Understanding + Processing of Electron Microscopy(EM) Images
With [ImageAI/EMAN2 Software for cryo-EM Images/Lattice
Theory/QRNG/Other Related Python Tools] in the Context of
Developing Software R & D Algorithms → A Simple Suggestion.

# Nirmal Tej Kumar

Independent Consultant - Informatics/AI/Photonics/Nanotechnology/HPC R&D.

R&D Collaborator - USA/UK/Israel/BRICS Group of Nations.

Current Member - ante Inst, UTD, Dallas, TX, USA.

Contact\_info - <a href="https://humps.com/hmfg2014@gmail.com">hmfg2014@gmail.com</a>

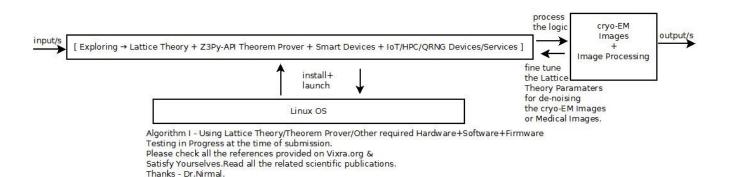
## [I] Inspiration + Introduction :

http://www.ehu.eus/ccwintco/uploads/d/db/Ritter-Spain2talk.pdf - Lattice Theory & Imaging Applications.

Exploring → Lattice Theory+EMAN2 Software for cryo-EM Images + Z<sub>3</sub>Py-API Theorem Prover + Smart Devices + IoT/HPC/QRNG Devices/Services for Cryo-EM Images + Image Processing.

### [II] Informatics Framework for Testing R&D Algorithms:

A SIMPLE CRYO-EM IMAGE PROCESSING & INFORMATICS FRAMEWORK USING LATTICE THEORY RELATED CONCEPTS ONE OF THE PIONEERING R&D EFFORT IN THE CRYO-EM/MEDICAL IMAGING DOMAINS FOR NEXT GENERATION IoT/HPC - HETEROGENEOUS COMPUTING ENVIRONMENTS.



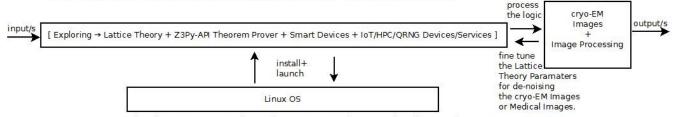
[ Figure I – Algorithm I – Our Image Processing + Informatics R&D Framework Using Lattice Theory as the Mathematical Tool – Approximate Idea Only – Actual Implementation Will Vary ].

\*\* We have demonstrated a number of Technical Ideas in the past (((via))) Vixra.org. Hence not going into the details.
Only an Idea is presented.
Written in Free Style.

A SIMPLE CRYO-EM IMAGE PROCESSING & INFORMATICS FRAMEWORK USING LATTICE THEORY RELATED CONCEPTS ONE OF THE PIONEERING R&D EFFORT IN THE CRYO-EM/MEDICAL IMAGING DOMAINS FOR NEXT GENERATION IOT/HPC - HETEROGENEOUS COMPUTING ENVIRONMENTS.

Also it is possible to play with OCaml+CoqTheorem Prover+q\*cert+Other Ideas Using Python based interfacing in the Context of cryo-EM Image Processing R&D +IoT/HPC Systems.

Readers who are interested in Functional Programming could easily use OCaml-Python Framework.



Algorithm I - Using Lattice Theory/Theorem Prover/Other required Hardware+Software+Firmware Testing in Progress at the time of submission. Please check all the references provided on Vixra.org & Satisfy Yourselves.Read all the related scientific publications.

Thanks - Dr.Nirmal.

[ Figure II – Algorithm II – Our Image Processing + Informatics R&D Framework Using Lattice Theory as the Mathematical Tool – Approximate Idea Only – Actual Implementation Will Vary ].

### [III] Acknowledgment/s:

Special Thanks to all my Mentors+Friends+Collaborators. Non-Profit R&D.

[IV] Information on Scientific Publications (((via))) Vixra.org & Other Sources :

#### [a] Vixra.org →

Multi-disciplinary Short Communications/Technical Notes (((via))) Vixra.org:

- [i] http://www.vixra.org/author/nirmal
- [ii] <a href="http://www.vixra.org/author/d\_n\_t\_kumar">http://www.vixra.org/author/d\_n\_t\_kumar</a>
- [iii] <a href="http://www.vixra.org/author/n\_t\_kumar">http://www.vixra.org/author/n\_t\_kumar</a>
- [iv] http://www.vixra.org/author/nirmal\_tej\_kumar

#### [b] Other Sources →

- [i] <a href="http://dx.doi.org/10.5958/0975-8089.2016.00001.4">http://dx.doi.org/10.5958/0975-8089.2016.00001.4</a> Understanding JikesRVM/cryo-EM Images.
- [ii] DOI: 10.5958/0975-8089.2019.00006.X Haskell+Erlang Cryo-EM Image Processing.
- [iii] Article DOI: <u>10.5958/0975-8089.2020.00001.9</u> Image Processing R&D.