

Norman Frank Cook, IV

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EDUCATION

Louisiana Tech University

Ruston, LA



Bachelor, March 2024

Major: Computer Science

Concentration: Cyber Security

Minor: Music Performance

GPA: 3.78/4.0 GPA



Bachelor, May 2021

Major: Nanosystems Engineering

GPA: 3.76/4.0 GPA

TECHNICAL SKILLS

Languages: Java, JavaScript, Python, HTML, CSS, TypeScript, C#, PHP/MySQL, WegGL, jQuery, Bash/Shell, C Arduino, Apache

Operating Systems: Linux Mint, Ubuntu, Xubuntu, Windows, OS X, iOS, Android, Ubuntu Touch

Software: Raspberry PI, Materials Studio, Google Colab, SolidWorks, MATLAB, COMSOL, Arduino, UML, Eclipse, VSCode, Visual Studios, Oracle VM

PROJECTS

Jekyll Website (nfcook.com)

2024

Jekyll is a framework for building web projects and generating static sites using Ruby. Combine this with hosting from Netlify and GitHub, and I can successfully launch a portfolio page.

FrankieFrankie.xyz

2024

My long-standing behemoth of a website that has gone through vast renditions. For better or worse, I've kept this website free of frameworks and site generators. Everything is built from the ground up using classic web-dev tools: JavaScript, HTML, CSS, PHP, SQL, etc.

Axolotl

2024

A cyber security challenge, organized into three levels, which encourages the programmer to dig through a file system containing some useful c files, a key, and a Pygame application.

Selk

2024

A sci-fi game with a setting on Titan that contains three challenge domes for the player. Our focus was on exploring a colorful and vibrant environment, but I focused on landscape design, environment design, modeling, and character animation.

Dijkstra Implementation

2024

A program that implements Dijkstra's algorithm to compute the shortest path tree for topology data. Nodes and topology data are given as a CSV file.

Raytracing Engine

2024

Python engine capable of rendering spheres and planes, as well as calculating reflective and refractive rays. Includes settings for maximum view distance and amount of recursive reflections.

Graphics Engine

2024

Python engine capable of rendering objects, such as pyramids, boxes, and cylinders. Transformations can be applied to the current object, such as rotation, scaling, translation, and a reset option. Most impressive are the five render and shading modes available: wire-frame, polygon fill, flat shading, Gouraud shading, and Phong shading.

- Horse Health Prediction** 2023
Sifted through a dataset containing horse veterinarian records to figure out any meaningful correlations. Operated in Google Colab and used Pandas, Numpy, and Seaborn to develop software that could analyze 300 horse records from a CSV file.
- Cyberstorm** 2023
A cyber security event where teams competed against each other in a race for the most points. Useful programs we used were a binary encoder/decoder, a Vigenere cipher, a covert ftp channel, a timelock program, an XOR crypto method, and a steganography program.
- Canvas / Gallery** 2023
Canvas & Gallery serve an interconnected function as a web application. The Canvas allows visitors to draw anything they wish, and, once finished, users can submit to the Gallery. In the Gallery, every image from the database is displayed, which in turn showcases the user's artwork.
- Guestbook** 2023
Guestbook prompts the user for their email, name, and comment and saves this information to a database. Just below the post button, all previous signatures are displayed with dates and timestamps.
- P3DE** 2023
An earnest attempt at recreating the original ray casting engines from the 90s. No goal exists, but you do load into a demo room with textures on walls, some animated textures, and the player has a weapon that destroys walls.
- StupidDuck** 2023
An impressive 2D web-engine for a silly game that was built from scratch following Travis Vronman's incredible tutorial. A boundless amount was learned about game engines and how developers tackle solutions. I found myself making more buses than city transit, stepping through animation control, and calculating transformations for objects.
- Game Server** 2022
Restructured an old computer to operate as an Ubuntu/Linux server for certain video games, such as Minecraft, Terraria, and Factorio. In this, I was exposed to TCP tunneling, NGROK, operating terminals, and Xubuntu.
- Kill the Phish** 2021
A Google Chrome plugin that detects and warns users of malicious links. My senior design team learned how to implement modern design strategies, such as waterfall, agile, Scrum, Kanban, UML diagrams, class diagrams, object oriented design patterns, and debugging/profiling.
- Car Rental Service** 2021
Designed and implemented a database that acts for a car rental management scenario using DDL commands, DML commands, triggers, views, and schema modification. Created an enhanced entity-relationship (EER) diagram and a relational schema diagram in MySQL Workbench Models.
- Quantum Computer Architecture** 2021
Researched and presented about the state of quantum computer architecture. Covered topics such as how these devices are implemented through trapping ions and confining electrons.
- Sand Simulator** 2021
A very simplified 2D physics engine that simulates sand falling. Grains of sand rain down from the sky as pixels, which you can control the direction of.
- Cherry Game** 2020
A simple, 2D RPG developed in C# and using a Visual Studios framework. From the onset this project heavily focused on implementing software design strategies like waterfall, agile, Scrum, Kanban, UML diagrams, class diagrams, and more.

- Non-deterministic Automata** **2020**
 Researched and presented on the limitations of non-deterministic finite automata imposed by a one letter input alphabet. Cover the theorems and proofs for “unreachable configurations” and “unreachable configurations of fixed size.”
- Eternal Knight** **2019**
 Participated in a 48-hour video game competition where I served as the composer on our team of three. Remarkably, our project swiped 1st place.
- Raspberry Pi Sonar** **2019**
 Created a sonar device that combined a Raspberry Pi, 3D printed parts, a digital servo, a rotary connector, and an ultrasonic sensor. Our sonar rotated 360 degrees while shooting ultrasonic rays, and, using distance calculations, could plot a 2D representation of the environment.
- Kinematic** **2019**
 Hypothesized and investigated the critical factors that influence the trajectory of a tennis ball during a game of tennis, such as gravity, drag, and spin.
- Room Adventure** **2019**
 Final project for a year long course in Python that challenged students to create a text-based room adventure game. Created graphics and a user interface that could display text and receive input.
- TI Wafer Handler** **2019**
 Working with Texas Instruments, my team designed a Silicon Wafer handler that would automate certain aspects of their production. We used an actuator, multiple servos, an arduino, 3D modeling, and 3D printing to achieve our prototype.

ORGANIZATIONS

Percussion Ensemble	2017-2018
Astronomy Club	2017-2018
Marching Band	2015-2017
Jazz Ensemble	2015-2016
Chess Organization	2015-2016
Boe-Bot Club	2014-2015

WORK EXPERIENCE

- Walmart** *Jun. 2022 – Jun. 2023*
Overnight Stocker *Denver, CO*
- Efficiently stocked a variety of merchandise and groceries onto designated shelves
 - Proficiently operated pallet jacks and balers
- Whataburger** *Nov. 2021 – May 2022*
Employee *Kingwood, TX*
- Managed front-counter and drive-thru cash registers
 - Executed kitchen duties, including operating the grill, fry station, and meal assembly
- Majestic Valley Wilderness Lodge** *Jun. 2021 – Aug. 2021*
On-site Employee *Glacier View, AK*
- Conducted thorough housekeeping duties for twenty rooms
 - Assisted as a dishwasher when needed
 - Provided support to the bartender as a bar-back when required

Louisiana Tech Housing Department*Hall Director & Resident Assistant***May 2017 – May 2021***Ruston, LA*

- Managed the upkeep of an on-campus dormitory accommodating 150 residents, and fostered a positive living environment through regular engagement
- Directed a team of three Resident Assistants in effectively overseeing dormitory operations and student welfare
- Maintained open communication channels by providing regular reports to stakeholders within Residential Life

Domino's*Delivery Driver***Jun. 2017 – Sep. 2017***Kingwood, TX*

- Delivered goods efficiently, ensuring timely arrivals to customers
- Maintained a positive demeanor while interacting with customers
- Assumed responsibility for closing the store during night shifts

Associated Technologies & Manufacturing*Machine Operator***May 2015 – Sep. 2015***Baton Rouge, LA*

- Proficiently operated CNC mill and lathe machinery to precise specifications, ensuring quality production outcomes
- Safely operated a forklift within the warehouse environment, facilitating smooth material handling and storage operations

REFERENCES

Sandra Zivanovic

Chair, Electrical Engineering

Louisiana Tech University

318.257.5145

Casey Ingram

Head, Residential Life

Louisiana Tech University

281.360.8000

Gregory Lyons

Head, Percussion

Louisiana Tech University

318.257.5470