Ashwini Suriyaprakash

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EDUCATION

Massachusetts Institute of Technology (MIT), Cambridge, MA

Masters in Computer Science and Engineering	In Progress	2024 - 2025
Bachelor of Science in Computer Science and Engineering	GPA: 5.0 / 5.0	2021 - 2025

Relevant Courses Completed: Design & Analysis of Algorithms, Software Construction, Machine Learning, Computer Vision, Hardware Architecture for Deep Learning, Computer Systems, Operating Systems, Math for Computer Science, Differential Equations, Linear Algebra & Optimization, Probability & Statistics, Chemistry, Biology

Current & Planned Courses: TinyML & Efficient Deep Learning, Optimization Methods, Genetics, Probability, Computational Systems Biology: Deep Learning in the Life Sciences

RESEARCH EXPERIENCE

Graduate Researcher, Kellis Lab, MIT Sept. 2024 - Present

- Understanding gene regulatory network relationships in brain tissue of patients with opioid addiction *(Advisor: Benjamin James).*

Undergraduate Researcher, Kellis Lab, MIT Sept. 2023 - May 2024

- Developed and demonstrated effectiveness of Transformer-based deep learning approach for discovering gene regulatory networks *(Advisor: Dr. Lei Xiong*).

Undergraduate Researcher, Berger Lab, MIT Mar. 2022 - May 2022

- Developed software to determine clinical significance of cancer cell line genetic mutations affecting cryptic splicing. Implemented using Python and Linux shell scripts *(Advisor: Maxwell Sherman).*

Researcher, Snyder Lab, Stanford University May 2020 - Aug. 2021

- Developed software pipeline (TROPIC) in Python to analyze genomic repeat expansions in cancers & co-authored Nature journal paper: "Recurrent repeat expansions in human cancer genomes" *(Advisor: Dr. Graham Erwin).*

Researcher, Markstein Lab, UMass Amherst Jun. 2019 - Aug. 2019

- Demonstrated efficacy of two drug combinations on cancer treatment in fruit flies by conducting laboratory experiments with genetic crosses.

INDEPENDENT PROJECTS

ML-based Drug Identification for Breast Cancer Dec. 2023 - Jan. 2024

- Predicted drug efficacy against breast cancer target protein HER2 using neural networks on ChEMBL database chemical compounds with molecular attributes and fingerprints.

Contemporary Music Clustering Jan. 2022 - Feb. 2022

- Grouped contemporary music by developing CNN-based autoencoder for spectrograms.

PROFESSIONAL EXPERIENCE

Software Engineer Intern, Goldman Sachs June 2024 - Aug. 2024

- Developed and tested algorithms to regulate visibility/privacy of client trading transactions in Java.

Lab Assistant, Software Construction [Course 6.1020], MIT Feb. 2024 - May 2024

- Assisted students during weekly office hours on programming problem sets and concepts, including program testing, abstract data types, functional programming, and concurrency.

Software Engineer Intern, Illumina May 2023 - Aug. 2023

- Scaled genomic analysis application (DRAGEN) deployment using Kubernetes on Amazon F1 instance & doubled analysis efficiency through concurrency.

PROGRAMMING SKILLS

Languages & OOP: C/C++, Python, Java, Linux shell scripting; **Algorithms:** Recursion, DP, range queries, graph search; **Data structures:** Array, linked list, stack, queue, map, trees; **AI:** Regression and classification using scikit-learn, Deep Learning (CNN, Autoencoder, Transformer) using Keras/TensorFlow

LEADERSHIP / AWARDS

Senior Associate, Biotech Group, MIT Sept. 2023 - Present

- Organized annual career fair and dinner series exposing students to the biotech startup and venture ecosystem.

Scholarship Recipient, Andy Grove Scholarship, Intel Corporation August 2024

- Received $4,000 scholarship based on academic achievement, demonstrated leadership, community involvement, and work experience.

Mentor, CodeIt, MIT Sept. 2021 - May 2022

- Taught fundamentals of programming through Scratch twice a week to Grade 6-7 girls in MA, NJ, and NH schools.