Chathura Gunasekara

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Education

2013 May - 2017 Spring (expected)	**PhD, Computational Science & Engineering**; Michigan Technological University (Houghton, MI)
	PhD Thesis title: Bioinformatics Tools and Algorithms Development for Gene Regulatory Network Inference
2006-2010	**BS, Computational Physics**; University of Colombo (Sri Lanka)
	Major in Computer Science with minor in Physics and Applied Mathematics

Projects, Work Experience & Publications

Graduate Research Assistant : 2013 - Present

Currently I am Working under **Dr. Hairong Wei,** *conducting research to infer gene regulatory networks and indentify regulatory transcription factors (TFs) which control known biological pathways in* Arabidopsis thaliana *under stress conditions using gene expression data.*

- **TF-miner**
- Bayesian network to infer gene regulatory network **implementation** for this research was **presented** at NSF Project/Bioinformatics Workshop at Noble Foundation, Ardmore, Oklahoma.
- Pairwise analysis of Pathway - Transcription Factor gene expression data to find regulatory TF clusters.**Git**
- Currently implementing a **web** based gene expression data analysis pipeline to identify Transcription Factor(TF) clusters which associates with known biological pathways.

Completed projects

- **Developed**, **implemented** and **published** an algorithm and web application to search for degenerate motifs in the promoter regions of 50 plant species genomes.
- I configured, installed and developed Perl scripts for parsing the FASTQ files using open sourse tools for a genome browser to **visualize** RNA-seq and Ribo-seq of wild-type and STTM mutants.
- **Co-authored** an algorithm to infer hierachical gene regulatory network from gene expression data.
- **Implemented** and **Co-authored** Poplar Gene Expression Pipeline web application.
- **Contributor** to create a Circos Visualization of genomic data.

Software Engineer/Research Engineer : 2010 - 2013

Worked on a **collaborative research project** with University of Colombo School of Computing and Sri Lanka Navy. Following are the list of publications I authored/contributed:

- Develop algorithms and to implement using Java and web based technologies a Survailance platfrom to fuse data from multiple transponders such as AIS, RADAR sensors around Sri Lanken coast line.**Publication**
- Maritime Navigation Simulator Project, Low Cost 3D Immersive Telepresence for Survaillance, Planning, Maneuring : 3D-COP 10.5176/2251-1679_CGAT31. Computer Games, Multimedia & Allied Technology Conference 2012.**Publication**
- Maritime Navigation Simulator Project for Simulating Narrow Channel Effect on Surge Motion of a Ship in a Virtual Environment. **Publication**
- Undergraduate Research on Spatialized Real Time Auditory Interface for a Virtual Maritime Application in 2010.**Publication**

Technical Experience and Recent Course work

Technical Skills Software and Programming Languages

- Perl,Python (scikit-learn, numpy, scipy, pandas), R
- Java, C++, Database(SQL), Linux/Unix/Shell Scripting, Microsoft Excel, LaTeX
- Web Development in Linux/Apache/MySql/PHP

Data Science **Applied Predictive Modelling** Fall 2014

Introduction to Data Science Fall 2014

Data Mining Spring 2014

Data mining for geo spatial applications Fall 2015

Machine Learning - Regression Coursera Verified Certification (online)

Statistics **Statistical Methods** Fall 2013

Regression Analysis Spring 2013

Time series analysis and forcasting Spring 2015

Computer Science **Advanced Scripting and Programming** Fall 2015

Algorithmic Toolbox Coursera Verified Certification (online)

Bioinformatics **Bioinformatics Programming Skills** Fall 2013