Exploring IMAGEAI/Quantum Mechanics/IoT/HPC Heterogeneous Computing Environments based on LLVM based Optimized Python to Probe Novel Designs of DICOM+Medical Image Processing R&D Applications.

[LVM based Optimized Python for Scientific Computing in the Context of Medical Image Processing]

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Abstract:


Key Words/Index Words: LLVM/Python/Specializer/AI//ML/ImageAI/qrng-python lib/DICOM/ Medical Imaging Quantum Mechanics/IoT/HPC.
[1] Inspiration With R&D Introduction:

“Let’s Write an LLVM Specializer for Python!“ - Stephen Diehl

**LLVM Optimized Python**

“The full source for this project is available on Github and comes in at 1000 lines for the whole specializer, very tiny!“

“Python is great for rapid development and high-level thinking, but is slow due to too many level of indirection, hashmap lookups, broken parallelism, slow garbage collector, and boxed PyObject types. With LLVM we can keep writing high-level code and not sacrifice performance.“

**IMAGEAI** is a remarkable Python based AI Library for Wonderful Applications. *Global reach, case studies and future versions of ImageAI - Moses Olafenwa*

**qRNG** is a python package that generates truly random numbers via quantum mechanics. It does this by using IBM’s **QISKIt** API to communicate with any one of their 3 publicly accessible quantum computers.

**LLVM** is the engine that drives our effort. It is a modern compiler framework and intermediate representation language together with **toolchain** for manipulating and optimizing this language.


[* Please Check all the references mentioned in this Short Communication. Not all details are presented in this paper – Please Read & Understand. Thanks ]
[II] R&D Informatics Framework – DICOM Standards & Medical Imaging Applications:

[Figure I – Simple Suggestion & Short Technical Note on LLVM-Python Informatics System for IoT/HPC Applications to Probe Medical Image Processing R&D]

[Figure II – Simple Suggestion & Short Technical Note on LLVM-Python Informatics System for IMAGEAI/IoT/HPC Applications to Probe Medical Image Processing R&D]
[III] Related Information on Mathematics & Software Used:

[a] https://pypi.org/project/qrng/ - IBM Stuff
[d] https://www.python.org/shell/ - Python Language Stuff
[e] https://llvm.org - LLVM Compiler Tool Kit Stuff
[f] An DeepQuest AI project deepquestai.com, Developed and Maintained by Moses Olafenwa and John Olafenwa, brothers, creators of TorchFusion, Authors of Introduction to Deep Computer Vision and creators of DeepStack AI Server. IMAGE AI Stuff
[g] https://pydicom.github.io › pydicom › stable › getting_started - DICOM Stuff
[h] https://pydicom.github.io - Python DICOM Stuff
Medical Image Analysis with Deep Learning — I - Taposh Dutta-Roy … https://medium.com › ...

[IV] My Acknowledgment/s:

Special Thanks to all WHO made this happen in my LIFE. Non-Profit R&D.

[V] Reference/s:

[a] viXra:1905.0540
[b] viXra:1908.0356
[c] https://www.quora.com › Are-there-any-serious-papers-on-viXra
[d] viXra:1907.0605
[e] viXra:1904.0487
[f] viXra:1812.0454
[g] viXra:1804.0196
[VI] Special Information - Understanding QRNG/QRNG Devices/Quantum Mechanics:

https://www.idquantique.com › Random Number Generation › Products

https://qt.eu › understand › underlying-principles › qrng

https://cran.r-project.org › package=qrng

Designing of quantum random number generator (QRNG) for security ...


https://qrng.anu.edu.au

https://qrng.physik.hu-berlin.de


https://pypi.org › project › qrng

https://arxiv.org › quant-ph – number of papers on arxiv

https://safenetforum.org › quantum-random-number-generator-qrng-chips

https://www.nature.com › npj quantum information › review articles

https://www.quantiki.org › wiki › quantum-random-number-generators

[VII] Conclusion/s With Future R&D Perspectives:

Finally to conclude our Short Communication: on-the-fly specializing compiler could be used in the following Applications.

   Computation kernels for MapReduce

   Dense linear algebra & Information Processing

   Image processing - Medical Image Processing & cryo-EM Image Processing etc.

[ THE END ]