RESEARCH ASSOCIATE

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Forrest Hsu

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SUMMARY

Self-starting and ambitious **molecular biologist** with a passion for increasing efficiency and creating biological solutions to modern problems. Effective **strain engineering** at Zymergen, **developed assays** for Adaptive Symbiotic Technologies, learned **synthetic biology** with Washington iGEM. Demonstrated capability in individual and team environments.

EXPERIENCE

ZYMERGEN || Research Associate

Jul 2021 - Current || Emeryville, CA

Improved titer of enzymes essential to vaccine production

- Cross functional strain engineer embedded in the enzymology department.
- Built hundreds of strains using high throughput automation. Grew strains in up to 1L cultures, and purified target proteins using benchtop column chromatography.
- Developed new and improved existing lab and data management workflows; wrote SOPs and trained users.
- Eliminated common errors by creating Jupyter notebooks that were adopted by 4 teams to simplfy and standardize data entry and manipulation into the LIMS system.
- Analyzed data and produced publication quality figures to present at team meetings using Python and JMP.
- Improved throughput and robustness of benchtop processes (ex. 3500x increase in throughput of cell lysis, 7x decrease in CV of sonication protocol, implemented SQL queryable data)

ADAPTIVE SYMBIOTIC TECHNOLOGIES || New Product Development Biologist

Sep 2018 – May 2020 || Seattle, WA

Agbio startup that develops endomycorrhizal fungi to increase abiotic stress tolerance

- Fabricated and programmed an image analysis platform for seed-microbe interactions, halving data collection time and increasing data precision five-fold.
- Assessed microbe performance by performing a variety of assays.
- Conducted research and development with variety of filamentous fungi, yeasts, bacteria, and plants.
- Presented research at the University of Washington Undergraduate Research Symposium.

WASHINGTON IGEM || Officer and Researcher

Mar 2020 - Nov 2020 || Seattle, WA

The University of Washington's premier competitive synthetic biology team

- Gained experience with plasmid design, genetic engineering, and computational biology.
- Organized team functions such as literature review, external presentations, and project design.
- Presented the team's work at an international synthetic biology symposium.

SKILLS

Laboratory || Automation (Tecan Evo/Fluant, Bravo, ZAG, QPix), PCR, SDS-PAGE, Bradford Assay, Western Blot, Mini Prep, Gibson Cloning, Genetic Transformation, Antibiotic Screening, Sterile Technique, Fungal Culture, Microscopy, Prototype Fabrication

Computer || Data Analysis and Visualization [Python], Programming [Python], SQL, LIMS, Benchling (ELN), JMP, Jupyter notebook, Binderhub, Github, ImageJ [Macros], Excel, Microsoft Office, LaTeX, Gsuite, Notion

EDUCATION

UNIVERSITY OF WASHINGTON

Bachelor of Science in Molecular, Cellular, and Developmental Biology, Class of 2021 || GPA 3.4

SEATTLE CENTRAL COLLEGE

Associate of Science, Class of 2019