

## EDUCATION

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**Bachelor of Arts in Computer Science**, Connecticut College, Cumulative GPA: 3.97/4.00 **Aug 2018 — May 2022**  
**Summa Cum Laude**

**Honors:** Dean's High Honors (Fall 2018, Fall 2019 - Spring 2022), Dean's Honors (Spring 2019)

**Awards:** Junior and Senior Computer Science Award, Science Leader, 3rd place CCSCNE Undergraduate Poster Presentation

**Programming Languages** Python, MATLAB, Java, JavaScript, Kotlin, C#, SQL

**Tools & Frameworks** Keras, PyTorch, Machine/Deep Learning, Video Production and Graphics, Graphic Design, MERN Stack, Unity, Git, VS Code, Adobe CC, LaTeX, Blender

**Relevant Coursework** Data Structures, Algorithms, Computer Vision, Digital Signal Processing, Algorithmic Game Theory, Object-oriented Software Design, Computer Organization, Robotics, Artificial and Computational Intelligence, Entertainment Software Design, Computer Networks

## EXPERIENCE

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**ML Research Engineer** **Jan 2020 — Present**  
Computer Science Department, Connecticut College New London, CT

- Developed a machine learning model, on MATLAB, capable of instrument recognition via musician posture data.
- Trained a deep learning model, on Keras, to classify bowing movement of musicians playing the violin, viola, cello and more.
- Built and trained instrument specific deep learning models, Long Short-term Memory (LSTM) on PyTorch, to detect musical onsets.
- Experimented with video/audio data from 3+ datasets, helping generalize model over wider data ranges.
- Improved overall accuracy of multi-instrument onset detection model by 7% by refining pre-processing of data.
- Built multi-dataset compatible API-like framework for data extraction from 1500+ video and audio files.

**Head Teaching Assistant** **Aug 2019 — Present**  
Computer Science Department, Connecticut College New London, CT

- Promoted to Head Teaching Assistant in May 2021.
- Led, organized and delegated 30+ Teaching Assistants (TA) for 22+ classes.
- Built and introduced an automated grading platform to the department, via python and SQL, for TAs to grade 600+ assignments.
- Built custom databases on Notion for efficient scheduling and easy hand-off to succeeding Head TA.
- Collaborated with 3 other departments on campus to maintain the department's reputation with the community.
- Tutored 600+ students over 20+ classes throughout 3 years.
- Graded 400+ assignments over 5 classes, including Algorithms & Data Structures.

**Co-founder, App Development Lead, Graphic Designer** **Jan 2020 — Present**  
Prishthaboard, Educational Reform Firm Kathmandu, Nepal

- Designed logo, UI Toolkit, 10+ social media posts and brand image consistent to the vision statement of our company.
- Solicited scope of educational reform from 4 NGOs to develop an academically engaging software.
- Programmed prototype of software package with the MERN stack, python and Adobe Creative Cloud.
- Experimented building unit tests, with Mocha, to extensively test platform prototype.

## PROJECTS

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**Football Transfer Market Simulator** **Mar 2019**

- Built python application to simulate realistic transfer market of 18,000+ football stars around the world.
- Implemented algorithmic strategies to efficiently process through 1,800,000+ values of database for a runtime of <3s.
- Constructed simple User Interface to allow users to participate in auction simulations (inspired by greedy algorithms from course).

**Local Interaction Model Simulator** **May 2019**

- Collaborated with 2 peers to develop a python application to simulate Local Interaction Models (Eshel et al., 1998).
- Traversed over 4,000+ nodes and 16,000+ links with efficient algorithms to minimize runtime <10s/10 units of time.
- Incorporated inputs for custom weights and parameters within the models to study variability of results w.r.t. parameters.

**xPilot Neural Network (NN) Controller** **Oct 2019**

- Built a Queue Genetic Algorithm (QGA) to prepare 3 separate intelligence metrics toggled via a NN.
- Collaborated with 2 peers to develop 100+ fundamental rules to be followed by the NN controller.
- Developed framework to run 25+ simulations in parallel with bash commands to decrease runtime of algorithm by 2500%.

**EchoPrism, VulfTech** **Jun 2019**

- Collaborated with 2 peers to develop a 2D game with Unity.
- Designed storyboard, several graphical assets and scripts to be used in the game.
- Won "People's Choice" and "Game of the Year" awards local to Connecticut College.