

CHENGXIAN (ALEX) ZHANG

Data Scientist

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About

As a biomedical researcher-turned data scientist, I am passionate about gaining insights from complex datasets to support data-driven decision-making and improve efficiency and outcome.

Data Science Skills

- **Python:** pandas, numpy, matplotlib, seaborn, geopandas, folium, NLP, scikit-learn, statsmodels
- **R:** tidyverse, dplyr, ggplot2, Shiny, leaflet
- **SQL:** PostgreSQL, sqlalchemy, RPostgres, DBI

Data Science Experience

DATA SCIENTIST APPRENTICE

NASHVILLE SOFTWARE SCHOOL | NASHVILLE, TN | 09/2021 – 06/2022

Intensive part-time bootcamp focusing on data science fundamentals and problem-solving. Used real-world datasets and included projects where findings were presented to stakeholders from the community.

- Wrangled data and performed exploratory data analysis using Python's pandas library and R's tidyverse packages
- Created data visualizations using matplotlib, seaborn, and ggplot2
- Performed geospatial analysis using geopandas and folium
- Gathered data through APIs and webscraping
- Retrieved and analyzed data using PostgreSQL, sqlalchemy, RPostgres, and DBI
- Built and evaluated statistical and machine learning models using the scikit-learn and statsmodels libraries
- Applied natural language processing using the nltk and spaCy libraries
- Performed network analysis on graph data using Neo4j
- Built and deployed interactive data visualizations using the R Shiny library
- Source code version control with Git/GitHub
- Project management/tracking with GitHub project boards and issue tracking
- Interacted with AWS using the CLI and ssh

Data Science Projects

- **COVID-19 in the U.S.**
Created an interactive R Shiny App to analyze the geographic patterns and disparity/inequality of COVID-19 epidemiology and vaccination in U.S. counties.
https://czhang87.shinyapps.io/COVID-19_US/
- **Medicare Referral Analysis for Vanderbilt University Medical Center (group project)**
Generated insights on patient referral patterns from medical specialties to major Nashville hospitals. Analyzed referral communities in Nashville and provided recommendations to Vanderbilt University Medical Center to expand the referral network in certain specialties, subspecialties, and nearby cities.
<https://sites.google.com/view/nss-ds5-healthcare-bluebook/introduction>

Professional Experiences

ASSISTANT PROFESSOR

AUSTIN PEAY STATE UNIVERSITY | CLARKSVILLE, TN | 08/2020 - PRESENT

- Taught microbiology lectures and labs to graduate and undergraduate students; created new course materials and updated existing course materials
- Conducted research on bacterial infectious diseases and prevention
- Advised undergraduate students on Plan of Study and career preparedness and served on various committees in the department and college

TEACHING ASSISTANT PROFESSOR

UNIVERSITY OF NEVADA, RENO | RENO, NV | 07/2019 - 07/2020

- Created new microbiology lectures and lab courses
- Taught microbiology lectures and lab to undergraduate students
- Served on department committees

RESEARCH FELLOW

JOHNS HOPKINS UNIVERSITY | BALTIMORE, MD | 07/2016 - 05/2019

- Investigated the host signaling pathway of S1P₂-EGFR-CysLTRs exploited by bacteria in bacterial meningitis
- Characterized molecular mechanism of EGFR activation during bacterial meningitis
- Identified novel host factors (HRAS, gC1qR, and CD14) involved in bacterial meningitis

RESEARCH FELLOW

VANDERBILT UNIVERSITY | NASHVILLE, TN | 10/2013 - 06/2016

- Developed an enterotoxigenic *E. coli* vaccine using bacterial fimbriae against diarrhea
- Successfully filed a U.S. patent for an Enterotoxigenic *E. coli* vaccine
- Investigated the epidemiology of childhood acute diarrheal disease in Davidson County, Tennessee, and Colombia, South America

Education

- **Data Science** | 2022 | Nashville Software School, Nashville, TN
- **Statistics For Data Science** | 2021 | Nashville Software School, Nashville, TN
- **Ph.D. | Veterinary Microbiology** | 2013 | South Dakota State University, Brookings, SD
- **M.S. | Microbiology** | 2009 | South Dakota State University, Brookings, SD
- **B.S. | Veterinary Medicine** | 2006 | Huazhong Agricultural University, Wuhan, China

Publications

- [Google Scholar](#)