

George Rickus

Berkeley, CA (765) 637-6453 grickus@berkeley.edu www.linkedin.com/in/george-rickus-cs/ github.com/G4ce99

EDUCATION

University of California, Berkeley
Computer Science Bachelors

August 2021 - May 2025
GPA: 3.98/4.0

Relevant Coursework: Efficient Algorithms and Intractable Problems, Data Structures, Machine Learning, Artificial Intelligence, Computer Architecture, Probability and Random Processes, Introduction to Quantitative Finance, Discrete Math and Probability Theory, Multivariate Calculus, Linear Algebra, Introduction to Data Science

In Progress Coursework: Operating Systems, Databases, Full-Stack Development

WORK EXPERIENCE

The Koskella Lab

Undergraduate Researcher – Computer Scientist and Bioinformatician

August 2021 - Present

- Developed bioinformatic software using Python, Bash, Slurm, and Snakemake to automate large scale genomic analyses
- Reduced time researchers spent manually performing computational biology experiments to 5% of original duration
- Managed virtual environments with Conda to handle dependency differences between various bioinformatic tools
- Publishing two research papers in scientific journals on my software and its computational analysis of coevolutionary behavior of phage and bacteria

The Data Mine

Data Science Intern

May 2022 - August 2022

- Launched a collaborative project between The Data Mine and Molecular Stethoscope, a biotechnology startup in California, using gene expression data and classification models to track Alzheimer's disease and other illness progression
- Optimized Monte Carlo simulations in Python to assess model uncertainty and increased simulation efficiency by 500%
- Devised project contract between The Data Mine and Molecular Stethoscope by developing a scope of work and identifying future team goals

Statistics Department at Purdue University

Teaching Assistant for Introductory Data Science Course

August 2020 - May 2021

- Conducted 300 hours of support sessions to help undergraduate students with data science homework by reinforcing concepts, techniques, and programming languages (R, Python, SQL, and Bash) as a high school senior

EXTRACURRICULARS

Machine Learning at Berkeley

External Committee Officer and Club Member

August 2022 - Present

- Learned a variety of machine learning techniques and architecture as part of club's new member program
- Designed convolutional and residual neural network to classify image data
- Organized Software Engineering and Machine Learning career fair with 10 companies and over 500 attendees

International Genetically Engineered Machine (iGEM)

Project Lead

January 2022 - December 2022

- Led team in construction of workflows in Bash and Python combining existing and novel protein prediction software to create therapeutic proteins for submission to iGEM synthetic biology competition
- Presented project findings at biannual Berkeley computational biology symposium

PROJECTS

RL for RL (Reinforcement Learning for Rocket League)

December 2023 - Present

- Training deep learning model using Proximal Policy Optimization(PPO) and actor-critic methods to play video game Rocket League
- Leveraging existing open-source tool, RLBot, to make model-based Rocket League bot shareable and locally playable

Real Estate Web Scraping

June 2021 - July 2021

- Built a python program that uses REST API, exponential backoff timers, IP switching, and header manipulation to bypass website security and extract price, size, county, and address for all listings in desired US states on real estate websites
- Generated and cleaned large datasets of real estate listing data to strengthen State Education Agency's funding model

SKILLS & INTERESTS

Proficient Programming Languages: Python, C, Java, R, SQL, Bash, HTML, CSS, JavaScript

Programming Frameworks: Pandas, Numpy, PyTorch, OpenMP, REST API, Selenium, Conda, Snakemake, Slurm, Git

Foreign Languages: Professional Working Proficiency: French. Elementary Proficiency: Japanese

Skilled in: Efficient Algorithmic Design, OOP, Fundamentals of Machine Learning, Data Analysis, Multithreading, Web Scraping

Contests: Competitive Programming: Top 5% Leetcode contest rating. Jane Street Monthly Puzzle Competition: Frequently on leaderboard since December 2022 and top 10 solver in May 2023. Chess Puzzles: Top 0.5% in world at chess.com ranked puzzles.

Hobbies: Intramural Soccer, Hiking, Snowboarding, Skateboarding, Solving Japanese Grid Puzzles (Sudoku, Nurikabe, etc.)

PUBLICATIONS & PRESENTATIONS

1. Holtappels, D., Rickus, G., Morgan, T., de Renzende, R.R., Koskella, B., Alfenas-Zerbini, P. (2023). Evidence for the key roles of the *Pseudomonas syringae* mobilome in shaping biotic interactions. *Proceedings of the National Academy of Sciences*, In Submission.
2. Holtappels, D., Abelson, S.A., Nouth, S.C., Rickus, G., Giller, J.P., Koskella, B. (2023). Genomic characterization of *Pseudomonas syringae* pv. *syringae* from Callery pear and the efficiency of associated phages in disease protection. *Microbiology Spectrum*, In Press. <https://doi.org/10.1101/2023.07.11.545637>
3. Nucleotide: *Pseudomonas* phage 16Q, complete genome. (2023). *National Center for Biotechnology Information*. GenBank Accession Number: OR001909.1. Available from: <https://www.ncbi.nlm.nih.gov/nucleotide/OR001909.1/>
4. Alejo, A., Banda, R.R., Debnath, D., Fruehauf, K., Joshi, P., Krastev, F., Lee, J.N., Raghavapudi, H., Ram, N., Rickus, G., Tolosa, D.C., Vaddadi, S.M., Yu, R., Ziemann, B., Sninsky, J.J., and Braun, J. (2023, June 6-8). Modeling of Measurement Uncertainty of a high dimensional RNA-Seq classifier of cell-free mRNA for Alzheimer's Disease [Poster Presentation]. 17th Annual Sequencing, Finishing, & Analysis in the Future Meeting, Santa Fe, New Mexico, United States.
5. Nucleotide: *Mycobacterium* phage Royals2015, complete genome. (2023). *National Center for Biotechnology Information*. GenBank Accession Number: NC_051705.1. Available from: https://www.ncbi.nlm.nih.gov/nucleotide/NC_051705.1
6. Nucleotide: *Mycobacterium* phage Nitzel, complete genome. (2023). *National Center for Biotechnology Information*. GenBank Accession Number: NC_051690.1. Available from: https://www.ncbi.nlm.nih.gov/nucleotide/NC_051690.1
7. Albarghouthi, L., Rickus, G., Ramesh, S., Lin, J., Rettig, C., Singhal, R. (2022, April 29). Peptide Inhibitor Design for Protein-Protein Interactions [Poster Presentation]. Cal Undergraduate Bioengineering Symposium, Berkeley, California, United States.
8. Nucleotide: *Mycobacterium* phage Cactus, complete genome. (2021). *National Center for Biotechnology Information*. GenBank Accession Number: MT723943.1. Available from: <https://www.ncbi.nlm.nih.gov/nucleotide/MT723943.1>
9. Nucleotide: *Mycobacterium* phage NiebruSaylor, complete genome. (2020). *National Center for Biotechnology Information*. GenBank Accession Number: MT818425.1. Available from: <https://www.ncbi.nlm.nih.gov/nucleotide/MT818425.1>
10. Rickus, G., Noland, R., Shao, K., Kmetz, C. (2020, April 14-21). Comparison of Glimmer and GeneMark Start Site Accuracy of Phage Genomes [Poster Presentation]. Purdue Undergraduate Research Conference, West Lafayette, Indiana, United States.