Desire Burume Mulindwa

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About

I am always flourishing in challenging environments. I believe in the continued process of learning and the evolving participation of the computing environment to a growing modern world. I constantly aim to improve my knowledge and skills so that I am able to contribute to this world advancement towards a greater good.
Computer vision (especially in 3D), Artificial Intelligence, Machine and Deep Learning are my areas of research and for which I have developed a strong set of skills and valuable experience.

Areas of interest:

Deep Learning on point clouds (3D)
Machine Learning
Computer Vision
Robotics
Control theory
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Experience

Computer Vision and Machine Learning Engineer
Freelancer and Researcher
Sept 2019 – Present
Location Pretoria

Research and implementation of common Computer Vision techniques such as 3d reconstruction, object and motion detection, tracking and classification, pose estimation, instance and semantic segmentation and face recognition using state-of-the-art algorithms.

Research and implementation of common Machine Learning algorithms such as classification, regression, clustering⋯ using Linear and logistic regression, K means clustering, Random forest...

Examples of projects done:
1. Solar Panel fault Detection (Feb 2020): The idea is to leverage Computer Vision algorithms for detecting faults or damages in solar panels camera images but also machine learning algorithms to predict/identify defective modules.

2.Face and Number Plates Detection (August 2020): development of a face and number plate detection on public indoor parkings, using the TensorFlow API for object detection.

3. Several machine learning algorithms implementations

4.Digits detection for automatic school marks capturing (written in Matlab)

5.Forecasting housing estate energy consumption using machine learning

Developer

Nokuthula HomeX

Jan 2014 –August 2017
Location Pretoria
Software developer

Duties:

1. Researching, designing, implementing and managing software programs.
2. Evaluating new programs.
3. Identifying areas for modification in existing programs and subsequently developing these modifications.
4. Writing and implementing efficient code.

Examples of projects:

1.Django: Poll web application, Online shop application, Web board project, Online web asynchronous tasks with Celery, Django REST ticket API, Hotel management system...
https://github.com/BurumeMulindwa

2.Development of a wheelchair autonomous navigation system for indoor environments. Different algorithms and sensors are used to solve SLAM, pose estimation … (written in Matlab).

3.Development of software for embedded systems that served as sensory input to the algorithms used for the autonomous navigation (written in Matlab).

Education

Tshwane University of Technology
Doctor of Engineering in Computer Vision, Machine learning and Robotics (*To be completed*)

Field of Study Electrical Engineering
2020
Dissertation: Deep Hough Transform for 3D instance segmentation in point clouds

Research papers in the pipeline:

1. Deep learning methods applied to 3D instance segmentation: A review
2. Region based PointNet for 3D instance segmentation

Tshwane University of Technology
Master of Technology in Computer Vision, Artificial intelligence and Robotics
Field of Study Electrical Engineering
2017-2019
Postgraduate studies with a strong mathematical background in Electrical Engineering, Control and Systems Theory, Telecommunications Theory and Microelectronics.

Studies also focused on the major of Electronics with more detailed theory on Analog and digital circuits (VHDL) with projects such as stopwatch display (10 stopwatches concurrently activated by switch), serial transmission between two microprocessors (basic two-peripheral microprocessor), Extended Kalman Filter for ultrasonic sensors fusion

University of South Africa
Bachelor's Degree in Telecommunications
Field of Study Electrical Engineering
2010 – 2013

Thesis: A dynamic three-dimensional spatial modeling platform for indoor living environments

University of South Africa

Centre for Software Computing
Certificate in INTRODUCTION TO VISUAL C#.NET
2015

Tshwane University of Technology
Robot Operating System (ROS)
2018

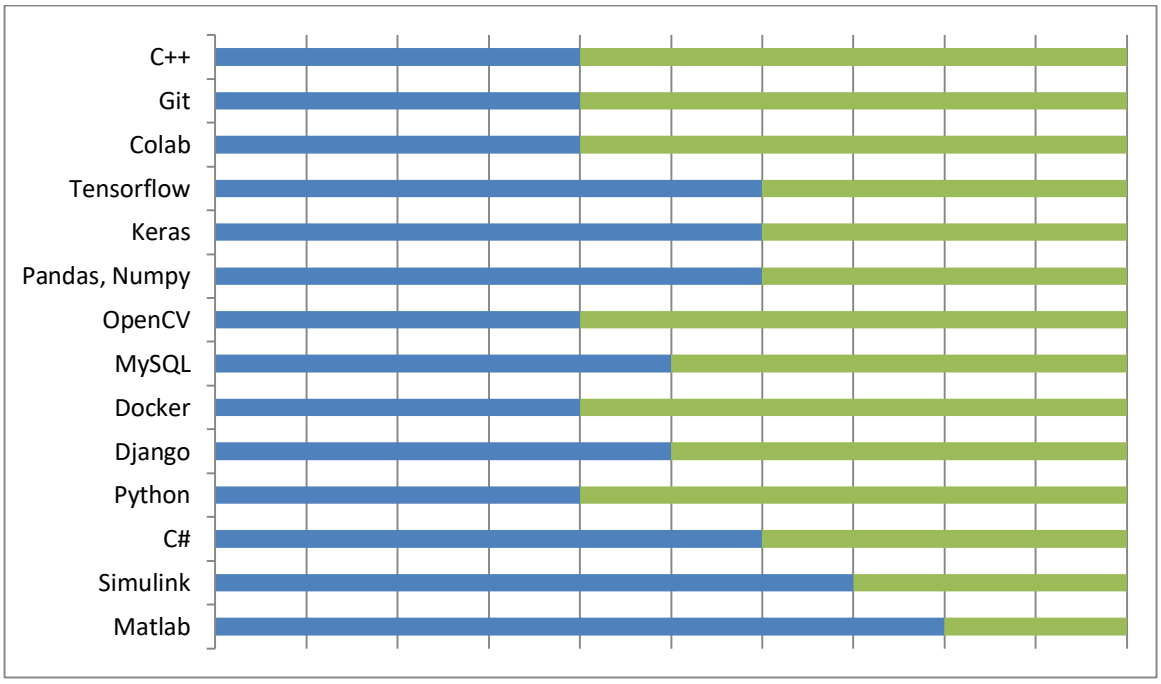
Publications

[1] D.M. Burume, J A Jordaan, S Du. An automatic character recognition system for automatic marks capturing, IEEE Conference on Image and Signal Processing (CISP 2014) Proceedings, 2014, Dalian, China.

[2] D.B. Mulindwa, S. Du. An Efficient Algorithm to Acquire Displacement from Live Streaming Acceleration, International Conference on Advances in Big Data, Computing and Data Communications System- iABCD 2019.

[3] Mulindwa, D. (2020) Indoor 3D Reconstruction Using Camera, IMU and Ultrasonic Sensors. Journal of Sensor Technology, 10, 15-30. doi: 10.4236/jst.2020.102002.

Skills



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Curiosity

IQ score lies within a range of 121 up to 137.