

## EDUCATION

School of Computer Science, Carnegie Mellon University, Pittsburgh, PA 2019 to Current  
BS Computer Science 2023  
GPA: 3.64

## SKILLS

**COURSEWORK:** 15-213 Introduction to Computer Systems, 11-411 Natural Language Processing, 15-251 Great Theoretical Ideas in Computer Science, 07-180 Concepts in AI, 10-315 Introduction to Machine Learning, 15-210 Parallel and Sequential Data Structures and Algorithms, 17-356 Software Engineering for Startups  
**PROGRAMMING:** Python, C, C++, PyTorch, Java, Javascript, SML, Stanford Core NLP, TensorFlow, Solidity, NodeJS, Android Studio, mongoDB

## WORK EXPERIENCE

## ENYA

Software Engineering & Research Intern

Palo Alto, California  
May 2021 to Current

- Contributed to the creation of Boba: a Layer-2 Ethereum Scaling Solution (using Optimistic Rollups) reducing the cost and increasing the efficiency of transactions on Ethereum
- Studied and created Automated Market Makers (AMMs) increasing their complexity and reducing the impermanent loss by comparing token prices on and off-chain and changing the fees earned by liquidity providers.
- Constructed novel non-fungible tokens (NFTs) and Extensible Smart Contracts on Solidity, allowing blockchains to trigger off-chain computation and enabling complex and non-deterministic code to be put into use in blockchains

## GAN STUDIO

Software Engineering Intern

New Delhi, India  
Dec. 2020 to Feb. 2021

- Explored Natural Language Processing (NLP) & Computer Vision research problems of prosody transfer, voice cloning, lip syncing to produce a Generative AI voice dubbing solution
- Researched a State-of-the-Art Unsupervised Speech Decomposition & Generation algorithms like SpeechSplit and identified applications of disentangling and transforming multiple speakers' content, timbre, rhythm and pitch

## CENTER FOR ADVANCED RESEARCH IN IMAGING, NEUROSCIENCE &amp; GENOMICS (CARING)

Research Intern

New Delhi, India  
May 2020 to Aug. 2020

- Worked on an in-browser Text Detection project to identify and remove sensitive patient information from Ultrasound and CT scans.
- Modified existing EAST (Efficient and Accurate Scene Text) algorithm for text detection to create a shallower model (by factor of 10) to identify personally identifiable information (PII) using tensorflow.js, Tesseract and OpenCV.

## SPECCASA GLOBAL EYEWEAR

Co-founder

New Delhi, India  
2018 to 2020

- Co-founded a B2B e-Commerce portal for eyeglasses and disrupted the supply chain to connect eyeglass manufacturers in China directly to consumers in India
- Developed a scalable business model to make eyeglasses affordable & accessible in tier 2 and 3 cities of India

## UNIVERSITY OF CHICAGO - INDIA INNOVATION CENTER WITH NITI AAYOG

Research Intern

New Delhi, India  
June 2018 to Aug. 2018

- Contributed to development of BHARAT NLP - platform utilizing Natural Language Processing (NLP) for 18 Indian vernacular languages.
- Utilized transfer learning and cross-lingual embeddings from M-BERT to generate Multilingual NLP models and helped with creation of new labelled datasets for different languages.

## RESEARCH

**VISTA: VIRTUAL STEREO BASED AUGMENTATION FOR DEPTH ESTIMATION IN AUTOMATED DRIVING** - Computer Vision Paper Submission for CVPR 2022 2020 to Current  
Professor Dinesh Bharadia (UC San Diego), Bin Cheng (WINLAB, Rutgers), Gaurav Bansal (Blue River Technology)

- The paper improves the State-of-the-Art monocular depth estimation by 8% in automated driving using a novel Virtual Stereo camera approach.
- Analyzed current and novel algorithms in the field of monocular depth estimation and generating large amounts of synthetic datasets mimicking the very limited real-life computer vision KITTI dataset using simulation softwares like CARLA.

**RESOURCE-SHARING USING CAP & TRADE AND BLOCKCHAIN** - Independent Research

Professor Ramayya Krishnan, Dean of Heinz College, CMU

2019 to Current

- Applied the economics Cap and Trade scheme on blockchain to share resources among users fairly and optimally using distributed ledgers and tokenization.
- Applied our tokenized cap & trade model to the Office Hours Queues at CMU, following queuing theory. We plan to extend our research to use cases such as campus dining and printing services.

**BLOCKCHAIN IN AADHAAR** - First Author Paper

Unique Identification Authority of India (UIDAI)

2017 to 2018

- Authored Decentralizing Aadhaar Authentication using a Blockchain which proposes the addition of a decentralized blockchain layer to Aadhaar - the biometric citizen identity platform by Govt. of India.
- The paper demonstrates that introducing this layer reduces the threat of identity theft and economic incentivization ensures that any public entity may take part in a Proof of Stake consensus protocol.

## PROJECTS

**LOCASTIC: ONLINE PLATFORM FOR LOCALLY-SOURCED UNIQUE ARTISANAL PRODUCTS**

Mar. 2021 to May 2021

- Developed and pitched a startup offering an online marketplace for local/home-based businesses to sell unique customizable home-made items
- Created a MVP of a React web app utilizing services such as GitHub Actions, Postman and Heroku; created backend APIs; connected endpoints to MongoDB and constructed test suite framework for Continuous Integration (CI).

**QUESTION GENERATION & QUESTION ANSWERING - NLP GROUP PROJECT**

Nov. 2020 to Dec. 2020

- Created our own First Order Logic (FOL) parser using Stanza (Stanford Core NLP) to find meaningful semantic relations, logical connectives between words
- Used Named Entity Recognition and Chaining through FOL parser to establish propositional relations and generate complicated questions given a document (eg: Wikipedia page) and find answers within it.

**FOUNDER - ZOOM MEMES FOR SELF QUARANTEENS**

2020 to Current

- Founded Facebook group "Zoom Memes for Self Quaranteens" with 900,000+ members and raised \$5000+ for COVID-19 Relief

**GOALKICK - ALGORITHMIC GOAL SCHEDULING APP (TIE THE YOUNG ENTREPRENEUR)**

2016 to 2018

- Used Cross-Platform Ionic Framework to develop iOS/Android software and used APIs to aggregate and analyze data from FitBit and Google Calendar

## LEADERSHIP

**15-213/18-213: INTRODUCTION TO COMPUTER SYSTEMS (ICS)** - Lead Teaching Assistant (TA)

Spring 2021 to Fall 2021

- Led the creation of written assignments in the course covering topics such as machine-level code, optimizing compilers, computer arithmetic and memory organization & management, networking, and supporting concurrent computation.

**98-291 INTRODUCTION TO ANDROID DEVELOPMENT (STUCO)** - Head Teacher

Fall 2021 to Winter 2021

- Introducing current CMU undergraduate students to app-development in Android, teaching them practical skills such as Firebase, building a chat service, using SDKs such as Google Maps, etc.