An Insight into the World of Hidden Markov Models Based on Higher Order Logic (HOL)/Scala/Haskell/JVM/IoT in the Context of NLP & Medical Image Processing Applications.

Nirmal Tej Kumar
Current Member – ante Inst,UTD,Dallas,TX,USA.
Independent Consultant – Informatics/HPC/Photonics/Nanotechnology.
R&D Collaborator – USA/UK/Germany/France/Brazil/Israel.
email id : tejdnk@gmail.com

Abstract :

As explained in the TITLE mentioned above - it was proposed to design,develop,implement,test and probe the interesting aspects of Medical Imaging domains using HOL/NLP/HMM Concepts.

index words: IoT/Scala/Haskell/HMM/HOL/Medical Image Processing/NLP/JVM

Introduction & Inspiration :

Natural Language Processing and Enhanced Clinical Decision Making Radiology and VINCI Eliot Siegel, M.D.

Source : https://www.nibib.nih.gov/sites/default/files/Siegel_Eliot.pdf

What is a hidden Markov model? - Sean R Eddy,Nature Biotechnology,volume 22,pages 1315–1316 (2004),doi:10.1038/nbt1004-1315.

Source : https://www.nature.com/articles/nbt1004-1315.pdf

FORMALIZING IMAGE PROCESSING IN HIGHER ORDER LOGIC(HOL) BY UNDERSTANDING AND USING XML-HOL-SCALA-JVM SOFTWARE FRAMEWORK TOWARDS PROCESSING OF CRYO-EM/TEM/SEM IMAGES BASED ON LEVY PROCESSES - A NOVEL SUGGESTION IN THE CONTEXT OF INSTRUMENTATION & HIGH PERFORMANCE COMPUTING ENVIRONMENT,by D.N.T.Kumar .

Source : http://vixra.org/pdf/1709.0412v1.pdf

Implementation of Informatics Framework :

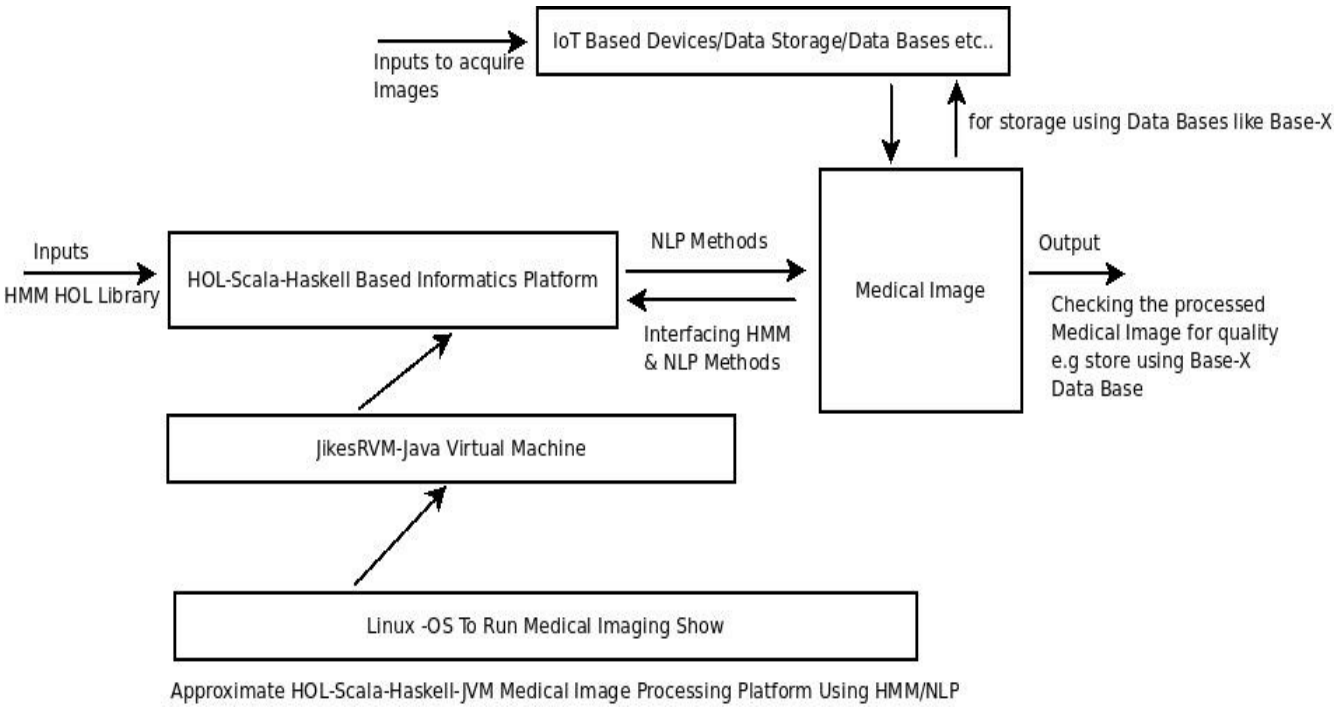

Figure I – Approximate Informatics & Image Processing Framework

R&D Conclusion/s With Future Perspectives :

A simple and practical informatics framework is presented and demonstrated based on the technologies mentioned in our TITLE above.Scala/Haskell/JVM/IoT based “Computing Frameworks” are the need of the hour to probe the frontiers of Science & Technology. To the best of our knowledge,this is one of the pioneering DEMO “Technical Notes”.

Additional Information on Mathematics & Software Used :

[a] https://ieeexplore.ieee.org/document/6252996/

[b] https://www.isa-afp.org/entries/Hidden_Markov_Models.html

[c] https://www.isa-afp.org/browser_info/current/AFP/Hidden_Markov_Models/outline.pdf

[d] https://web.stanford.edu/~jurafsky/slp3/9.pdf

[e] http://mlg.eng.cam.ac.uk/zoubin/papers/ijprai.pdf

[f] http://vixra.org/author/d_n_t_kumar

[g] http://vixra.org/author/nirmal_tej_kumar

[h] https://isabelle.in.tum.de/

[i] https://www.scala-lang.org/

[j] https://www.haskell.org/

[k] http://forums.fast.ai/t/using-image-processing-for-nlp/7530

[l] https://stanfordnlp.github.io/CoreNLP/

[m] https://www.jikesrvm.org/

[n] http://basex.org/products/ - XML Database technology from University of Konstanz,Germany.

Acknowledgement/s :

Sincerely thank every one who made this happen in my life. No competing financial interest/s are declared in preparing this manuscript. This manuscript is meant to inspire others to develop more advanced Medical Imaging Software in this demanding area using novel NLP methodologies. The Author strictly abides by all copyright agreements in using open source software or other such technologies used in this paper. Purpose - NON-PROFIT ACADEMIC R&D only.

THE END