Bharath Venkatesh – Curriculum Vitae

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		Email	bharath.venkatesh85@gmail.com
Date of Birth	8^{th} May 1988		
Nationality	Indian		

Research Interests

Machine Learning, Data Mining, Network Science, Bioinformatics.

Education

2015-current Advanced Masters in Artificial Intelligence - Katholieke Universiteit Leuven

Aggregate Percentage 69.52 (First Semester)

2010-2013 MSc(Engg) in Computer Systems - Indian Institute of Science, Bangalore

Aggregate GPA 6.2/8
Thesis: Fast Identification of Structured P2P Botnets using Community Detection Algorithms
Research Supervisor: Prof. N. Balakrishnan
Developed an efficient algorithm for the infrastructure level detection of Structured Peer-to-Peer Botnets based on graph clustering. The work resulted in a publication in a good computer security journal. Also contributed to research projects on malware analysis, network science and online social networks.

2006-2010 B.Tech in Mechanical Engineering - National Institute of Technology, Tiruchirappalli

Aggregate GPA - 7.87/10
Final Year Project: *Design and Analysis of a MEMS Microgripper* - S Grade (10/10)

2004-2006 AISSCE - Padma Seshadri Bala Bhavan, KK Nagar

Percentage - 91.2

Employment History

Aug 2013 - July 2015 SAP Labs India Pvt. Ltd. No 138, EPIP Zone, Whitefield, Bangalore, Karnataka, India
Research Associate - Bioinformatics, Data Mining, Internet of Things

- Worked on Topological Pathway Analysis. The work was aimed at augmenting gene expression data with gene-gene interaction graph data in order to identify and rank the most affected pathways in a differential expression experiment.
- Developed an extensible and comprehensive simulator to generate DNA reads with variants in order to benchmark Next-Generation Sequencing(NGS) Alignment and Variant Calling Algorithms.
- Worked on the implementation of a location based recommendation systems for a health and fitness smartphone application. The application collects user vital data and issues personalized nudges that encourages them to buy products and services offered by local businesses. I also worked on developing systems to gather user vitals using the cell phone. My contributions included -
  - Worked on an unsupervised technique to detect important places from the location history of a given user - Implemented a DBSCAN based clustering algorithm to identify location clusters and worked on time based heuristics to rank clusters
  - Implemented a pedometer based on the accelerometer data collected from the user, applied simple time domain signal processing techniques such as bias removal, low pass filtering and other heuristics to improve accuracy.
- Conceived, designed, architected end-to-end and lead implementation efforts for a low cost system to track the height and weight of children in rural areas in order to digitize child health records. Interfaced an ultrasonic sensor (to capture height) and a digital weighing machine with a mobile phone via an arduino and bluetooth.

Publications

Patil, Shailesh S., Bharath Venkatesh, and Randeep Singh. "From Differentiated Genes to Affected Pathways." bioRxiv (2016): 038901.
Venkatesh, B., Choudhury, S. H., Nagaraja, S., & Balakrishnan, N. (2015). BotSpot: fast graph based identification of structured P2P bots. Journal of Computer Virology and Hacking Techniques, 1-15, Springer Paris. DOI 10.1007/s11416-015-0250-2
Ravi, S., Balakrishnan, N. & Venkatesh, B. (2013). Behavior-based Malware Analysis using Profile Hidden Markov Models.. In P. Samarati (ed.), SECRYPT (p./pp. 195-206), : SciTePress. ISBN: 978-989-8565-73-0 DOI 10.5220/0004528201950206

Projects

Graffy: Developed a high performance, extensible graph library in C++ to handle large graphs in shared memory architectures. The library has a wide set of routines pertaining to graph clustering and centrality measures and can easily interface with other popular graph libraries.The library is available at GitHub.
Twitter Data Collection and Analysis: Platform built using PERL. Backend in MySQL, Schema designed to and currently handling billions of records, MySQL Server Tuning for optimum usage of main memory. Used this to analyze around a billion tweets to identify geographic response patterns of users to events, and user tweeting characteristics
Digital Image Processing based Stress Analysis: INAE Mentoring Program Internship at the Department of Applied Mechanics, IIT Madras. Employed Digital Photoelasticity and Digital Image Correlation to study stresses in the interface of a bi-material. Contributed to software for the same in C++ and used ABAQUS to carry out finite element analysis.
Vortex Tracking using Image Processing: Summer Internship at Department of Aerospace IIT Madras. This involved experimental work in fluid mechanics in the study of a vortex induced in a circular tube and development of an application in MATLAB which used Digital Image Correlation for pattern recognition and tracking.
Design and Fabrication of an All-Terrain Vehicle: Part of team which designed and fabricated an all terrain vehicle for BAJASAEINDIA 2009 race, Indore conducted by Society of Automotive Engineers (SAE) India.

Programming and Software Skills

Programming Languages: C/C++, Java, PERL, Python, PHP
Mathematical Environments and Packages: MATLAB, R
Mobile Development: Android
High Performance Computing: OpenMP, MPI, CUDA
CAD and FEM: AutoCAD, CATIA, ABAQUS, ANSYS
Miscellaneous Linux System and Network Administration

Awards and Other Achievements

GATE Computer Science: Obtained All India Rank 706 (99.3 percentile) in the Computer Science Stream of the Graduate Aptitude Test in Engineering 2010, that covers the syllabus of a four year bachelors course in Computer Science even though my undergraduate specialization was Mechanical Engineering.
Olympiads: Merit Certificates for good performance in Physics and Mathematics Olympiads at the High School Level

Hobbies and Interests

- **Graphic Design - Posters, Banners, T-Shirts and Web Design**
- **Trivia,Quizzing and Word Games**