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 Working under **Dr. Hairong Wei** at Michigan Tech. University, 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 is a data analysis pipeline based on partial least squares and graphical gaussian models to identify regulatory TFs using microarray expression under stress conditions. **[source]**
- Infer gene regulatory network from DREAM5 dataset and extend the method for arabidopsis gene expr data at a Bioinformatics Workshop at Noble Foundation, Ardmore, Oklahoma.**[source]**,**[presentation]**
- Pairwise analysis of gene expression data to find regulatory TF clusters using novel association methods.**[source]**
- Currently implementing a web based gene expression data analysis pipeline to identify Transcription Factor(TF) clusters which associates with known biological pathways.**[source]**, **[web]**

Completed projects

- Developed an algorithm and web application to search for degenerate motifs in the promoter regions of 50 plant species genomes.**[source]**, **[web]**, **[publication]**
- Configured, installed a JBrowse genome browser to visualize RNA-seq and Ribo-seq of wild-type and STTM mutants to parse fastq files.**[web]**
- Collaborated with a lab member to publish an algorithm to infer hierachical gene regulatory network from gene expression data.**[publication]**
- Collaborated with a lab member to develop the Poplar Gene Expression Pipeline web application. **[web]**, **[publication]**
- Contributed to the publication of a lab member by creating a Circos Visualization of genomics data from Birch genome.**[source]**

Software Engineer/Research Engineer : 2010 - 2013

Worked on a **research project** with University of Colombo School of Computing and Sri Lanka Navy.

- Develop algorithms and to implement using Java and web based technologies a Survaillance 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 engineering (Object oriented programming, version control, Documentation)
	Python (scikit-learn/numpy/scipy/pandas), R, Microsoft Excel
	Perl, Java, C++, Database(SQL), Linux/Unix/Shell Scripting
	Web Development (Linux/Apache/MySql/PHP) and web server management
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 Foundations: A Case Study Approach by University of Washington on Coursera **verify**
	Machine Learning: Regression by University of Washington on Coursera **verify**
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 by University of California, San Diego & Higher School of Economics on Coursera.**verify**
Bioinformatics	Bioinformatics Programming Skills Fall 2013

Additional Skills

Teamwork Skills	Ability and willingness to work effectively in a team setting
	Able to motivate team members to greater success
Communication Skills	Speaks persuasively and articulately
	Listens carefully and welcome advise and critisism