

- Conducted molecular dynamics simulations of various systems including metal hexaborides and reverse micelles
- Simulations required development of automation scripts in Python and Bash

Bioinformatics Intern

Jul. 2016 - Dec. 2017

Nevada INBRE Bioinformatics Center

- Developed a parallelized RNA-Seq pipeline that reduced total analysis time from days to hours

Engineering Intern

May 2016 - Jun. 2016

PPG Architectural Coatings

- Assisted in the maintenance of the paint manufacturing facility

Carpenter

Nov. 2014 - May 2016

BMC Building Materials & Construction Services

- Performed framing, pickup, layout, and plating on the framework of houses

Education

University of California, Berkeley

Aug. 2018 - Dec. 2022

- PhD Chemical and Biomolecular Engineering

University of Nevada, Reno

Aug. 2014 - May 2018

- B.S. Chemical Engineering
- B.S. Applied Mathematics

Skills

Dry Lab:

- Python, Bash, R, C, Matlab/Octave
- Docker / Singularity
- Molecular Dynamics: OpenMM, VMD
- Multiple sequence alignments: MAFFT
- Protein Structure: Rosetta, PyMol, Alphafold, ESMFold
- Genome Mining: antiSMASH, Corason, HH-suite, HMMER, Diamond

Wet Lab:

- Cloning: PCR, Gibson/Yeast/Golden-gate assembly
- Protein purification: IMAC, IEX, SEC
- Analytical: HPLC, UV-vis, LC-MS
- Organisms utilized: *E. coli*, *S. cerevisiae*, *C. glutamicum*, *P. putida*

Teaching:

- Spring 2020 - CBE143 Teaching Assistant - Data Analytics for Chemical Engineers
- Spring 2021 - CBE40 Teaching Assistant - Intro to Chemical Engineering Design

Languages:

- English (native) & Spanish (proficient)

Honors

- NSF Graduate Fellow
- GEM Graduate Fellow
- Ronald E. McNair Scholar
- Spring 2020 Outstanding GSI Award