

# Z3 library for Racket/z3.rkt - Theorem Proving + AndroidApps.Rkt + Dr.Racket/Related Software Tools -> Testing : Mathematics of Discrete Tomography w.r.t Imaging/Video Processing Algorithms/Video DSLs/ Deep Learning [DL] Using Dr.Racket - A Simple Suggestion & Short Technical Communications.

Nirmal - Informatics R&D - USA/UK/Germany/Israel/Jordan/BRICS Group of Nations.  
Current Member - ante Inst UTD Dallas TX USA.  
Contact\_info - hmfg2014@gmail.com

## [I] Main Idea + Inspiration + Introduction :

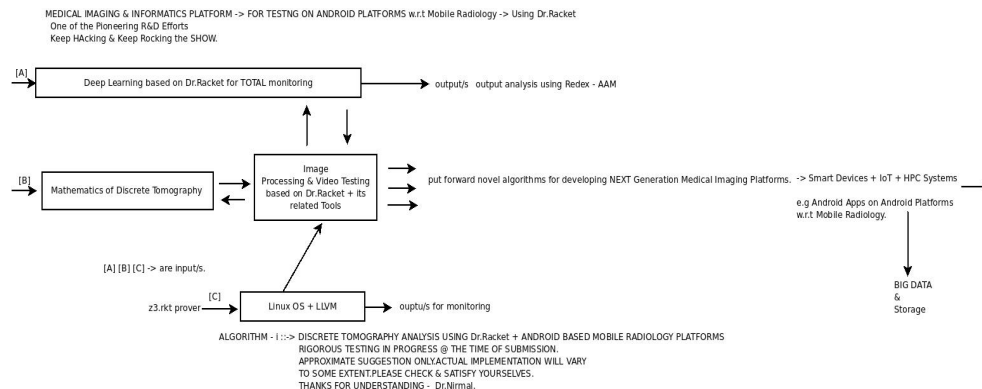
"Discrete tomography has strong connections with other mathematical fields, such as number theory,<sup>[3][4][5]</sup> discrete mathematics,<sup>[6][7][8]</sup> complexity theory<sup>[9][10]</sup> and combinatorics.<sup>[11][12][13]</sup> In fact, a number of discrete tomography problems were first discussed as combinatorial problems. In 1957, H. J. Ryser found a necessary and sufficient condition for a pair of vectors being the two orthogonal projections of a discrete set." -> **ref [e] -> Wiki.**

Z3 Prover + Dr.Racket + DL towards developing : **better Tomography software for Android based Medical Imaging Platforms.**

[https://www.researchgate.net/publication/356129375\\_Probing\\_Invesalius\\_Medical\\_Imaging\\_RD\\_Software\\_Using\\_ImageAI\\_Python\\_DrRacket\\_wrt\\_Smart\\_Devices\\_SD\\_IoT\\_HPC\\_Heterogeneous\\_Systems\\_to\\_Probe\\_Advanced\\_Medical\\_Image\\_Processing\\_Algorithms\\_MRI\\_Scans\\_-\\_A\\_Short](https://www.researchgate.net/publication/356129375_Probing_Invesalius_Medical_Imaging_RD_Software_Using_ImageAI_Python_DrRacket_wrt_Smart_Devices_SD_IoT_HPC_Heterogeneous_Systems_to_Probe_Advanced_Medical_Image_Processing_Algorithms_MRI_Scans_-_A_Short)

<https://github.com/charlescearl/DeepRacket> -> Deep Learning with Dr.Racket -> Worth trying this novel approach.

## [II] R&D Informatics Framework :



[ Figure I - Algorithm I - R&D Informatics Framework for Testing Mobile Radiology + Informatics ]

## [III] Important & Useful References :

- [a] <https://github.com/philnguyen/z3-rkt>
- [b] <https://github.com/jeapostrophe/racket-android>
- [c] <https://github.com/tejdnc-2019-ShortNotes/tejdnc-Space-Medicine-Informatics-github.io>
- [d] <https://github.com/tejdnc-2019-ShortNotes/AI-S-T-Applications/blob/main/JVM-Redex-Android-FRC-Nir-21.pdf>
- [e] [https://en.wikipedia.org/wiki/Discrete\\_tomography](https://en.wikipedia.org/wiki/Discrete_tomography)
- [f] [https://colab.research.google.com/github/philzook58/z3\\_tutorial/blob/master/Z3\\_Tutorial.ipynb](https://colab.research.google.com/github/philzook58/z3_tutorial/blob/master/Z3_Tutorial.ipynb)

[IV] **Acknowledgment/s** : Sincere Thanks to all WHO made this happen in my LIFE. Non-Profit R&D. Inspire others always.

[V] **Conclusion/s with Future Perspectives** : One of the pioneering research efforts in this interesting domain. Hope this helps to some extent.

[ THE END ]