

**Understanding [ Haskell/HLearn/HLearn-Algebra/Java/JikesRVM/JIProlog] in the Context of Future Bio-metrics Systems Research Domains with IoT-Devices/HPC Heterogeneous Environment/s – A Promising Insight into Hi-End [ Haskell+Java ] based Intelligent Computational Aspects of Mobile Informatics involving [ AI/ML/DL ] based R&D of Cyber Attacks or Threats.**

[ An Investigation Using Haskell/Java/JikesRVM/JIProlog Software Related Concepts ]

**Nirmal Tej Kumar**

**Independent Consultant : Informatics/AI/Embedded Systems/Photonics/HPC R&D.**

**Current Member : ante Inst,UTD,Dallas,TX,USA.**

**R&D Collaborator : USA/UK/Israel/Germany/BRICS Group of Nations.**

**email id : [hmfg2014@gmail.com](mailto:hmfg2014@gmail.com)**

**[I] Inspiration,Exploration & Introduction :**

<http://hackage.haskell.org/package/HLearn-algebra> - HLearn-algebra: Algebraic foundation for homomorphic learning

[hackage.haskell.org/package/java-bridge/docs/Foreign-Java.html](http://hackage.haskell.org/package/java-bridge/docs/Foreign-Java.html)

<https://github.com/tweag/inline-java>

[https://wiki.haskell.org/Applications\\_and\\_libraries/Interfacing\\_other\\_languages](https://wiki.haskell.org/Applications_and_libraries/Interfacing_other_languages)

[www.uni-koblenz.de/~laemmel/TheEagle/dl/PangC04.pdf](http://www.uni-koblenz.de/~laemmel/TheEagle/dl/PangC04.pdf)

[page.mi.fu-berlin.de/scravy/bridging-the-gap-between-haskell-and-java.pdf](http://page.mi.fu-berlin.de/scravy/bridging-the-gap-between-haskell-and-java.pdf)

<https://www.sciencedirect.com/science/article/pii/S1571066105805493>

[matt.might.net/articles/discrete-math-and-code/](http://matt.might.net/articles/discrete-math-and-code/)

<https://www.microsoft.com/en-us/research/wp-content/uploads/2016/.../hdirect.pdf>

[https://en.wikipedia.org/wiki/Haskell\\_\(programming\\_language\)](https://en.wikipedia.org/wiki/Haskell_(programming_language))

<https://github.com/Frege/frege> – Frege is Haskell for JVM

<https://www.infoq.com/presentations/haskell-jvm-system-performance/>

<https://stackoverflow.com/questions/7261039/haskell-on-jvm>

<https://tomassetti.me/exploring-frege-haskell-for-the-jvm/>

[www.jiprolog.com/](http://www.jiprolog.com/) <https://www.jikesrvm.org/> [dmakarov.github.io/work/guide/](https://dmakarov.github.io/work/guide/)

<https://www.sciencedirect.com/science/article/pii/S016764230700175X>

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

<https://www.bosch-connectivity.com/products/cross.../cross-domain-developement-kit/>

<https://developer.bosch.com/web/xdk/technical-information>

<https://www.sigfox.com/.../sigfox-extension-module-available-cross-domain-develop...>

<https://www.bosch-presse.de/.../the-xdk-from-bosch-enables-a-rapid-development-of-...>

[www.belladati.com/belladati-bosch-iot-starter-kit/](http://www.belladati.com/belladati-bosch-iot-starter-kit/)

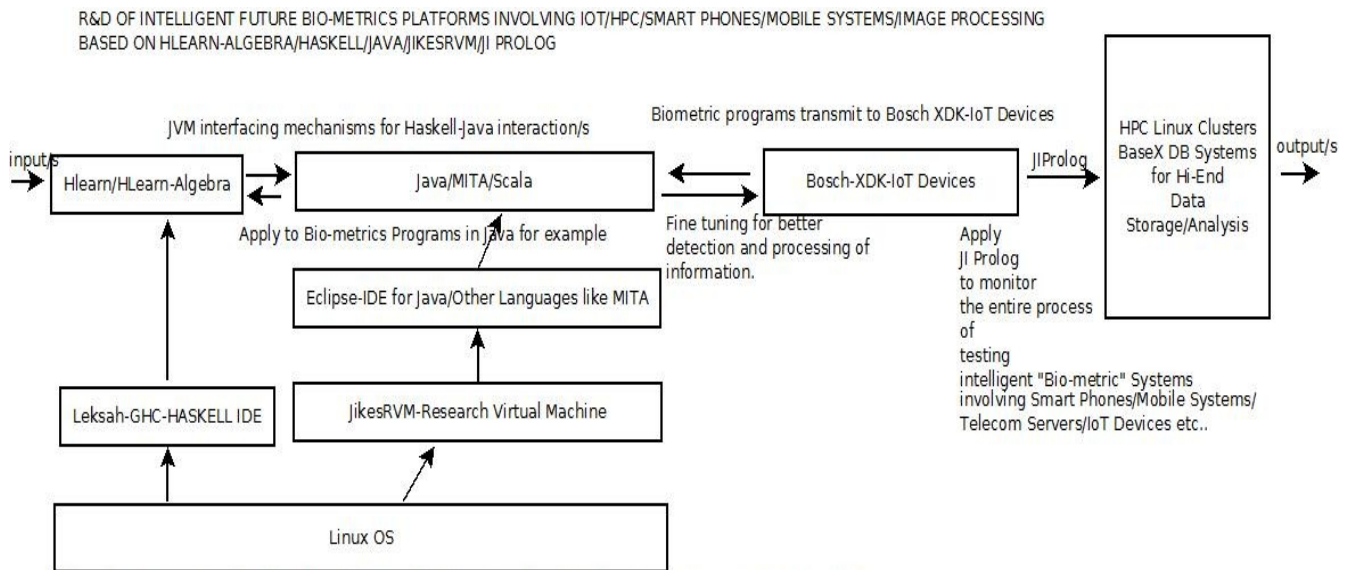
<https://www.eclipse.org/mita/platforms/xdk110/>

[https://www.eetimes.com/document.asp?doc\\_id=1331136](https://www.eetimes.com/document.asp?doc_id=1331136)

[https://static4.arrow.com/-/media/arrow/.../xdk\\_bosch\\_productbrief\\_june29.pdf?la..](https://static4.arrow.com/-/media/arrow/.../xdk_bosch_productbrief_june29.pdf?la..)

[https://www.bosch-sensortec.com/bst/support\\_tools/.../overview\\_application\\_boards](https://www.bosch-sensortec.com/bst/support_tools/.../overview_application_boards)

**[II] Intelligent Future Bio-metrics/Mobile Systems/Telecom [R&D] Informatics Framework + Implementation :**



Approximate Informatics Platform for co-design of Hardware/Software/Firmware/Image Processing Implementation.  
Actual Implementation Will Vary. Testing in progress.  
Thanks - Dr.Nirmal.  
Please Check & Satisfy Yourselves.  
Based on our earlier promising results we are presenting this Short Technical Note.  
Looking forward to more papers in this domain. HLearn-algebra: Algebraic foundation for homomorphic learning

**[ Figure I – Algorithm I – Informatics Platform for Advanced Software R&D ]**

We are not endorsing any commercial products here there could be other IoT Devices as well. Please Check the requirement/s for Bio-metric Hardware interfacing with IoT Device before experimenting. Connecting Bio-metric Hardware is not shown in the above diagram.

**{ ->input->Bio-metric Hardware → interface with → BoschXDK-IoT Device/KIT Please Check. }**  
[ For example - [www.biometricsltd.com/systems-portable.htm](http://www.biometricsltd.com/systems-portable.htm) ]

**[III] Related Information on Mathematics & Software Used in our R&D :**

- [a] [http://vixra.org/author/nirmal\\_tej\\_kumar](http://vixra.org/author/nirmal_tej_kumar)
- [b] <http://vixra.org/author/nirmal>
- [c] [http://vixra.org/author/dnt\\_kumar](http://vixra.org/author/dnt_kumar)
- [d] [http://vixra.org/author/d\\_n\\_t\\_kumar](http://vixra.org/author/d_n_t_kumar)
- [e] [http://vixra.org/author/n\\_t\\_kumar](http://vixra.org/author/n_t_kumar)

**[IV] Acknowledgment/s :**

Non-Profit Academic R&D.Non-Commercial R&D. Special thanks to all my Friends/Colleagues/Mentors.Short Technical Note.

**[V] Reference :** <https://link.springer.com/article/10.1007/s41403-017-0026-8>

**[ THE END ]**