M. Nahin Khan

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EDUCATION

Carnegie Mellon University, **Class of 2021**
Bachelor of Science in Biological Sciences (MCS)
Bachelor of Science in Computer Science (SCS)
GPA: 3.94
Dean's List High Honors: Fall 2016 – Fall 2020

AWARDS & HONORS

Andrew Carnegie Scholar and Qatar Campus Scholar, Awardee **| Oct 2019 – Present**
- Selected for showing high standards of academic excellence and leadership in the community

Fifth Year Scholar, Awardee **| May 2019 – May 2021**
- CMU program that sponsors a student to study for an extra year after graduating

Qatar Foundation Scholarship, Recipient **| 2017 –**
- Competitive merit-based full scholarship given to students in Education City

RESEARCH EXPERIENCE

Backend engineering, intern, sKora | Dec 2020 –
- Scraped millions of records from a football transfer market website
- Populated internal databases after cleaning the data using MySQL-Python integrations

Honors Thesis: Developing a Computational Tool for RNA-Protein Interactions, iYLab | Jan – Oct 2020
- Developed a tool RNPFind that collects and analyzes information on RBPs that bind on a template RNA molecule using Python
- Developed mechanisms for correlation studies, overall-binding profiles, cooperation-competition analysis, etc.
- Converted subset of features to a webtool (https://rnp-find.herokuapp.com)
- Utilized AWS services for access to large files, Docker for containerization, Django + Heroku for deployment

Genetically Engineered Machine Competition, Boston, Team Bioinformatician | April – Oct 2019
- Built a machine capable of detecting recessive genetic disease in carriers in half an hour
- Collaborated with various international teams on molecular modeling of Cpf1, gRNA, and template DNA

Machine Learning Lab, Northwestern Polytechnic University of Xi'an, Research Intern | Jun – Aug 2018
- Took part in an online audio classification competition on Kaggle

Woolford Lab, Mellon College of Science, Pittsburgh USA, Research Intern | June – Aug 2017
- Investigated the role of Drs1 in ribosome assembly
- Created spotting assays of mutagenized strains and isolated preribosomes for protein analysis
- Constructed models for Drs1 function in assembly
- Presented results at Meeting of the Minds (2018)

Phage Genomics Research Course, Carnegie Mellon University Qatar | Aug – May 2017
- Sequenced extracted DNA from isolated phages using ion Torrent machine to obtain DNA strand sequences
- Performed computational assembly and annotated the sequenced DNA to generate a gene map

WORK EXPERIENCE

Ballroom Dancing Instructor, Carnegie Mellon University Qatar | Jan – May 2020
- Co-instructed a Student-led Course (StuCo) designed to be an introduction to ballroom dancing
- Taught cha cha, waltz, foxtrot, tango, salsa, and more

Parallel Data Structures and Algorithms Teaching Assistant, CMU Pittsburgh | Aug – Dec 2019
- Led weekly 50-minute recitation sessions to teach key concepts to students in SML
- Led review sessions to help prepare 250+ students for midterms and exams

PROJECTS

HTTP 1.1 Compliant Server
- Wrote an international standard (RF2616) compliant web server in C, supporting GET, HEAD, and POST
- Integrated CGI support
- Wrote a blog depending on my server using Flask

Word Segmentation Language Model
- Trained n-grams of various orders to solve word segmentation in English using 680,000 sentences
- Reached 93% accuracy in word segmentation
- Reported on function of training data and order of n-gram on accuracy of the language model

Mailpile: Open-source contribution
- Submitted a bugfix for an open-source mail client
- Fixed several issues by fixing the root cause of allowing duplicate email address registration
- Fixed both front-end and back-end

Dynamic Memory Allocator
- Wrote a dynamic memory allocator (malloc) in C with high utilization (69%) and throughput (14k KOPS)
- Utilized a segregated free list
- Engineered a custom region for small-sized requests

Automated Theorem Prover
- Developed a prover of theorems in intuitionistic logic written in SML and Prolog.

Python Chess A.I. Final Project, Creator
- Developed a Chess program with Artificial Intelligence and shared online for a course
- Has been referenced by several repositories on GitHub and has attracted community attention