Nathan Demssie

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EDUCATION

Bachelor of Science in Computer Science   05/2026
Columbia University   New York, United States

Relevant Courses (Fall & Spring 2022-2023):
Introduction to Computer Science/Programming in Java, Multivariable Calculus for Applied
Scientists and Engineers, Introduction to Computing for Engineers and Applied Scientists

AWARDS

Deans List   01/2023
Columbia University
To be eligible for Dean's List honors, an undergraduate student must achieve a grade-point
average of 3.5 or better and complete at least 15 graded credits.

Benedictine Scholar   05/2022
St. Anselm's Abbey School
Awarded to the top student of the graduating class for outstanding academic achievement.

SKILLS

Languages
English(Native), Spanish(Fluent), Amharic(Fluent)

Programming Languages
Java, Python,Swift, JavaScript ,HTML/CSS,C++,and R

Software Tools/Libraries
Xcode,NodeJS ,Visual Studio Code, Neopixel Libraries,Git

PROJECTS

Biomedical Engineering Departmental Project   12/2022
2D Single Cell Segmentation
- Implemented a deep neural network model in Python to segment single cells within baby
  hamster kidney (BHK) cell cultures.
- A U-Net model was employed to train a neural network via a training loop, and subsequently
  tested against a sample from the testing set. The optimizer function utilized the ADAM
  algorithm, while the loss function employed binary-cross entropy. A total of 50 epochs were
  executed, with the best performing epoch chosen to represent the best model. Upon
  evaluation, the model exhibited an accuracy of approximately 98.4%. An accuracy and
  confusion matrix were subsequently generated to assess the model's performance by
  illustrating the true positives and true negatives detected by the model.

Hand Held Game Console   11/2022
*Constructed hand held game using Adafruit NeoPixel NeoMatrix 8x8 - 64 RGB LED Pixel Matrix x 1, ESP
32 x1 and 8GB Micro SD Card x 1 .*
Wrote a program in C++ that detected the user's interaction with each of the buttons(30mm x 6
(different colors)) and synced it up with its matching color on the LED panel–all while playing the
music from start to finish.

PROFESSIONAL EXPERIENCE

Tutor/Junior Aide   WASHINGTON,
Children and Charity International   United States
- I tutored and mentored students in a STEM-based program emphasizing Mathematics,
  Computer Science, General Science, and Engineering.

LLC Manager   WASHINGTON,
The Musicianship   United States
- I ran a mock LLC called "Crankage ENT" with the hopes of marketing, producing, and
  promoting an ep(extended play record) and a cipher for a benefit concert.