

Jonathan J. Allarassem

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EDUCATION

Grove City College, Grove City, PA (ABET accredited)

Bachelor of Science in Computer Science (Expected 2024) GPA 3.85

Selected Coursework: Computer Programming I, Computer Programming II, Database Management System, Data Structures and Algorithms, Discrete Math, Natural Language Processing, Linear Circuit I.

SKILLS

Programming/Scripting Languages: Java (expert), Python (fluent), C/C++ (prior experience), MySQL (prior experience), HTML/CSS (fluent), PHP (prior experience), MATLAB (fluent).

Frameworks and tools: Eclipse, Sublime Text, Python IDE, Mathematica, Microsoft Workbench, GitHub, Nano, ARDUINO IDE, Ubuntu Linux.

EXPERIENCE

Machine learning Research Assistant

(Highmark Healthcare in partnership with Department of Computer Science)

August 2021 - current

- Study the gait of subjects to find normal versus abnormal human gait patterns using acoustic footsteps signatures. The goal is to connect “sound” of walking/running to gait mechanics. We worked with machine learning experts from Highmark to make this dream a reality ([see repository](#)).

Machine learning research student

(Natural Language Processing research)

Summer 2021

- Developed an application (in Python) that generates plausible human text, using Markov chains models. The algorithm used was trained on books like Frankenstein, Sherlock Holmes accessed in txt files through datasets like the Gutenberg project ([project here](#)).

International Collegiate Programming Contest

Spring 2021

- I represented my college on the annual International Collegiate Programming Contest in Spring 2021 with Team Grover.

PROJECTS

Discord Chat bot | Thanos servant

December 2020 - January 2021

- Created a DISCORD chat bot (Thanos), with **python** and the DISCORD API, to execute tasks like monitoring the chat, sanctioning any abuse or harassment by censoring the user. Thanos can also query Wikipedia, send emails to people, and generate posters ([project here](#)).

Shakespeare | Third order Markov Chain based generative model

Spring break 2021 - Current

- This program is an attempt to generate poetry using diverse machine learning/statistical techniques. The raw output is generated by a third-order Markov Chain trained on texts like Sherlock Holmes or On Liberty. It was implemented using **python**. I did not use any libraries for the machine learning part. I reimplemented everything by myself. ([project here](#)).

Language detector | Ngram based detector (Group project)

May 2020 – June 2020

- Achilles is a language detector software written using **python**. It uses bigrams (n-grams with $n=2$) to guess the correct language of the input. It was the first trial to make a language detector and since it got improved using n-grams with $n=4$. The new version is named Eshu. Changing the number of characters in the n-gram significantly improved the performance of the algorithm ([project here](#)).

ACTIVITIES

Poetry writer

- My first language is French. I honestly think that it is the most beautiful language when it comes to describe feelings and emotions. I write a lot and participate in poetry contests. In 2019, I won the second prize in the International French poetry contest in my category (“Terminales”). I am still writing my first collection that I hope to publish soon. ([Result contest 2019](#)).

The AI blog (owner)

- I have a blog on my website where I discuss very interesting machine learning project that I have done or that I am about to do. These posts are shared with the computer science majors of my college through the ACM club. ([link](#))