# Ethan Zang

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## EDUCATION

**Rutgers University, Honors College School of Engineering** September 2017 – May 2021
*Bachelor of Science (B.S.) in Computer Science & Applied Sciences in Engineering,* Minor in Mathematics New Brunswick, NJ

- **GPA:** 3.95 / 4.00
- **Awards & Honors:** Rutgers Presidential Scholar (Full scholarship awarded to <1% of undergraduates), National Merit Finalist, Dean's List (all semesters), HOSA International Conference 1st Prize Biomedical Debate 2016
- **Coursework:** Principles of Programming Languages, Systems Programming, Data Structures, Databases, Computer Architecture, Design and Analysis of Algorithms, Machine Learning, Linear Optimization, Adv. Calculus, Differential Equations, Multivariable Calculus, Discrete Math, Deterministic Models in Operations Research, Organic Chemistry

## EXPERIENCE

**Amazon** May 2020 – August 2020
**Software Engineer Intern** | Alexa Speech Recognition – Automation Team Seattle, WA

- Engineered codebase profiling tool used by 100+ scientists and engineers for Alexa speech recognition model release to associate execution jobs with their corresponding procedures, call stacks, and model steps for codebase organization
- Implemented scalable, automated functional component filters for real-time monitoring of model building job statuses
- Designed algorithm to identify critical job execution resource constraints based on cluster computing scheduling logic
- Employed multithreaded execution for full model release profiling reports in <1 hour with 9x performance upgrade

**Merck & Co.** May 2019 – August 2019
**Software Engineer Intern** | Integrated Design and Execution of Analytics Team West Point, PA

- Designed automated report generation tool in R (Shiny, Markdown) to develop a robust pipeline for quality analyses
- Collaborated in an agile environment to deploy tool on HPC servers with ~250 employee hours/ year saved on reports
- Integrated user interface for streamlined user experience with data selection and input features in HTML/ CSS
- Utilized Tidyverse package (dplyr, ggplot) to prototype dynamic plot visualizations and statistical method previews

**Computational Hybrid Soft Materials Lab** August 2018 – Present
**Research Assistant** | Advisor: Dr. Meenakshi Dutt New Brunswick, NJ

- Collaborated with masters and PhD students to design Python package for the characterization of peptide structures
- Built 3D equal-width binning and processing methods for positional data to exponentially increase analysis efficiency
- Developed shape characterization and novel periodic boundary condition algorithms for structure analysis applications
- Awarded 3rd Prize Rutgers Departmental Poster Conference 2019 out of ~40 competitors

## PROJECTS

**Gromacs File Converter**

- Cross-functionally collaborated on refining Python converter to generate usable .txt file from Gromacs .gro file
- Engineered converter to allow for evaluation of dynamics simulation system robustness in other analysis applications

**Linear Programming Calculator**

- Implemented calculator for revised simplex method to solve linear programming problems with greater efficiency

## LEADERSHIP

**Rutgers Engineering Governing Council** May 2020 – Present
*President* New Brunswick, NJ

- Overseeing engineering school undergraduate affairs, managing $200,000+ in funds and a 27-person leadership team
- Fundraised nearly $7,000 for the school food pantry and philanthropic organizations to aid pandemic-related struggles

**Rutgers University Honors College** January 2019 – Present
*Honors College Ambassador* New Brunswick, NJ

- Led 3 prospective and admitted student tours and information sessions in the Honors College
- Assisted in organizing and facilitating the Presidential Reception for ~100 incoming Rutgers Presidential Scholars

## SKILLS

**Proficient in:** Python, Java, MATLAB
**Some experience with:** C, C++, SQL, R (Shiny, Markdown), HTML/ CSS