

# **QR Decomposition Algorithms & Complex Networks Based cryo-EM Image Processing/Data Bases/Data Mining in the Context of Higher Order Logic (HOL),Scala,Image J,BaseX & Jikes RVM – An Interesting Technical Insight into the Challenging World of cryo-EM Informatics.**

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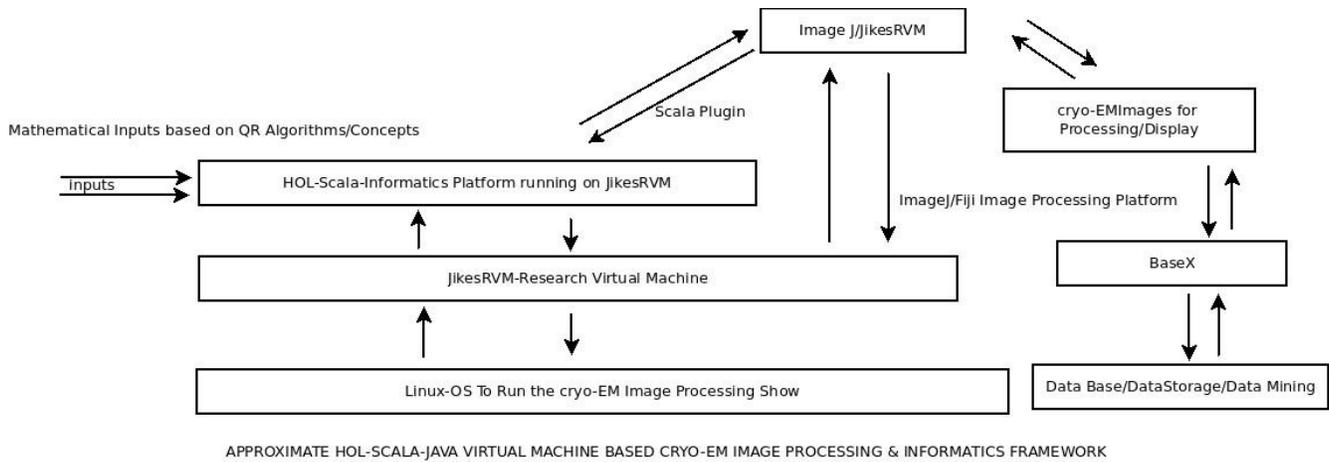
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## **Main Idea & Inspiration :**

As the TITLE is self explanatory,we are not going into the details.cryo-EM Image Processing and Informatics is one of the BEST tools to probe the frontiers of Nano-Bio Systems.Hence a simple & small attempt from us to process cryo-EM Images in the context of HOL.Written and presented in free style,we do not follow any specific format in preparing this short communication.Just highlighting the main idea.To understand our main idea,readers are requested to kindly go through the references and block diagram/s presented in this communication.

**index words :** cryo-EM/Image Processing/HOL/Scala/JikesRVM/Nano-Bio Systems/QR Algorithms/Data bases/Data Mining.

## RVM-HOL Based Informatics & Image Processing Framework :



**Figure I – Approximate cryo-EM Image Processing & Informatics Framework**

### Additional Information on Mathematics & Software Used :

[a] [https://www.isa-afp.org/entries/QR\\_Decomposition.html](https://www.isa-afp.org/entries/QR_Decomposition.html)

[b] <https://www.math.hmc.edu/seniorthesis/archives/2006/tseacres/tseacres-2006-thesis.pdf>

[c] Complex Networks, Simple Vision by Luciano da Fontoura Costa – <https://arxiv.org/abs/cond-mat/0403346v1>.

[d] Segmentation of Large Images with Complex Networks - Oscar Cuadros et al. Mathematics and Computer Science Institute University of Sao Paulo (USP) ,Sao Carlos, Brazil.

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## References :

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- [2] Kumar, D.N.T. & Shmavonyan, G.s. (2016). Understanding JikesRVM in the Context of Cryo-EM/TEM/SEM Imaging Algorithms and Applications – A General Informatics Introduction from a Software Architecture View Point. International Journal of Applied Research on Information Technology and Computing. 7. 1. 10.5958/0975-8089.2016.00001.4.
- [3] Reconstruction of Complex Network based on the Noise via QR Decomposition and Compressed Sensing – Li et al in [[www.nature.com/scientificreports](http://www.nature.com/scientificreports).]
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- [5] <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4788751/pdf/main.pdf> - The Current Revolution in Cryo-EM by Edward H. Egelman/Department of Biochemistry and Molecular Genetics, University of Virginia, Charlottesville, Virginia,USA.