




AKANKSHITA DASH

 akd13.github.io  akankshita  akankshitadash@yahoo.com

EDUCATION

Stanford University

Sept 2022 - Sep 2024

Masters of Science in Computer Science; depth: Computational Biology

- *Teaching Assistant, CS 103: Mathematical Foundations of Computing*
- *Teaching Assistant, STS 1: Introduction to Science, Technology and Society*
- *Teaching Assistant, CS 152: Trust and Safety Engineering*

National University of Singapore

Aug 2014 - Jun 2019

Bachelor of Science, (Hons) in Applied Mathematics

Bachelor of Computing (Hons) in Computer Science (depth: Artificial Intelligence)

- *Teaching Assistant, CS 1231: Discrete Structures*

WORK EXPERIENCE

TikTok | Backend Software Engineer | Trust and Safety | Singapore

Apr 2022 - Sep 2022

- Collaborated with cross-platform teams on a content moderation tool in **Golang** to design a feature that improves API response time from 2s to 0.2s through the use of **GraphQL** and **microservice** architecture.

J.P Morgan | Software Engineer, Associate | Observability | Singapore

Sep 2019 - Apr 2022

- Developed a smoke (canary) testing platform in **Java** and wrote the first **Kubernetes** canary using Python and REST APIs with accompanying documentation. Gained SRE skills by debugging infrastructure through Linux commands, Prometheus (**PromQL**), querying logs on CloudFoundry and K8s pods.
- Utilized **Python - Django, Flask (backend), ReactJs (frontend)** to develop a **chaos engineering** product with a microservice architecture, optimizing it for use by 50 global teams and **scaled platform** to run **100,000 experiments** in production in a year.
- Used Groovy/Java to integrate chaos experiments (as a tollgate) into the company's **CI/CD production pipeline** through a simple no-code manifest file, reducing setup overhead by **80%** - from 3 hours to 30 mins.
- Stretch roles: Delivered an end-to-end Salesforce solution with database management and surveying for NGO Sathya Sai as CSR initiative, and received APAC Service Award of S\$10,000.

RESEARCH AND INTERNSHIPS

Stanford NLP Group & Coalas Lab | Research Assistant | Stanford, CA

Sep 2022 - current

- Researching novel methods of generating alt-text for charts and graphs for blind and low vision users (advisor: Dr. Elisa Kreiss and Dr. Chris Potts) in the field of accessibility, LLMs, HCI and cognitive science.
- Crawled 100,000 images and processed more than 1,000,000 images of charts and graphs from Wikipedia, Twitter, ArXiv and fine-tuned image-captioning models (e.g. ViT) to automatically detect visualizations.
- Designed and conducted human-subject experiments with 100 sighted participants and 10 blind users to draw relationships between visual literacy, semantic content of descriptions and accessibility.

Genome Institute of Singapore | Machine Learning Intern | Stuart Lab | Singapore

Jun 2023 - Sep 2023

- Used transformer architecture with multi-head attention and CNN layers to implement a deep learning based bioinformatics model for interpreting cellular states of single cell data to predict epigenomic markers.
- Compared several SOTA models like ChromBPNet, Enformer, DNABERT2, Nucleotide Transformer, and fine-tuned DNABERT2 with single-cell ATAC-Seq bigwig data to predict peaks and non-peaks, adapting it for multi-GPU (CUDA) training with **PyTorch Lightning**. Trained 20 different models with hyperparameter optimization and different loss functions.

National University Hospital (Health System) | Data Science Intern | Singapore

Jan 2019 - May 2019

- Constructed NLP models using ICU data to forecast patient re-admission rates with >80% accuracy
- Wrote scripts to generate synthetic data from the NUHS dataset of 2,000 patients for the annual hackathon

Institute of Molecular and Cell Biology | Honours Attachment Student | Singapore

Aug 2018 - Jun 2019

- Identified (through gene ontology) genes responsible for hand-foot-mouth disease (EV-A71 virus), using data from RNASeq and ribosome profiling by using 3 different unsupervised models on genomic data - Bayesian Networks, Gaussian Mixed Models, and Hidden-Markov Model based clustering.

SKILLS

Languages:	Python, Golang, JavaScript, R, HTML
Libraries/Frameworks:	Django, Flask, Spring & Micronaut, Jupyter, PyTorch, ReactJS, D3.js
Databases:	SQL - MySQL, SQLite, PostgreSQL, NoSQL - Cassandra, MondoDB, Redis
Tools:	Git, Kubernetes, Docker, AWS, GCP, Heroku, Firebase, Jupyter, Bash (shell scripting)
Methodologies:	Agile, Test-Driven Development, Pair Programming, Early-career Mentorship

PROJECTS [SEE MORE](#)

Insights into TED Talks [Website](#) [Code](#)

- Final project for CS448B: Visualization, Fall 2023 at Stanford showing the birthplaces and popularity of TED talk speakers projected on a 3D globe. Developed using D3.js and Globe.gl, deployed on Firebase.

Describing Charts & Graphs [Code](#) [Documentation](#)

- Code for crawling images and using a fine-tuned ViT model for automatic detection of visualizations.

Personal Project: Vocabulary App [Code](#) [Documentation](#)

- Created a web application for flashcards to study vocabulary using Flask, Bootstrap and PostgresDB, using data from DuckDuckGo API and deployed on Heroku.

Final Year Thesis: Unsupervised Learning on Genomic Data [Code](#) [Documentation](#)

- Used Pandas and *scikit-learn* to implement Bayesian Networks, Gaussian Mixed Models and Hidden Markov-Model based clustering.

3-SAT Solver using CDCL [Code](#) [Documentation](#)

- Rule-based logic programming for knowledge based systems using Python and CLIPS.

AWARDS

- Graduate Assistantship (full ride) | *Stanford*
- Certificate of Distinction, Artificial Intelligence, School of Computing | *National University of Singapore*
- Honor Roll, Student Tutor | *School of Computing, National University of Singapore*
- NUSSU Long Service Award, Writer & Editor | *The Ridge Magazine, National University of Singapore*
- Science and Technology Undergraduate Scholarship (full ride) | *National University of Singapore*