

SURESH VENKATESWARAN

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Two years Postdoctoral Experience in Bioinformatics Research; Highly experienced in Protein and Nucleotide sequence and structure analysis, NGS data Analysis, DNA methylation, ncRNA, Machine Learning Approaches using PERL, R, Java, C, PHP, JAVA, UNIX Shell Scripting and MySQL Database

HIGHLIGHTS

- Strong knowledge in Bioinformatics including algorithm development, data management and analysis of NGS data, genome assembly and annotation, discovery and analysis of genetic variations from sequence data.
 - Developed various Bioinformatics tools/databases using Perl, Python, PHP, C, R, Unix Shell Scripting and LAMP architecture.
 - Expertise in Data analysis/mining from multiple TCGA consortium (e.g., SNP, miRNA, mRNA, DNA methylation, and Non-coding RNA (ncRNA) sequence and structure variations)
 - Large scale data analysis of protein and nucleotides sequence and structure data (NCBI, PDB, NDB, etc).
 - Familiar with publicly available bioinformatics tools, algorithms and databases (BLAST, ExpASy, LIBSVM, BioConductor).
 - Solid scientific proficiency, creativity, ability to collaborate effectively with others, and independent thought processes.
 - Working experience on TACC Stampede Linux based supercomputer to apply high-performance algorithms, statistical approaches and machine learning techniques
 - Strong communication, programming skills, statistical analysis skills.
 - High research productivity: Writing research proposals for grants; Articles for publication in peer scientific journals.
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EDUCATIONAL QUALIFICATIONS

Post-Doctoral Research Fellow WFBMC, Medical Center Blvd. Winston-Salem, NC, USA	2013-present
Ph.D. Bioinformatics Bharathidasan University, Tiruchirappalli, Tamilnadu, India	2009-2013
M.Sc. Bioinformatics Bharathiar University, Coimbatore, Tamilnadu, India	2006-2008
B.Sc. Plant Biology and Biotechnology Bharathiar University, Coimbatore, Tamilnadu, India	2003-2006

PROFESSIONAL EXPERIENCE

POST-DOCTORAL RESEARCH FELLOW 2013 – Present

Department of Bioinformatics and Systems Biology, WFBMC, Winston-Salem, NC, USA
Research Advisor: Professor Xiaobo Zhou, PhD

- Systematic approaches for Functional Annotation of non-coding RNAs using Protein and RNA sequence and structure information
 - RPI-Pred: A support vector machine (SVM) based ncRNA-protein interaction prediction method was developed using protein and RNA sequences and structural information, and the proposed method was tested with experimentally verified non-coding RNA protein interacting pairs.
- Working in different research projects including the analysis of NGS data, genome assembly and annotation, discovery and analysis of genetic variations from sequence data, and data management.
- NGS, DNA methylation, Disease associated with different cancers and prediction
- Data analysis from multiple sequencing applications (e.g., DNA variant calling, RNA-seq, ChIP-seq, CLIP-Seq)
- Highly experienced with Coding and Non-coding RNA (ncRNA) sequence and structure variation analysis, and SNP detection
- Helped with my research groups to write and submit research grants and to publish high impacted, peer-reviewed journals.

GRADUATE RESEARCH AND TEACHING ASSISTANT

2009- 2013

Bharathidasan University, Tiruchirappalli, Tamilnadu, India

Research Advisor: Professor S. Parthasarathy, PhD

- Development of Protein Blocks based in silico Tools related to a new Fold Recognition method for the Annotation of Twilight Zone Sequences
 - PDB-2-PB database - A curated online protein block sequence database with user friendly sequence retrieval systems. The PDB-2-PB was developed to extract the protein block sequences that corresponds all protein 3D structures available in PDB database.
 - SVM-PB-Pred server – A online support vector machine (SVM) based protein block (PB) prediction method was developed by using sequence profile (PSSM), actual and predicted protein secondary structures.
 - PredictFold-PB sever – Structural Classification Of Protein (SCOP) based PB fold library development and PB sequence based pair-wise alignment method for protein fold recognition for the annotation of twilight zone sequences.
 - Web servers for all the three methods are available at <http://bioinfo.bdu.ac.in/servers>.
- Mentored and trained Bachelors and Masters students for C, Perl, Linux Scripting for data parsing and database development.
- Instructed/supervised the students for online Bioinformatics software and database courses, designed teaching plan/syllabus, selected curriculum for programming labs.

JUNIOR RESEARCH FELLOW

Apr' 2008 - Dec' 2008

Bharathidasan University, Tiruchirappalli, Tamilnadu, India

Research Advisor: Professor S. Parthasarathy, PhD

- Large scale protein primary, secondary, tertiary structure analysis and functional class prediction using SVM machine learning approach
- Supervised B.Tech and M.Tech Bioinformatics students for C, Perl, Linux Scripting for data parsing and database development.

RESEARCH TRAINEE

May' 2007 - Jul' 2007

- Three months short term project entitled “Enhanced Functional Annotation of Proteins Encoded in the Human Genome” at Dept. of Molecular Biophysics Unit, Indian Institute of Science, Bangalore, India.

Dec' 2007 - Jul' 2008

- Six months Masters project entitled “Analysis of peptides in Cambridge Structural Database” at Dept. of Physics, Indian Institute of Science, Bangalore, India.

RESEARCH ACHIEVEMENTS

- PDB-2-PB - Developed an online curated Protein Blocks sequence database available at <http://bioinfo.bdu.ac.in/~pb/>
- PredictFold-PB - Developed a Protein Blocks based fold recognition server available at <http://bioinfo.bdu.ac.in/~psa/>
- SVM-PB-Pred - Developed a SVM based Protein Blocks prediction server available at <http://bioinfo.bdu.ac.in/~svmpbpred/>
- PDB-2-PBv.2.0 - An updated database for Protein Blocks sequences available at <http://ctsb.is.wfubmc.edu/projects/pdb-2-pb>
- RPI-Pred – RNA-protein interaction prediction server available at <http://ctsb.is.wfubmc.edu/projects/rpi-pred>

ACADEMIC ACHIEVEMENTS

- Two years (2012 – 2013) Senior Research Fellowship (SRF) at Dept. of Bioinformatics, Bharathidasan University funded by Council of Scientific and Industrial Research (CSIR), India Govt.
- One year (2010 - 2011) Senior Research Fellowship at Dept. of Bioinformatics, Bharathidasan University funded by Department of Informatics (DIT), India Govt.
- Two years (2008 - 2010) Junior Research Fellowship at Dept. of Bioinformatics, Bharathidasan University funded by Department of Informatics (DIT), India Govt.

PUBLICATIONS

- **Suresh V**, Ganesn K and Parthasarathy S. PDB-2-PB: A curated online Protein Block sequences database. *Journal of Applied Crystallography*, **2012**, 45, 127 -129. (Imp. fac. 5.8)
- **Suresh V**, Ganesn K and Parthasarathy S. A protein block based fold recognition server for the annotation of twilight zone sequences. *Protein & Peptide Letters*, **2013**, 3(20), 249-254. (Imp. fac. 2.0)
- **Suresh V** and Parthasarathy S. SVM-PB-Pred: SVM based protein blocks prediction method using position specific scoring matrix profiles and secondary structures. *Protein & Peptide Letters*, **2014**, 21(8), 736-742. (Imp. fac. 2.0)
- **Suresh V**, Liang Liu, Donald Adjeroh, and Xiaobo Zhou. RPI-Pred: Predicting ncRNA-protein interaction using sequence and structural information. *Nucleic Acids Research*, **2014**, 43(3),1370-1379. (Imp. fac. 8.8)
- Kerui Wu; Sambad Sharma; **Suresh V**; Keqin Liu; Xiaobo Zhou; Kounosuke Watabe, Non-coding RNAs in Cancer Brain Metastasis. *Frontiers of Biosciences*. (Imp. fac. 4.5). Accepted.
- **Suresh V**, Zhou X and Parthasarathy S. PDB-2-PBv.2.0: an updated database for Protein Block sequences. *Database*, **2015**, Submitted. (Imp. fac. 4.5)
- **Suresh V** and Xiaobo Zhou. Bioinformatics analysis of Protein-RNA interactions. *RNA*. **2015**. Submitted. (Imp. fac. 4.6)
- **Suresh V** and Keqin Liu, Xiaobo Zhou. ncRNA association study with DNA methylation on different cancer types reveals functional biomarkers. **2015**. (Manuscript under preparations)

ORAL PRESENTATIONS

- **Suresh V**, Ganesn K and Parthasarathy S. "Development of Protein Blocks based in silico Fold Recognition method for the Annotation of Twilight Zone Sequences" in International conference held on Jan' 2013 at Indian Institute of Science, Bangalore, India.
- **Suresh V** and Parthasarathy S. "PredictFold-PB: A Protein Block based Fold Recognition server for the Annotation of Twilight Zone Sequences" in the International conference held on Feb' 2011 at Annamalai University, Tamilnadu, India.
- **Suresh V**, Ganesn K and Parthasarathy S. "A Protein Block based Fold Recognition method for the Annotation of Twilight Zone Sequences" in the 'DBT 25th year Bioinformatics National conference' held on Feb' 2011 at the Centre for Bioinformatics, Pondicherry University, Tamilnadu, India.
- **Suresh V** and Parthasarathy S. "Annotations of Twilight Zone Sequences using Structural Alphabets" in International conference held on Jan' 2010 at Centre for Bioinformatics University of Kerala, Kerala, India.
- **Suresh V** and Parthasarathy S. "Protein Local Structure Prediction using Structural Alphabets" in International conference held on August 2009 at Holy Cross College, Tiruchirappalli, Tamilnadu, India.

CONFERENCE ABSTRACTS/PROCEEDINGS

- Presented a poster in one day workshop on "Statistics for Proteomics and Clinical Research [SPAC - 2012]" held on August 2012 in Bharathidasan University, Tamilnadu, India.
- Presented a poster in one day workshop on "Support Vector Machines – Applications on Identification of Protein and Gene Functions" held on September 2011 in Bharathidasan University, Tamilnadu, India.
- Presented a poster in three days national symposium cum workshop on "Recent Trends in Structural Bioinformatics and Computer Aided Drug Design [SBCADD-2010]" held on December 2010 in Alagappa University, Tamilnadu, India.
- Presented a poster in two days joint academies lecture workshop on "Structure, Function and Design of Biomolecules – SFDB-2010" held on January 2010 in Bharathidasan University, Coimbatore, Tamilnadu, India.
- Presented a poster in four days international conference on "Asian Pacific Bioinformatics Conference'08" held on January 2010 in JN Tata auditorium, Indian Institute of Science, Bangalore, India.
- Presented a poster in two days national level workshop on "Scholarly Information Access" held on October 2009 in Bharathidasan University, Tiruchirappalli, Tamilnadu, India.
- Presented a poster in two days national level seminar on "Current Trends in Bioinformatics Teaching & Research" held on February 2009 in Pondicherry University, Pondicherry, India.