Joyce Yu
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Education

University of California, Berkeley	**Berkeley, CA**

- *Master of Science in Molecular Science and Software Engineering (GPA: 4.00)* — *Aug 2024 – May 2026*
- *Bachelor of Arts in Integrative Biology (GPA: 3.60)* — *Aug 2015 – May 2019*

College of San Mateo	**San Mateo, CA**
Post-baccalaureate education	*June 2023 - Aug 2024*

Relevant Coursework: Machine Learning Algorithms, Principles and Techniques of Data Science, From Data Warehousing to Big Data, Data Structures and Algorithms, Probability and Statistics in Biology using R, Programming languages for Molecular Sciences: Python and C++, Software Engineering Fundamentals for Molecular Sciences, Deep-Learning with convolution and graph neural networks, Linear algebra, Calculus, Object-oriented programming, The Foundations of Data Science, Python web-scraping, Python Geospatial fundamentals

Languages and Technologies

- **Languages:** Python, C++, SQL, Bash/Git (version control), R
- **Developer and analytical tools:** VSCode, Jupyter notebook, MySQL, R Studio, Excel, GraphPad PRISM, FlowJo, Github
- **Libraries:** NumPy, Pandas, RDKit, OpenBLAS, SciPy, Scikit-learn, Keras, BioPython, Tensorflow, Matplotlib, Plotly, GeoPandas, sqlite, BeautifulSoup, pytest, tidyverse, dplyr, ggplot2, tibble

Work Experience

Curia Global	**201 Industrial Road, San Carlos, CA**
Research Scientist III	*March 2020 – Present*

- Served as technical lead for 27 R&D projects resulting in over 100+ uniquely discovered and characterized antibodies
- Built an interactive client-facing tool using Python to visualize and summarize 6 months of lab data
- Helped generate client-facing reports and presented results at weekly team meetings
- Trained 4 scientists 1 college intern on workflows, wet and dry lab techniques, data collection, software for data analysis, report generation, and provided feedback for improvement
- Led a team of 8 scientists and 3 project managers to execute operational duties during company acquisition, projected expenses with data analytical tools, and minimized costs leading to an increase of >$300,000 in company revenue
- Helped develop a new R&D service focused on anti-drug antibodies and pharmacokinetic (PK) studies.
- Selected by executive leadership committee to be 1 of 5 international representatives modeling company core value and assisted with global marketing content https://www.linkedin.com/feed/update/urn:li:activity:7139090251876077569/

Stanford University (School of Medicine)	**300 Pasteur Dr., Stanford, CA 94305**
Life Science Research Professional	*June 2019 – Feb 2020*

- Assisted with data collection and analysis using R programming and provided additional lab support
- Managed animal colonies and assisted with hypoxia experiments to study genetic mechanisms of different lung diseases
- Maintained detailed records of experiments, sample inventory, and the development of new protocols

University of California, Berkeley (Student Technology Services)	**2610 Channing Way, Berkeley, CA**
Student Technology Consultant	*May 2018 – May 2019*

- Served as part of campus technical support troubleshooting network connectivity issues, assisting campus associates with hardware and software problems, and providing documentation for training staff
- Resolved over 200+ tickets in the ServiceNow ticketing system
- Provided customer service over the phone, online, and in-person for a variety of devices and platforms

Projects

BANKING SYSTEM APPLICATION   **Fall 2024**
- Collaborated with 3 other engineers to create a banking application that allows users to simulate a banking system capable of creating accounts, withdrawals, deposits, and money transfers. The application keeps a historical record of transactions and prevents user from creating invalid or dangerous transactions.

SYSTEMIC EVALUATION AND RUN TIME ANALYSIS OF MOLECULAR SIMULATIONS   **Fall 2024**
- Refactored on-going python scripts into C++ to improve the space and run time complexity of different methods used to compute the energy of particles in motion and make accurate predictions of larger systems through molecular dynamic simulations

LIGAND-BASED VIRTUAL SCREENING PIPELINE USING MACHINE LEARNING AND ALGORITHMS IN FRAGMENT-BASED DRUG DISCOVERY   **Fall 2024**
- Implemented virtual screening pipeline capable of screening large datasets of >100,000 small molecules, characterizing new drugs, generating a diverse compound library, and screening out toxic drug candidates
- Virtual screening pipeline consists of the following techniques: linear classification algorithms, sorting algorithms used to prioritize best drug candidates by comparing molecular descriptors, structural features, and chemical properties; kernel density estimator (KDE) and sliding window technique used for assessments of pharmacophoric features; retrosynthesis for the curation of a new compound library, Taylor-Butina/agglomerative clustering and Tanimoto similarity measurements to score candidates and ensure drug diversity.

MODELING DRUG-METABOLISM NETWORKS TO INFER DOWNSTREAM METABOLITES   **Fall 2024**
- Generated and analyzed graph data structures modeling metabolic networks to understand pathways that result to harmful metabolite formation created during metabolism of therapeutics.

INTERACTIVE SUMMARY OF THERAPEUTIC ANTIBODY CANDIDATES (Curia)   **Fall 2023**
- Built an interactive client facing program used to summarize and visualize 6 months' worth of lab data.
- Ensured compliancy of client proprietary information in collaboration with IT and cybersecurity personnel.
- As part of leading this initiative to bring new technologies into a company, I also taught Bash and Python basics to colleagues to help advance the team.

*2 Additional projects incorporating Computer Vision and/or Natural Language Processing (NLP) to be completed by May 2025.

Publications, Patents, and Awards

MSSE Excellence Scholarship
Recognized by faculty and admissions committee of UC Berkeley's Master of Molecular Science and Software Engineering program for academic and professional accomplishments. Awarded March 13, 2024.

Wnt7a deficit is associated with dysfunctional angiogenesis in pulmonary arterial hypertension
European Respiratory Journal | June 08, 2023 | https://doi.org/10.1183/13993003.01625-2022

Field of invention: Antibodies for treating, preventing, and/or detecting SARS-COV-2 infection
Patent Publication #20230115257 | May 17, 2022 | https://patents.justia.com/patent/20230115257

Mural cell SDF1 signaling is associated with the pathogenesis of pulmonary arterial hypertension
AJRCMB | Feb 20, 2020 | https://doi.org/10.1165/rcmb.2019-0401OC

Received 3 awards by team and company vote at Curia for Employee's Choice (2022), Spot Award (2021), and Employee Appreciation (2020)