# Sebastian Bernasek

Data Scientist with Software Engineering Experience

☎ 630-624-9699  |  ✉ sbernasek@gmail.com  |  in sbernasek  |  Tahoe City, CA

## Overview

Data scientist with years of software development experience, strong quantitative skills, several issued patents, and diverse industry experience.

**Expertise includes:**
- **Software development** for scientific applications.
- **Machine learning** model development, deployment, and analysis.
- **Empowering decisions** with statistical insight.
- **Hacking together data-driven solutions** to a wide variety of problems.

## Skills

**Software** python (10 years) / pandas, numpy, scipy, sklearn, matplotlib, requests, etc. / git / SQL / HTML & CSS / mathematica
**Machine Learning** supervised & unsupervised ML / model interpretation, & deployment / bayesian optimization
**Analysis** statistical modeling / hypothesis testing / dimensionality reduction / linear algebra / images & time series / visualization
**Research** project management / experimental design / scientific literacy / technical communication / inter-disciplinary collaboration

## Education

**Ph.D. in Chemical and Biological Engineering**   *Northwestern University   2014 - 2019*

**B.S. in Chemical Engineering • High Honors**   *UC Santa Barbara   2008 - 2012*

## Experience

**Senior Data Scientist at Citrine Informatics**   *Remote   2021 - Present*
- Used Bayesian optimization to design new materials yielding >$1M/yr in added value for customers and multi-million dollar contracts for Citrine.
- Led a team of developers to build a customer-facing library of AI tools, with built-in usage monitoring for internal product research.
- Automated the ML model building process to eliminate 10% of Data Scientist hours per project across the company.
- Created several prototype features that were adopted into the core product.
- Mentored junior Data Scientists throughout their technical development and designed the Data Scientist on-boarding program.

**Scientific Computing Engineer at Emerald Cloud Lab**   *San Francisco, CA   2020 - 2021*
- Shipped numerous data analysis and visualization features to the customer-facing interface of Emerald's fully robotic wet lab.
- Created a new framework enabling all other developers to build interactive GUI-based apps within the existing software product.

**Freelance Consulting (part time)**   *San Francisco, CA   2019 - 2020*
- Built a database of 5k+ targeted B2B sales leads using a combination of web-scraping, commercial APIs, and machine learning.
- Saved hundreds of hours of tedious labor by automating several PDF content extraction and parsing routines.

**Researcher at Northwestern University**   *Evanston, IL   2014 - 2019*
- Published in high profile journals including *Cell* and *PLOS Computational Biology*.
- Discovered a novel cell decision mechanism by using computer vision to analyze microscopy data.
- Achieved >100x speedup of a common method by developing an algorithm to annotate patch patterns in microscopy data.
- Designed, built, and deployed several open-source python packages for analyzing microscopy data and simulating biological processes.

**Process Engineer at LanzaTech**   *Chicago, IL   2012 - 2014*
- Invented four patented processes for converting waste $CO_2$ to valuable lipid products.
- Designed and built the company's core process modeling framework, which was rapidly adopted by all engineers.