

Java based Natural Language Processing(NLP)-JIProlog-Marvin-JikesRVM as Informatics & Image Processing Platform to Probe & Process Cryo-EM Images – A Simple & Useful Suggestion in the Context of Electron Microscopy(EM) Domains.

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Abstract :

As per the TITLE of this short technical note we intend to highlight the importance of probing and processing cryo-EM images using the above mentioned technologies.This is one of the pioneering attempts to monitor the whole process of cryo-EM image processing using JI Prolog.

index words: Natural Language Processing(NLP)/JikesRVM/JI Prolog/cryo-EM Image Processing/Marvin.

An Introduction to inspiring elements :

Our source of inspiration is the following Review on -

Cryo-electron microscopy for structural analysis of dynamic biological macromolecules – by Murata & Wolf in *Biochimica et Biophysica Acta (BBA) - General Subjects*.

Volume 1862, Issue 2, February 2018, Pages 324-334.

Source : <https://doi.org/10.1016/j.bbagen.2017.07.020>

Refs [1] & [2]

Informatics Framework Design & Implementation :

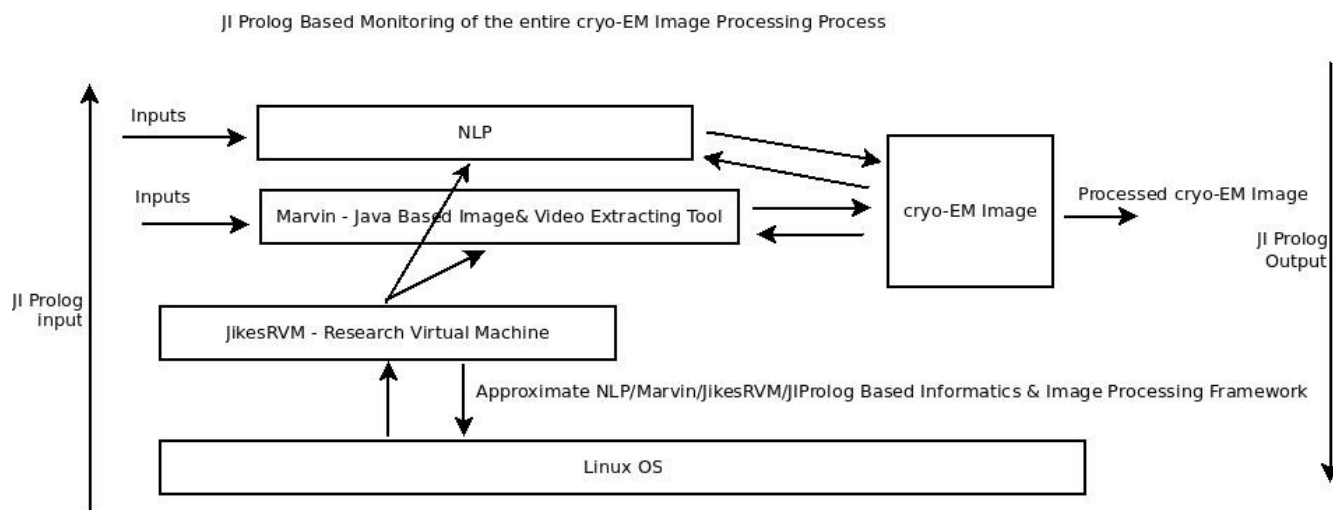


Figure I – Approximate JIProlog Based cryo-EM Image Processing Informatics Framework

Research Analysis & Concluding Remarks With Future Perspectives :

A simple but inspiring and useful suggestion was presented using the above mentioned Java related technologies to inspire others in the challenging and promising cryo-EM Image Processing domain. It is sincerely hoped that the readers will certainly find it useful and thought provoking.

Additional Information on Mathematics & Software Used :

[a] cryo-EM Imaging Mathematics -

<https://www.st-andrews.ac.uk/~glt2/BL3301/cryo-EM.pdf>

<http://spr.math.princeton.edu/>

<https://www.ma.utexas.edu/users/hadani/publications.htm>

[b] Java Based Software to develop our Image Processing & Informatics Framework -

<http://www.jiprolog.com/>

<http://www.jikesrvm.org/>

http://marvinproject.sourceforge.net/en/tutorials/03_multithreading/multithreading.html

<https://stanfordnlp.github.io/CoreNLP/>

<http://forums.fast.ai/t/using-image-processing-for-nlp/7530>

<https://ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-864-advanced-natural-language-processing-fall-2005/>

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References :

[1] Understanding JikesRVM in the Context of Cryo-EM/TEM/SEM Imaging Algorithms and Applications – A General Informatics Introduction from a Software Architecture View Point.

Source : International Journal of Applied Research on Information Technology and Computing
Year : 2016, Volume : 7, Issue : 1 First page : (1) Last page : (7), Print ISSN : 0975-8070. Online ISSN : 0975-8089/Article DOI : 10.5958/0975-8089.2016.00001.4

[2] <https://dzone.com/articles/natural-language-processing-adit-deshpande-cs-unde>