

Kyung Hoi (Joseph) Min

COMPUTATIONAL BIOLOGIST · SOFTWARE ENGINEER

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Education

Caltech

B.S. IN BIOLOGY AND COMPUTER SCIENCE

Pasadena, CA

Sept 2016 - Jun 2020

- Expected Graduation: Jun 2020
- Cum. GPA: 4.0 / 4.3
- Biology Courses: Regulation of Gene Expression, Cell Biology, Genetics, Bioinformatics
- CS Courses: Decidability and Tractability, Algorithms, Learning Systems

Experience

Ginkgo Bioworks

SOFTWARE SOLUTION ENGINEERING INTERN

Boston, MA

Jun 2020 - Aug 2020

- Worked on migrating Ginkgo's mass spectrometry data pipeline to AWS and Airflow.
- Was responsible for the full development cycle of the project—from conceptualization, making architectural and design decisions to implementation, validation, and release.

Pachter Lab

UNDERGRADUATE RESEARCHER

Pasadena, CA

Sept 2019 - Jun 2020

- Worked with **Sina Boeshaghi** and **Prof Lior Pachter** on single-cell RNA-seq projects.
- Developed a friendly wrapper around a popular scRNA-seq pre-processing pipeline (kb-python).

Ginkgo Bioworks

SOFTWARE ENGINEERING INTERN

Boston, MA

Jun. 2019 - Sept 2019

- Worked on improving Ginkgo's in-house data analysis pipeline and various backend services.
- Worked with other software engineers in an Agile environment to deliver stable, scalable and tested products.
- Developed software directly affecting production workflows.

Sternberg Lab

UNDERGRADUATE RESEARCHER

Pasadena, CA

Jan 2017 - Jun 2019

- Worked with **David Angeles PhD.** and **Prof Paul W. Sternberg** on projects involving the model organism *C. elegans*.
- Developed an automatic, complete RNA-seq pipeline for nematodes (Alaska).

Projects

lfq

HOBBY PROJECT

🔗 [Lioscro/lfq](#)

Aug 2020 - Present

- New binary encoding for FASTQ sequence data
- Developed a cross-platform command-line tool to encode and decode FASTQ files to and from this new data format.

Mass Spectrometry Pipeline

GINKGO BIOWORKS

Jun 2020 - Aug 2020

- Migrated mass spectrometry pipeline, which depended on an on-prem Windows machine, to Linux on AWS and Airflow.
- Implemented the ability to call Windows DLLs within Linux with Wine and IronPython.
- Retired an internal fork of ProteoWizard by contributing back to the project.

kb-python

PACHTER LAB

🔗 [pachterlab/kb_python](#)

Oct 2019 - Present

- A Python wrapper around the kallisto | bustools pipeline for scRNA-seq pre-processing.
- Pre-processes scRNA-seq data into gene count matrices and RNA velocity matrices.
- Provides pre-built reference indices for pseudoalignment.

NGS Pipeline

GINKGO BIOWORKS

Jun 2019 - Sept 2019

- Migrated in-house NGS pipeline to the cloud (AWS S3, Batch, DynamoDB).
- Implemented pipeline metrics collection with Elasticsearch and Grafana.
- Implemented contamination screening via taxonomy analysis with Centrifuge.

Alaska

STERNBERG LAB

 [lioscro/alaska-parse](#)

Jan 2017 - Aug 2019

- Developed a framework for automated, complete RNA-seq analysis.
- Parse Server backend. Frontend portal in Javascript, HTML/CSS. Containerization with Docker.
- Presented a poster at the 21st International *C. elegans* Conference.

Publications

2020 **Feature demultiplexing for single-cell genomics assays**, co-first author

[In preparation](#)

2020 **Modular and efficient pre-processing of single-cell RNA-seq**, author

[Under review](#)

Presentations

Ginkgo Bioworks

[Boston, MA](#)

INTERNSHIP PRESENTATION

Sept 2019

- Technical and non-technical presentations to software team and stakeholders.
- Presented NGS pipeline improvements and migration to the cloud.

SURF Seminar Day

[Pasadena, CA](#)

PRESENTER FOR <A FRAMEWORK FOR AUTOMATED, COMPLETE RNA-SEQ ANALYSIS>

Oct 2018

- Presented work done on Alaska during summer fellowship.

21st International *C. elegans* Conference

[Los Angeles, CA](#)

POSTER PRESENTER FOR <A FRAMEWORK FOR AUTOMATED, COMPLETE RNA-SEQ ANALYSIS>

Jun 2017

- Introduced Alaska, an RNA-seq analysis pipeline for nematodes.

Awards & Honors

2018 **Semi-finalist**, Perpall Speaking Competition

[Pasadena, CA](#)

2018 **Fellow**, Samuel P. and Frances Krown SURF Fellowship

[Pasadena, CA](#)

2017 **Fellow**, SURF Fellowship

[Pasadena, CA](#)

Skills

Programming Python, Javascript, HTML/CSS, C, C++

Software Docker, Django, Apache Airflow, AWS S3/Batch/DynamoDB, Elasticsearch, React.js, CI/CD, Numpy, Pandas

Data Analysis Bulk RNA-seq, Single-cell RNA-seq

Molecular Biology PCR, Cloning, Purification

Extracurriculars

The Big T Yearbook

[Pasadena, CA](#)

BUSINESS MANAGER, DESIGNER, PHOTOGRAPHER; EDITOR-IN-CHIEF SEPT 2019 - PRESENT

Sept 2016 - Jun 2020

- (Editor-in-Chief) Responsible for setting the theme, layout, content, and publishing of the 2019-2020 yearbook.
- Established a new advertisement system, shared cloud storage system, job organization and assignment system, and payment reimbursement system.
- Designed pages and took/edited photos with Adobe Creative Cloud software.

Caltech & American Red Cross

[Pasadena, CA](#)

HEALTH ADVOCATE & EMERGENCY MEDICAL RESPONDER

Sept 2017 - Present

- American Red Cross certified emergency medical responder and basic life support provider.
- Worked as the dormitory health advocate and provided first aid to students.

Student Government, Lloyd House

Pasadena, CA

HISTORIAN

Jun 2017 - May 2019

- Responsible for recording Lloyd House (dormitory) events by taking photos.
- Established a new shared cloud storage system to distribute these photos.