A SIMPLE SUGGESTION ABOUT USING ZEITZEIGER "R" SOFTWARE & jvmr TOWARDS INTEGRATION OF "R" "JAVA" & "SCALA" TO PERFORM CIRCADIAN DATA PROCESSING.

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Abstract :

"`Zeitzeiger` is a package for regularized supervised learning on high-dimensional data from an oscillatory system. `Zeitzeiger` can quantify rhythmic behavior, make accurate predictions, identify major patterns and important features, and detect when the oscillator is perturbed." We obtained inspiration from : https://github.com/hugheylab/zeitzeiger ; https://dahl.byu.edu/software/jvmr/ to process circadian data.In this communication,we wish to highlight our intention to experiment with an R package like ZEITZEIGER and jvmr providing a cross-platform interface between R ,Scala and Java.

Keywords : zeitzeiger,R,Java,Scala,JVM,jvmr,Circadian Rhythms

Introduction & Inspiration :

"Society and technology is constantly advancing, I mean look at all the smart and fitness watches we now have available. However, the latest way in telling time is now in a computer method called ZeitZeiger, which uses a sample of blood to accurately predict the time of day according to a person's body clock.The research is described and published in the open access journal *Genome Medicine*."

From : What's the time Mr Body Clock? By Editorial Team May 8, 2017.

Source/s :

[a] https://www.eedesignit.com/whats-the-time-mr-body-clock/

[b] https://medicalxpress.com/news/2017-02-zeitzeiger-body-clock.html

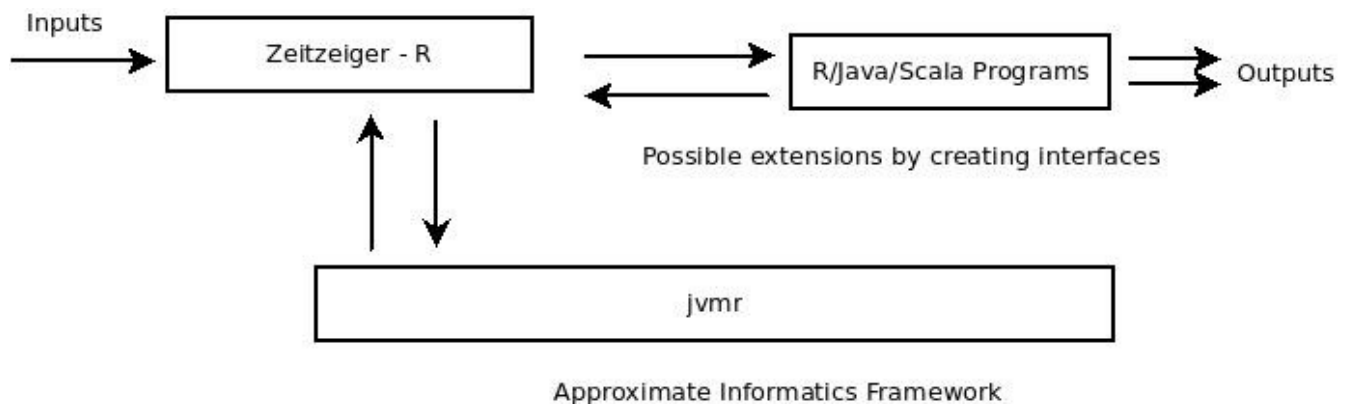## Informatics Design & Implementation :

Figure 1 – Approximate Informatics Framework Illustrating Main Idea.

Please Note : Most important references are [1] & [2]/Figures [1] &[2] to understand the communication/idea presented here.So readers are requested to study the papers for a better understanding.Actual implementations may vary,it is necessary to check all the requirements.

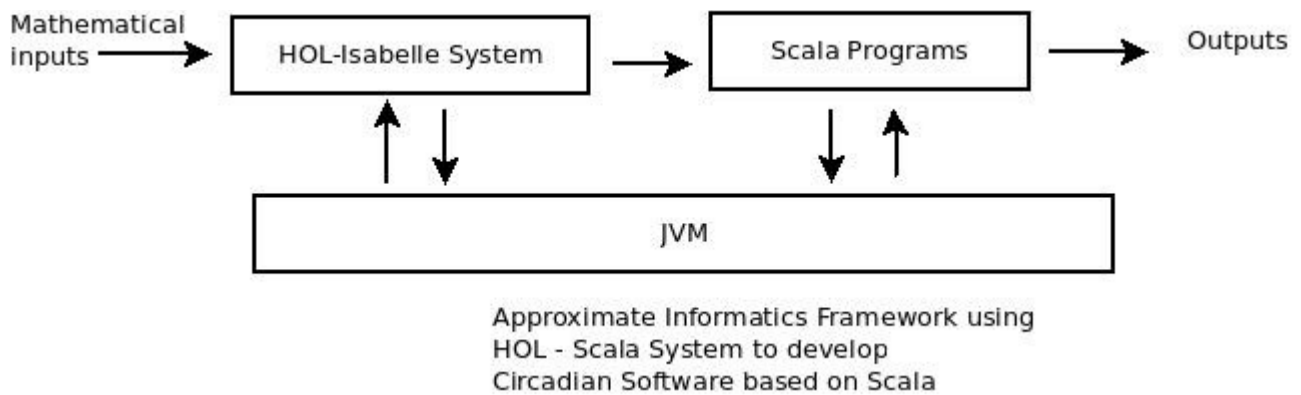## Future Plan Using HOL-Isabelle System/Scala/JVM Platform :

Approximate Informatics Framework using
HOL - Scala System to develop
Circadian Software based on Scala

Figure 2. Approximate Informatics Framework Illustrating HOL-Scala System.

Conclusions with Future Perspectives :

Finally we conclude it was possible to design and test different ideas using "zeitzeiger" R software by interfacing with jvmr towards integration of "R","Java" & " Scala".Further it is also possible to use HOL(Isabelle) -Scala System to design and develop excellent informatics framework to probe interesting,promising and challenging aspects of "Circadian Systems and Computation".

Acknowledgement/s :

Information on Software used :

[a] https://github.com/hugheylab/zeitzeiger

[b] https://dahl.byu.edu/software/jvmr/

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

[d] https://www.r-project.org/

References :

[1] https://dahl.byu.edu/software/jvmr/dahl-payne-uppalapati-2014.pdf

[2] Jacob J. Hughey, Machine learning identifies a compact gene set for monitoring the circadian clock in human blood, *Genome Medicine* (2017). DOI: 10.1186/s13073-017-0406-4