Bhanu Kamapantula

https://bkamapantula.github.io
(864) 650-6607

EDUCATION

Ph.D. in Computer Science **Fall 2011 - *Current***
Biological networks lab, Virginia Commonwealth University

M.S. in Computer Science **Fall 2009 - Summer 2011**
Texas A&M University-Corpus Christi

SKILLS

Programming - Python, bash, JavaScript/jQuery, PHP, MySQL, C, TCL
Visualization - d3js, Google visualization, nvd3, HighCharts, Tableau, Gephi, Cytoscape, NodeXL
Analysis - Scikit-learn, NetworkX, BeautifulSoup, Mechanize

EXPERIENCE

Research Assistant **Fall 2014-Current**
Teaching Assistant **Fall 2011-Fall 2014**
CMSC 302 - Intro to Operating Systems **Spring 2014**
CMSC 302 - Intro to Operating Systems **Fall 2013**
CMSC 311 - Computer Organization **Spring 2013**
CMSC 409 - Artificial Intelligence **Fall 2012**
CMSC 311 - Computer Organization **Spring 2012**
CMSC 101 - Introduction to Computer Science **Fall 2011**

AWARDS

Best student paper award, 9th International conference on Bio-inspired Information and Communications Technologies, Boston **December 2014**
Travel award, 9th International conference on Bio-inspired Information and Communications Technologies, Boston **December 2014**
Dean's Early Research Initiative Mentor
Mentoring a high-school student on a research project to determine robustness of complex networks **Fall 2014 - Spring 2015**
Outstanding paper award, Department of Computer Science, VCU **March 2013**
Travel award, IEEE International Conference on Pervasive Computing and Communications **March 2012**

INTERESTS

Data journalism. Systems biology. NLP. Epidemiology.
Research portfolio - https://bkamapantula.github.io/research

RESEARCH EXPERIENCE

Exploring Biological Network Robustness using Bio-Inspired Wireless Sensor Networks: A Novel Paradigm for Systems Research, *a National Science Foundation project*
Graduate researcher **September 2013-Ongoing**
Improving the efficiency of Wireless Sensor Networks using principles of Genomic Robustness, *a National Science Foundation project*
Graduate researcher **August 2011-August 2013**

PROJECTS

BioRobust
BioRobust is an online framework to determine the robustness of biological networks using in-silico experiments and identifying significant features that contribute to the robustness.
Under development. Release by mid-Fall 2015

Python. Django. JavaScript. NS-2. scikit-learn. NetworkX. HTML. CSS.

DISMIRA - Disease-miRNA association network
This work determines the association among diseases using the associated miRNAs. Maximum weighted matching approach is used to explore the bipartite network (miRNAs, diseases as nodes) interactions.
http://bnet.egr.vcu.edu:8080/dismira

JavaScript/jQuery. Bootstrap. d3js. PHP. HTML. CSS. MySQL. NetworkX.

miRegulome
miRegulome is an online repository for regulatory modules related to miRNAs. It is a unique miRNA repository with relationships to disease causing chemicals, affected genes, functions, and pathways presented in an interactive way.
http://bnet.egr.vcu.edu/miRegulome

JavaScript. Google visualization. PHP. HTML. CSS. MySQL.

Gender in Politics
GIP tracks women representation in Indian politics at regional (panchayat), state legislative assembly and parliament level from 1951 to 2015. The data has been scraped from the Election Commission of India website (eci.nic.in). This project will be expanded to support data from all countries in the world.
http://genderinpolitics.org

Python. Matplotlib. Pandas. Tableau. MySQL. WordPress.

MAP - MPs Attending Parliament
MAP tracks the attendance of Indian MPs (members of parliament) in the Lok Sabha. Data for twelve sessions between 2009-2012 has been parsed from the Lok Sabha website (loksabha.nic.in) and offers views at multiple levels of granularity such as gender, political party, and state.
http://opinionatedindian.org/MPAttendance

JavaScript. Bootstrap. d3js. Python. Mechanize. BeautifulSoup. HTML. CSS.

Crime in India
This project tracks all categories of crime in India. Data has been parsed from the National Crime Records Bureau website (ncrb.nic.in). An updated version is being worked upon and is scheduled for release at the end of Fall 2015.
http://crimeinindia.org/years.html

JavaScript/jQuery. Bootstrap. Google visualization. PHP. MySQL. HTML. CSS.

PUBLICATIONS

13) miRegulome: a knowledge-base of miRNA regulomics and analysis. Debmalya Barh, **Bhanu Kamapantula**, Neha Jain, Joseph Nalluri, Antaripa Bhattacharya, Lucky Juneja, Neha Barve, Sandeep Tiwari, Anderson Miyoshi, Vasco Azevedo, Kenneth Blum, Anil Kumar, Artur Silva, and Preetam Ghosh. Scientific Reports 5, Article number: 12832 (2015). doi:10.1038/srep12832. **Journal**.

12) Networks of interactions between feed-forward loop transcriptional motifs in gene-regulatory networks. M. Mayo, A. Abdelzaher, **B. Kamapantula**, E. Perkins, and P. Ghosh. In Proceedings of the 8th International Conference on Bioinspired Information and Communications Technologies, pp. 215-218. ICST (Institute for Computer Sci-

ences, Social-Informatics and Telecommunications Engineering), 2014. **Conference**.
11) Dynamical impacts from structural redundancy of transcriptional motifs in gene-regulatory networks. **B. K. Kamapantula**, M. Mayo, E. Perkins and P. Ghosh. In Proceedings of the 8th International Conference on Bioinspired Information and Communications Technologies, pp. 199-206. ICST (Institute for Computer Sciences, Social-Informatics and Telecommunications Engineering), 2014. **Conference**.
10) Feature ranking in transcriptional networks: Packet receipt as a dynamical metric. **B. Kamapantula**, M. Mayo, E. Perkins, A. Abdelzaher and P. Ghosh. In Proceedings of the 8th International Conference on Bioinspired Information and Communications Technologies, pp. 1-8. ICST (Institute for Computer Sciences, Social-Informatics and Telecommunications Engineering), 2014. **Best student paper award**. **Conference**.
9) **Bhanu Kamapantula**, Ahmed Abdelzaher, Sajal K Das, Preetam Ghosh. Quantifying robustness of biological networks using NS-2. "Modeling, Methodologies and Tools for Molecular and Nano-scale Communications" - Springer. **Book chapter - accepted**.
8) Joseph J. Nalluri, **Bhanu K. Kamapantula**, Debmalya Barh, Neha Jain, Antaripa Bhattacharya, Sintia S. de Almeida, Rommel T. Juca Ramos, Artur Silva, Vasco Azevedo, and Preetam Ghosh. "DISMIRA: Prioritization of disease candidates in miRNA-disease associations based on maximum weighted matching inference model and motif-based analysis", BMC Genomics 16, no. Suppl 5 (2015): S12. **Journal**
7) AR Santos, E Barbosa, K Fiaux, M Zurita-Turk, V Chaitankar, **B Kamapantula**, A Abdelzaher, P Ghosh, S Tiwari, N Barve, N Jain, D Barh, A Silva, A Miyoshi, V Azevedo. Pannotator: an automated tool for annotation of pan-genomes, Genet. Mol. Res 12 (2013): 2982-2989. **Journal**.
6) Joseph Nalluri, **Bhanu Kamapantula**, Preetam Ghosh, Debmalya Barh, Neha Jain, Lucky Juneja and Neha Barve. Determining miRNA-disease associations using bipartite graph modelling. ACM BCB 2013 - ACM Conference on Bioinformatics, Computational Biology and Biomedical Informatics. **Poster**.
5) **Bhanu Kamapantula**, Ahmed Abdelzaher, Preetam Ghosh, Michael Mayo, Edward Perkins, Sajal K. Das. Leveraging the Robustness of Genetic Networks: A Case Study on Bio-inspired Wireless Sensor Network Topologies, Journal of Ambient Intelligence and Humanized Computing, March 2013. **Outstanding paper award** in the *Department of Computer Science, VCU*. **Journal**.
4) Ahmed Abdelzaher, **Bhanu Kamapantula**, Preetam Ghosh and Sajal Das. Empirical Prediction of Packet Transmission Efficiency in Bio-Inspired Wireless Sensor Networks, Intelligent Systems Design and Applications (ISDA), 2012 12th International Conference on, vol., no., pp.705,710, 27-29 Nov. 2012. **Conference**.
3) Ahmed Abdelzaher, **Bhanu Kamapantula**, Preetam Ghosh and Sajal Das. A theoretical framework to quantify robustness in biological network topologies. Complex Network Dynamics: Cross-Disciplinary Tools for Modeling, Analysis, and Design. Workshop at the 14th International Conference on Distributed Computing and Networking (ICDCN), Mumbai, India, January 3-6, 2013. **Workshop**.
2) **B. Kamapantula**, A. Abdelzaher, P. Ghosh, M. Mayo, E. Perkins, S. K. Das. Performance of Wireless Sensor Topologies Inspired by E. coli Genetic Networks. In Proc. of the 8th IEEE International Workshop on Sensor Networks and Systems for Pervasive Computing (PerSeNS) in conjunction with the 2012 IEEE International Conference on Pervasive Computing and Communications, 2012. **Workshop**.
1) **Bhanu K. Kamapantula**, Ahmed M. Mahdy. Forecasting Red Tides Using a Novel Multi-Metric Adaptive Routing Algorithm in Underwater Wireless Sensor Networks, JCIS: Journal of Communications and Information Sciences, Vol. 1, No. 2, pp. 22-31, 2011. **Journal**.

Under preparation

1. Structural role of feed-forward loop motif in signal transduction within transcriptional regulatory networks, *Full paper.*
2. A measure to determine motif centrality within transcriptional regulatory networks, *Short paper, BICT 2015.*
3. The role of vertex-shared feed-forward loop motif in biological network robustness, *Full paper, BICT 2015.*

TALKS

3) **Exploring Biological Robustness using Wireless Sensor Network as a Prototype**
Ph.D. dissertation proposal — Fall 2014

2) **Introduction to Data Science**
Department of Computer Science, VCU — Fall 2014

1) **Performance of Wireless Sensor Topologies Inspired by E. coli Genetic Networks**
PerSenS (PerCom) 2012, Lugano, Switzerland — Spring 2012

ARTICLES

2) **Women in Parliament: Where does India figure among the rest of the World?**, Factly.in. Co-authored with Bhanupriya Rao and contributed visualizations. 7th March 2015

1) Contributed visualizations to **As Arvind Kejriwal's cabinet meets in Delhi, the one thing that makes AAP's government just like any other**, Scroll.in. 16th February 2015