

A Simple Suggestion Towards Better Medical Imaging & Informatics Frame Work/s Through Algorithms of Imaging Mathematics Based on -

[CoqTP/Q*cert/Scala/LMS-Scala/Scalalab/IoT/JVM/JikesRVM-Research Virtual Machine/LLVM-Scala/
Scala NLP/BIG DATA Informatics].

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[I] Introduction & Inspiration :

[https://www.forbes.com/sites/kevinknudson/2015/08/16/better-imaging-through-mathematics/
#272e2f50227f](https://www.forbes.com/sites/kevinknudson/2015/08/16/better-imaging-through-mathematics/#272e2f50227f)

https://en.wikipedia.org/wiki/Medical_image_computing

[https://ww5.komen.org/uploadedFiles/_Komen/Content/About_Breast_Cancer/Tools_and_Resources/
Fact_Sheets_and_Breast_Self_Awareness_Cards/Imaging%20Methods%20used%20to%20Find
%20Breast%20Cancer.pdf](https://ww5.komen.org/uploadedFiles/_Komen/Content/About_Breast_Cancer/Tools_and_Resources/Fact_Sheets_and_Breast_Self_Awareness_Cards/Imaging%20Methods%20used%20to%20Find%20Breast%20Cancer.pdf)

<https://data.world/health/breast-cancer-wisconsin>

<https://community.deeppcognition.ai/t/idc-breast-cancer-data-upload-to-csv/291>

<https://www.kaggle.com/uciml/breast-cancer-wisconsin-data>

<https://wiki.cancerimagingarchive.net/display/Public/CBIS-DDSM>

[https://www.researchgate.net/publication/
272863357_Diagnosis_of_Breast_Cancer_using_Decision_Tree_Data_Mining_Technique](https://www.researchgate.net/publication/272863357_Diagnosis_of_Breast_Cancer_using_Decision_Tree_Data_Mining_Technique)

<http://vixra.org/abs/1709.0412>

[https://www.semanticscholar.org/paper/Detection-of-Breast-Cancer-Tumor-Algorithm-using-Hadhoud-
Amin/bab4dc02686fd5536873c6df640912bc731fa74d](https://www.semanticscholar.org/paper/Detection-of-Breast-Cancer-Tumor-Algorithm-using-Hadhoud-Amin/bab4dc02686fd5536873c6df640912bc731fa74d)

<https://core.ac.uk/download/pdf/96824.pdf>

<https://github.com/sksamuel/scrimage> && <http://stephenjudkins.github.io/pureimage-presentation/>

[https://ac.els-cdn.com/S1877050914003925/1-s2.0-S1877050914003925-main.pdf?_tid=8444fc22-
05d2-4e74-a7df-c6443ed35f27&acdnat=1551945517_e6eac5c97f7fbc8f27a99b16376718d6](https://ac.els-cdn.com/S1877050914003925/1-s2.0-S1877050914003925-main.pdf?_tid=8444fc22-05d2-4e74-a7df-c6443ed35f27&acdnat=1551945517_e6eac5c97f7fbc8f27a99b16376718d6)

<https://github.com/NICTA/scoobi> && <https://skymind.ai/wiki/java-ai>

<https://skymind.ai/wiki/scala-ai> – some interesting applications.

[II] CoqTP-Scala/JVM/LLVM Informatics Framework/s :

Algorithm I

[A] CTP + Scala + llvm → Breast Cancer R&D Imaging.

Algorithm II

[B] CTP+ Scala+ Jikes RVM/JVM → Better Java IoT based Applications.

Algorithm III

[C] CTP+Scala of Coq → Image Processing on Scalalab/LLVM/JikesRVM/JVM.

Algorithm IV

[D] CTP+Scala +Bio-Scala+Bio-Java+AI+ML+DL → Best Breast Cancer Medical Imaging.

Algorithm V

[E] CTP is Good for verifying - Java/Scala Programs.

Algorithm VI

[F] CTP +Q*cert +Sql → probe CSV based DATA SETS esp in Medical Imaging Applications like Breast Cancer R&D etc....

******* THIS COULD BE APPLIED TO ANY MEDICAL IMAGING APPLICATION *******

[III] Information on Mathematics & Software Used/Useful :

<https://www.math.purdue.edu/about/purview/fall94/mammogram.html>

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5053317/>

<https://theconversation.com/how-mathematics-is-helping-to-fight-cancer-90740>

<http://math.uwaterloo.ca/~kohandel/index.php/research>

<https://greedy.github.io/scala-llvm/>

<https://llvm.org/>

<https://github.com/JBakouny/Scallina>

<https://arxiv.org/abs/1706.05271>

<http://www.drdoobs.com/jvm/a-long-look-at-jvm-languages/240007765>

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

<https://github.com/sterglee/scalalab>

<https://github.com/craigwblake/ScalaLab>

<https://www.scala-lang.org/> && <https://scala-lms.github.io/>

<https://github.com/TiarkRompf/virtualization-lms-core>

https://web.stanford.edu/class/cs442/lectures_unrestricted/cs442-lms.pdf

<https://querycert.github.io/> - Q*cert.

<https://xdk.bosch-connectivity.com/>

[IV] Conclusion/s With Future Perspectives :

Some interesting Models and Computing Frameworks were presented based on the above mentioned Mathematical Concepts & Software Tools. One of the pioneering R&D efforts in the promising & Challenging domains of Medical Imaging.

[V] Acknowledgment/s :

Thanks to all who made this happen in my LIFE. NON-Profit Academic R&D Only.

[VI] References :

- [1] <https://www.cancer.net/cancer-types/breast-cancer/diagnosis>
- [2] <https://www.mayoclinic.org/diseases-conditions/breast-cancer/diagnosis-treatment/drc-20352475>
- [3] <https://core.ac.uk/download/pdf/96824.pdf>
- [4] https://www.eurekalert.org/pub_releases/2018-05/kuot-mm051518.php
- [5] <https://archive.siam.org/careers/pdf/breastcancer.pdf>
- [6] <https://www.upi.com/Mathematical-method-could-automatize-enhance-breast-cancer-diagnosis/2071526400901/>
- [7] <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4911289/>
- [8] <ftp://ftp.cs.wisc.edu/math-prog/tech-reports/94-10.pdf>
- [9] <https://journals.sagepub.com/doi/10.1177/1533034614547446>

THE END.