Kyung Hoi (Joseph) **Min**

COMPUTATIONAL BIOLOGIST · SOFTWARE ENGINEER

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Education

Caltech   *Pasadena, CA*

B.S. IN BIOLOGY AND COMPUTER SCIENCE   *Sept 2016 - Present*

- 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

Pachter Lab   *Pasadena, CA*

UNDERGRADUATE RESEARCHER   *Sept 2019 - Present*

- Working with **Sina Booeshaghi** and **Prof Lior Pachter** on single-cell RNA-seq projects.
- Developing a friendly wrapper around a popular scRNA-seq pre-processing pipeline (kb-python).
- Developing a repository for scRNA-seq data that will allow aggregation across multiple datasets (Commons Cell Atlas).

Ginkgo Bioworks   *Boston, MA*

SOFTWARE ENGINEERING INTERN   *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   *Pasadena, CA*

UNDERGRADUATE RESEARCHER   *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

Commons Cell Atlas   ⬡ *(private)*

PACHTER LAB   *Sept 2019 - Present*

- Repository for all the world's single-cell RNA-seq data.
- Arbitrary aggregation and comparison of data across multiple datasets by using a variational autoencoder to simplify multi-dimensional data.
- Web application written in React.js and Django.

kb-python   ⬡ *pachterlab/kb_python*

PACHTER LAB   *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   ⬡ *lioscro/alaska-parse*

STERNBERG LAB   *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.

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, Celery, RabbitMQ, 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 - Present*

- (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.