SABELO DLAMINI

DETAILS

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DRIVING LICENSE
Code 10 (C1)

NATIONALITY
South African

LINKS

https://github.com/sabelosiba

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SKILLS

computer science
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Engineering software development
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problem solving
●●●●●

Analytical skills
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Collaboration
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Technology
●●●●●

LANGUAGES

English
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isiZulu
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Xhosa
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PROFILE

Computer Science student at the University of Cape Town (UCT) with a passion for software development. Eager to contribute technical skills and dedication to innovative projects. Proficient in various platforms, languages, and embedded systems. Experienced with cutting-edge development tools and procedures. Able to effectively self-manage during independent projects, as well as collaborate as part of a productive team.

EDUCATION

Bachelor of Science in Computer Engineering and Computer Sciences, University of Cape Town — Cape Town
Feb 2018 — Dec 2023

National Senior Certificate, Gugulesizwe High School — Durban
Jan 2013 — Dec 2017

TECHNICAL SKILLS:

- Programming Languages: Proficient in MS Office,Python, Java, C, C#, C++, Kotlin, Verilog, VHDL, Assembly, MySQL
- Operating Systems: Linux , Windows
- Embedded Systems: Microcontroller programming, hardware-software interfaces and Developed and operated Raspberry Pi 0W
- Algorithm Design and Analysis
- Object-Oriented Design and Programming
- Data Structures and Databases
- Computer Architecture and Digital Circuits
- Currently Learning MERN stack, JavaScript, HTML and CSS

LEADERSHIP AND EXTRA-CURRICULAR ACTIVITIES

- Mentored grade 12 learners at Gugulesizwe Secondary School
- Participated in SAICA KZN CAMP (PMB)
- Played on the school football team at Gugulesizwe Secondary School
- Served as a member of the Student Representative Council

COMMUNICATION

- Cultivated public speaking skills through presentations on social issues and IT & Computing reports
- Gained empathetic communication skills through mobile development and design interviews

PROJECTS

Building a 'video' from a large image

Using C++ To create a video, we extract pixels from a large image to produce a video that captures the movement of a much smaller window across this large image, focusing on a specific trajectory. we position a rectangular window within this large image and extract all the pixels that overlap it to produce one frame. By shifting the window's position, we generate a sequence of image frames that can be converted into a video using a python program

Design neural networks that can successfully classify the object classes in the CIFAR10 data-set.

Demonstrated proficiency in designing and implementing Artificial Neural Networks (ANNs) for image classification using PyTorch and Torchvision. Applied machine learning techniques to classify objects within the CIFAR10 dataset, comprising 60,000 32x32 color images across 10 classes. Developed a Multi-Layer Perceptron (MLP) with flexibility in hidden layer configurations, achieving a test set accuracy of at least 58%. Implemented LeNet5, a Convolutional Neural Network (CNN), specifically adapted for CIFAR10, with a target accuracy of at least 65% on the test set. Emphasized exploration of MLP designs and utilization of PyTorch's activation functions, loss functions, and built-in gradient descent and backpropagation functionalities. The assignment showcased hands-on experience in deep learning and image processing, reinforcing practical skills in neural network design and optimization.

Image processing with connected components

Experience in C++ programming for image processing, specifically implementing connected component analysis. Proficient in applying RAII design principles and the 'Big 6' for class types. Developed classes that can analyze a greyscale image in PGM format, extract connected components based on a user-supplied intensity threshold, also with functionality for extracting, filtering, and writing connected components. Implemented efficient algorithms, such as BFS, for component extraction. Emphasized move semantics and memory management for optimal performance. Demonstrated proficiency in container usage (e.g., std::vector or std::list) for storing connected components

REFERENCES

Mrs. XD Shazi from Gugulesizwe Secondary School
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Mr Philani Kweyama (Mentor)
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