

# Understanding & Exploring & Advanced Testing of [ AVNET-U96 + ( Arm-based Xilinx Zynq UltraScale + TM MPSoC ) ] Development Board Using Python + AI + OCaml + QRNG + Imaging Processing Algorithms.

Dr.Nirmal – Informatics R&D – USA/UK/Israel/BRICS Group of Nations.  
Current Member – ante Inst UTD Dallas TX USA.  
Contact\_info – [hmfg2014@gmail.com](mailto:hmfg2014@gmail.com)

## [I] Main Idea + Inspiration + Introduction :

*Our TITLE is ENOUGH. Advanced Theoretical Investigation.*

<https://blog.janestreet.com/using-python-and-ocaml-in-the-same-jupyter-notebook/>

## Our Advanced Task + Suggestion :

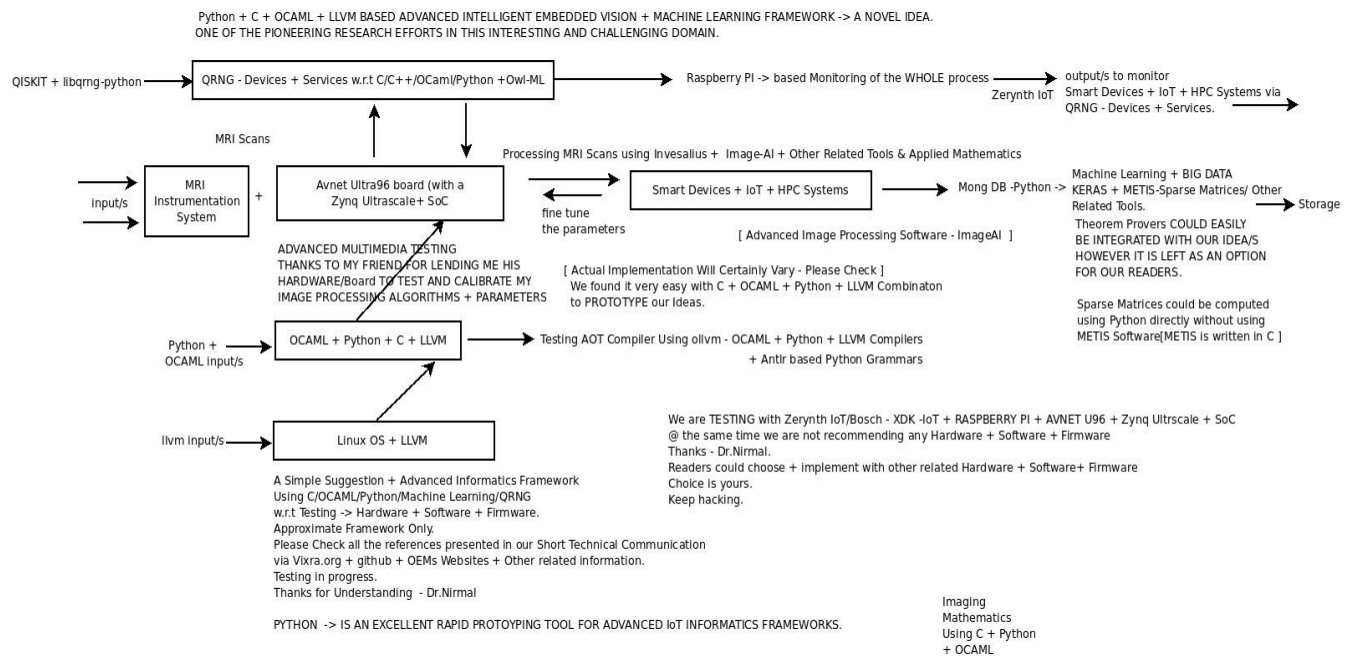
Understanding & Exploring & Advanced Testing of [ AVNET-U96 + ( Arm-based Xilinx Zynq UltraScale + TM MPSoC ) ] Development Board + Zerynth IoT + HPC Based Probing w.r.t [ Python + Image AI + QRNG/Qiskit + OCaml + HardCaml + Owl-Machine Learning(ML) Tool/LLVM-Option + Benchpress + Zipperposition – Automatic Theorem Prover (ATP) ] + Scilab + METIS/Sparse Matrices – An Interesting Idea to Probe Medical Images/MRI Scans etc...

**\* Written in FREE STYLE – NO SPECIFIC FORMAT WAS FOLLOWED.**

**\*Actual Implementation Will Certainly Vary – please Check.**

**\* Here we are focusing on Medical Imaging Only.**

## [II] Python Based R&D Informatics Framework TO TEST U96 + Zynq UltraScale SoC :



[ Figure I – Algorithm I - Exploring Smart Devices + ImageAI + IoT + HPC – High Performance Computing Systems R&D → by using Python + OCaml + CTP + Benchpress + Zipperposition – ATP in OCaml ]

**\* We are TESTING w.r.t Invesalius – Python Software + ImageAI -Python + Other Tools as mentioned in our Figure I above. MRI Instrumentation System interfacing details are not shown here. Please Check the MRI literature for advanced R&D.**

**MRI - <https://www.magnetic-resonance.org/ch/03-01.html>**

### [III] Useful & Important References :

[a] <http://glaros.dtc.umn.edu/gkhome/views/metis>

[b] <https://github.com/tejdnc-2019-ShortNotes>

[c] <https://github.com/tejdnc-2019-ShortNotes/2021-Nir-Informatics/blob/main/AVNET-U96-Ruby-Nir-21.pdf> \*

[d] <https://github.com/tejdnc-2019-ShortNotes/tejdnc-Space-Medicine-Informatics-github.io/blob/master/AVNET-U96-Ruby-Nir-21.pdf> \*\*

[e] <https://www.zerynth.com/>

[f] <https://www.kdnuggets.com/2020/05/sparse-matrix-representation-python.html>

[g] <https://www.cti.gov.br/pt-br/invesalius> → Medical Imaging Software.

[h] <https://machinelearningmastery.com/sparse-matrices-for-machine-learning>

[i] <https://payatu.com/blog/Arun-Magesh/using-rasberrypi-as-poor-mans-hardware-hacking-tool>

#### **[IV] Acknowledgment/s :**

Sincere Thanks to all WHO made this happen in my LIFE.

Inspiring Others is always GOOD.

Non-Profit R&D.

#### **[V] Conclusion/s + Future R&D Perspectives :**

Python + OCaml + C + LLVM Based Probing of Embedded Vision + ML in Advanced Medical Imaging R&D Domains. Functional Programming Languages are very much promising to TEST [ IoT/HPC/AI/Medical Imaging] Research Efforts to the best of our knowledge. Hence,they hold the future. Keep trying. We hope to see more interesting papers and patents in this direction.

**[ THE END ]**