NARAYANA LALITANAND SURAMPUDI

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SUMMARY OF QUALIFICATIONS

- Doctorate in chemical engineering with 6 peer-reviewed journal publications, 5 national conference presentations, student fellowship and distinguished graduate student award
- Extensive exposure on the data science life cycle including data collection, query, transform and analyze, record summary of findings, communicating strategic insight and presentation of results and documentation of the processes.
- Experience in statistical modelling, exploratory data analysis, descriptive statistics, data validation and preliminary data reporting analytics and visual representation of data.
- Deep analytical skills with proficiency in theory and applications of statistical analysis and machine learning algorithms, build predictive models, data analytics
- A collaborator who communicates in an open, clear manner, with excellent leadership, analytical, problem solving skills.

EDUCATION

- **Ph.D., in Chemical & Biomolecular Engineering** GPA 3.81/4.0 Aug 2015
  Tulane University, New Orleans, Louisiana
  Thesis Advisor: Dr. Henry S. Ashbaugh
  Dissertation: ***"Probing hydrophobic hydration of nonionic chains and micellar assemblies using molecular dynamics simulations"***

- **M.S., Chemical Engineering** GPA 3.89/4.0 Mar 2007
  University of Louisiana at Lafayette, Lafayette, Louisiana
  Thesis Advisor: Dr. R.D.K. Misra
  Dissertation: **"On the scratch deformation behavior of polymers and their composites"**

- **Bachelor of Chemical Engineering** GPA 72/100 Apr 2005
  Andhra University, Visakhapatnam, India

ACADEMIC HONORS

- IBM corporation fellowship in computational science (2010)
- Outstanding graduate student teaching award (2010)
- Distinguished graduate student award (2014)

WORK EXPERIENCE

Data Scientist Apr 2017 – Present
DMI, Bethesda, MD

- Lead a team of Statistical Analysts and Software Engineers to solve client business problems with data from conceptualization through development of Proof of Concept (POC), scaling and implementation.
- Develop Natural Language Processing (NLP) based application to process large amounts of unstructured text data in Big Data environment – Hadoop Ecosystem, Apache Spark, using Scala, Python and R languages.
- Build machine learning pipelines to automate data ingestion, feature extraction, model fit, training, testing and deployment of model into production
- Develop strategy and analytics platform to perform real-time social media analytics - opinion mining, sentiment analysis, context-based inference and topic modeling

Senior Statistical Analyst
Sep 2015 – Present

DMI, Cincinnati, OH

- Develop a Marketing Mix Model by identifying the key business drivers leading in impact on the sales revenue to maximize profit
- Perform exploratory analysis, data visualization, descriptive statistics and dimensionality reduction to prepare the data for a multivariate regression modeling
- Perform univariate correlation analysis and significance tests to identify the key predictors
- Determine the model accuracy and return on investment for each marketing segment based on the marketing mix model

Graduate Research Assistant
Jan 2010 – Aug 2015

Tulane University, New Orleans, LA

- **Optimization of linear and branched alkanes hydrophobic hydration in aqueous solution:** Conducted free energy calculations describing alkanes' phase equilibrium in aqueous solution. Developed program to iteratively test and minimize searching scale of parameters. Accomplished force field re-optimization and re-parameterization to produce calculated thermodynamic properties compatible with experiment
- **Direct evaluation of polypeptide partial molar volumes in water using molecular dynamics simulations**: Evaluate the volumetric properties of polypeptides in aqueous solution and determine contributions from individual groups, providing a route to estimate volumes of denatured coils using molecular dynamics simulations
- **Hydrophobic interactions between anionic surfactant and hydrophilic polymers**: Perform all-atom molecular dynamics simulations to determine free energy of association between sodium dodecyl sulfate micelles and polyethylene oxide and probe the surfactant-polymer interaction mechanisms

Validation Engineer
Jan 2009 – Dec 2009

Baxter Healthcare, Vernon Hills, IL

- Worked in an FDA regulated environment, planning and testing the ERP solution installation
- Applied GMP best practices, following FDA regulations, SDLC, performed risk assessment and maintain system in validated state
- Developed validation documentation for the project

Validation Engineer
May 2007 – Dec 2008

Zimmer Holdings, Warsaw, IN

- Worked for a major medical device manufacturing company, validating the SAP business applications
- Performed Computer System Validation risk assessment and identify governing regulations and validation deliverables during the installation of the SAP ECC system
- Responsible for coordinating installation, operational qualification of the configuration and functioning of the SAP system

Graduate Research Assistant
Aug 2005 – Apr 2007

Center for Structural and Functional Materials, University of Louisiana at Lafayette, Lafayette, LA

- Mechanical testing, failure mode analysis for the polymer composites including glass fiber reinforced Nylon 6,6, TPO, polyethylene and calcium carbonate reinforced composites
- Micro-structural morphology, structure-property-performance relations of reinforced polymers, optical and mechanical properties of polymer composites using microscopy techniques
- Effects of pressure and temperature on crystallization, mechanical properties for composites with varying percentage of filler materials

TECHNICAL SKILLS

- Multi-scale simulations of molecular systems with AMBER, GROMACS, GAUSSIAN packages
- Expertise in free energy calculations using, Window Sampling, Thermodynamic Integrations and Weighted Histogram Analysis Methods
- Expertise in High Performance Computing on Linux based clusters, multi-node parallelization with MPI, configuration and management of Beowulf type computing cluster

Experimental skills:

- Scanning Electron Microscopy (SEM), Atomic Force Microscopy (AFM), Light microscopy
- Differential Scanning Calorimeter (DSC), Twin screw extruder, hydraulic press, Impact Testing, Tensile testing, nano-indentation

Computer skills:

- Scientific Programming using C/C++, and scripting languages - Python, Perl etc.
- Fortran coding for analysis, Shell scripting, Bash, Linux/UNIX
- Documentation tools: MS Office, LaTeX, EndNote, SciFinder
- Analysis tools: R, MATLAB, Mathematica, Gnuplot
- Visualization tools: Chimera, VMD

JOURNAL PUBLICATIONS

- Ashbaugh, H. S., Weiss, K., Meng, B., **Surampudi, L. N.**, Temperature and Pressure Dependence of Methane Correlations and Osmotic Second Virial Coefficients in Water. *Journal of Physical Chemistry* **2015**, *119* (20), 6280–6294.
- **Surampudi, L. N.**; Ashbaugh, H. S., Direct Evaluation of Polypeptide Partial Molar Volumes in Water Using Molecular Dynamics Simulations. *Journal of Chemical and Engineering Data* **2014,** 59, 3130-3135.
- Franklin, J. M.; **Surampudi, L. N.**; Ashbaugh, H. S.; Pozzo, D. C., Numerical Validation of IFT in the Analysis of Protein-Surfactant Complexes with SAXS and SANS. *Langmuir* **2012,** *28* (34), 12593-12600.
- Ashbaugh, H. S.; Liu, L. X.; **Surampudi, L. N.**, Optimization of linear and branched alkane interactions with water to simulate hydrophobic hydration. *Journal of Chemical Physics* **2011,** *135* (5), 7.
- **Surampudi, N. L.**; Pesacreta, T. C.; Misra, R. D. K., The determining role of scratch indenter radius on surface deformation of high density polyethylene and calcium carbonate-reinforced composite. *Materials Science and Engineering a-Structural Materials Properties Microstructure and Processing* **2007,** *456* (1-2), 218-229.
- **Surampudi, N. L.**; Ramisetti, N. K.; Misra, R. D. K., On scratch deformation of glass fiber reinforced nylon 66. *Materials Science and Engineering a-Structural Materials Properties Microstructure and Processing* **2007,** *456* (1-2), 230-235.

CONFERENCE PRESENTATIONS

- "Direct Evaluation of Polypeptide Partial Molar Volumes in Water Using Molecular Dynamics Simulations" at the 2014 Annual Meeting, Nov 16 – Nov 21, Atlanta, GA
- "Molecular Dynamics Simulations of Polymer-Surfactant Interactions" at the 2013 AIChE Annual meeting, Nov 3 - Nov 8, 2013, San Francisco, CA
- "Hydrophobic interactions between sodium dodecyl sulfate surfactants and polyethylene oxide (PEO) and polyvinyl pyrrollidone (PVP) studied by molecular dynamics simulations" at the 245th ACS National Meeting and Exposition, April 7-11, 2013, New Orleans, Louisiana
- "The effect of stylus radius on scratch deformation of polyethylene and calcium carbonate reinforced composites" at the 7th Louisiana Materials and Emerging Technologies Conference in Baton Rouge on October 25, 2006
- "Surface deformation during scratching of mineral reinforced polymer nanocomposites" at Proceedings of Nanomaterials: Fabrication, Properties and Applications, TMS, Orlando, FL
- "Application of Bio-oxidation in the control of VOC/HAP emission and hazardous polluting agents" Chemcon-2004, Nov. 24-28, 2004, at the Indian Institute of Technology, Mumbai, India