Schur Group Theory Software Interfacing with Ruby Language in the Context of Ruby Based Machine Learning - An Interesting Insight into the Informatics World of Group Theory and its Nano-Bio Applications.

Nirmal Tej Kumar
Current Member : ante Inst,UTD,Dallas,TX,USA
Independent Consultant : Informatics/Photonics/Nanotechnology
email id : tejdnk@gmail.com

An Interesting & Inspiring Idea :

We are very much inspired by “Lie Algebra” and its interesting applications in the realms of Science & Technology domains involving multi-disciplinary R&D these days in the context of nanotechnology. It is therefore inspiring to present a simple technical note involving the above mentioned TITLE for the READERS.Schur Group theory Software written in C language could be easily interfaced with Ruby language .Therefore,we could explore the many useful features of Ruby language in the context of Machine Learning/IoT/Cloud Applications etc.

“Machine learning may improve molecular design for nanotechnology”

My inspiration comes from the R&D works of Professor B G Wybourne
{ https://fizyka.umk.pl/~bgw/index.html }

Informatics Framework Implementation :

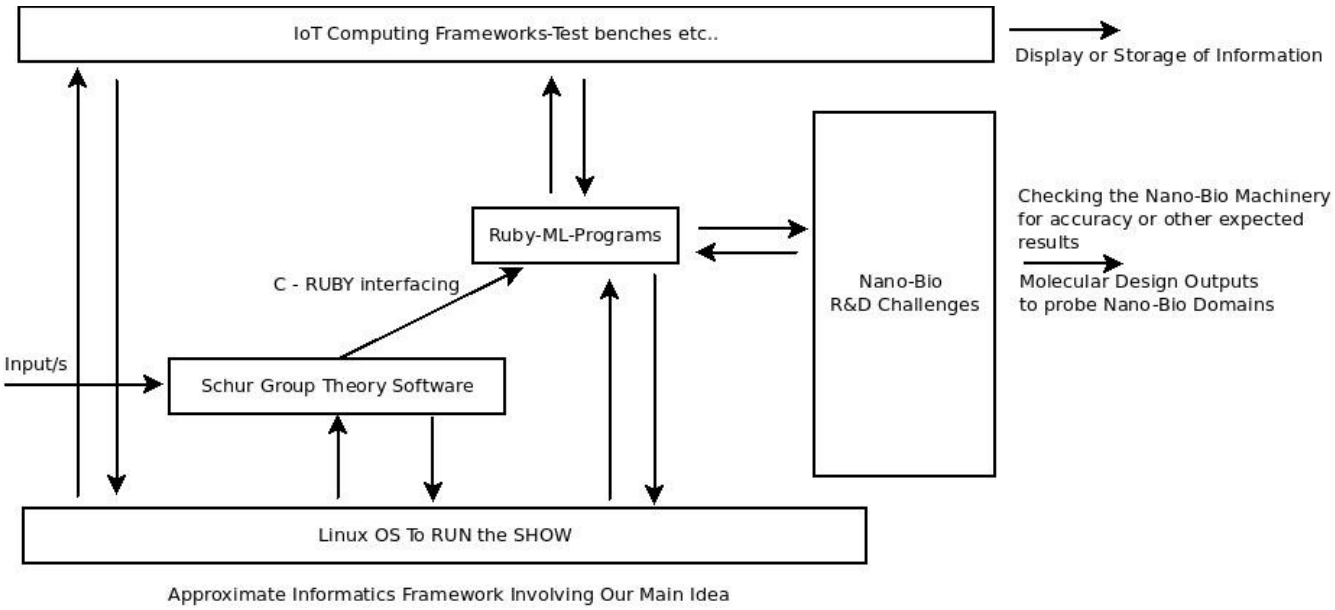

Figure I – Approximate Informatics Framework – Presenting our Idea

Information from the Published Scientific Literature :

"In particular, his package Schur must be regarded as necessary to both mathematicians and physicists whose work is dependent on calculations involving compact Lie groups and Schur functions" Mathematical Reviews 93f: 05101 (1993).

"Finally, we should mention that Wybourne and his colleagues at the University of Canterbury in Christchurch, New Zealand have developed a nice package called Schur which run's on PC's and which computes all the above products of Schur functions plus a great deal more branching rules, etc for Lie groups." Acta Appled Mathematics 21, 105 (1990).

"Over two decades, Wybourne and his students have developed a computer program, Schur, which performs many of the required calculations." Classical and Quantum Gravity 9, 1151 (1992).

Source : http://schur.sourceforge.net/

Information on Mathematics & Software Used :

[1] http://schur.sourceforge.net/

[2] Lie Group Analysis for Medical Image Processing | Projects | FP7-IDEAS-ERC | CORDIS | European Commission./https://cordis.europa.eu/project/rcn/110799_en.html

[3] https://fizyka.umk.pl/~bgw/index.html – **Professor Brian Wybourne**

[4] https://fizyka.umk.pl/~bgw/cv2.html

[5] http://www.phys.uni.torun.pl/~bgw

[6] https://en.wikipedia.org/wiki/Ruby_(programming_language)

[7] http://www.ruby-lang.org/en/

[8] https://gist.github.com/gbuesing/865b814d312f46775cda – Sources for Machine Learning in Ruby

[9] https://medium.com/@ryanflach/basic-machine-learning-in-ruby-9cce4a67b40b

[10] https://foresight.org/machine-learning-may-improve-molecular-design-for-nanotechnology/

[11] https://www.nanowerk.com/nanotechnology-news/newsid=47207.php

[12] https://www.networkworld.com/article/3154724/software/ibm-next-5-years-ai-iot-and-nanotech-will-literally-change-the-way-we-see-the-world.html

Acknowledgement/s :

I sincerely wish to thank all my friends and mentors,who helped me in drafting this technical communication or short note.

THE END