Yongchan (Chan) Hong

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EDUCATION

Harvey Mudd College, Claremont, CA — Class of 2024
B.S. in Mathematical and Computational Biology — Overall GPA 3.65, Major GPA 3.85

Coursework: Discrete Mathematics, Differential Eqns/Linear Alg, Biostatistics, Principles of Computer Science, Data Structures & Program Development, Computability & Logic, Algorithms, Computer Science Clinic, Machine Learning, Mathematical Biology, Computational Biology, Topics in Human Evolution, Experimental Biology Laboratory

RESEARCH EXPERIENCES

Clinic Member, Biovia, San Diego, CA — September 2019 - May 2020

- Worked on antibody developability prediction by training machine learning models to predict the Developability Index of antibodies from protein sequences; Selected as 2020 Best Clinic Team Award.
- Extracted physicochemical features and learned embedding features using **word2vec**; Trained 7 models including **SVM**, **Random Forest**, **MLP,** and evaluated the result using **heatmap** and **pareto optimization.**

Research Assistant, Eliot Bush's Lab, Harvey Mudd College, CA — September 2018 - May 2020

- Worked on xenoGI which is a **Python** software that reconstructs the evolution of gene families in clades of microbes. Focused on identifying a threshold between peaks created by genes to enhance tree reconstruction speed.

Research Assistant, Jae Hur's Lab, Harvey Mudd College, CA — October 2017 – December 2018

- Researched the effects of heat shock in mitohormesis and elongation of the life expectancy of drosophila that involved Complex 1, Bradford, and Citric Synthase assay. Built files that can perform statistical tests like Tukey test using **R**.

WORK EXPERIENCES[1]

Software Engineer - Data, Krust Universe, Seoul, Korea — June 2022 - January 2023

- Constructed an overall data pipeline including **EKS**, **Airflow**, **BigQuery** and **Superset/Redash** to create **Klaytn BigQuery Public Dataset** including blockchain data with 100M+ blocks and 10B+ traces. Created Python-based **open-source** Klaytn-etl that enables ETL jobs for Klaytn blockchain data using CLI.

Software Engineer - Data Platform, Krafton PUBG, Seoul, Korea — January 2021 - June 2022

- Managed and customized **Data Visualization** of the team, including **Pinterest Querybook**, **Apache Superset,** and custom tool *Rivendell*. Used multiple stacks including **Spark**, **Pandas**, **Chakra UI**, **Flask, React,** and **Helm Chart.**
- Built *Crash Report Data Pipeline* using **App Center API**, **Azure Blob Storage & Function**, **AWS S3**, **Lambda**, and **ElasticSearch & Kibana** to provide an organized view of crash incidents to the server team in near real-time.

CS Grader/Tutor, Harvey Mudd College, Claremont, CA — September 2018 – December 2019

- Graded and tutored for CS60: Principles of Computer Science, CS81: Computability and Logic, and Math55: Discrete Mathematics. Tutored students about Linked List, Arrays, Binary Search Tree, Big-O, Inheritance for CS60 and Constructive Logic, Pumping Lemma, Turing Machine for CS81 that used **Python** and **Java**.

Software Engineer Intern, Applied Materials, Santa Clara, CA — May 2019 - August 2019

- Developed simple web pages (e.g., Visa information, **Tableau** redirection, CIF data) that connect to databases based on **PHP**, **HTML/CSS, Javascript** and **SQL Server**; CIF data page was directly used by the VP.

PUBLICATIONS

- Liu, N., Gonzalez, T. A., Fischer, J., **Hong, C.**, Johnson, M., Mawhorter, R., Mugnatto, F., Soh, R., Somji, S., Wirth, J. S., Libeskind-Hadas, R., & Bush, E. C. (2023). XenoGI 3: Using the DTLOR model to reconstruct the evolution of gene families in clades of microbes. BMC Bioinformatics, 24(1). https://doi.org/10.1186/s12859-023-05410-0
- Chen, X., Dougherty, T., **Hong, C.**, Schibler, R., Zhao, Y. C., Sadeghi, R., Matasci, N., Wu, Y.-C., Kerman, I. (2020). Predicting Antibody Developability from Sequence Using Machine Learning.
- Nguyen, N. N., Rana, A., Goldman, C., Moore, R., Tai, J., **Hong, Y.**, Shen, J., Walker, D. W., Hur, J. H. (2019). Proteasome B5 subunit overexpression improves proteostasis during aging and extends lifespan in drosophila melanogaster. Scientific Reports, 9(1). https://doi.org/10.1038/s41598-019-39508-4

[1] Worked in engineer roles at companies while serving in the Korean Military (2021-2023)