
EDUCATION

- **Sri Venkateswara College, University of Delhi** Delhi, India
Bachelor of Science (Hons.) in Statistics; Aggregate: 77.37% *July 2014 – June 2017*

EXPERIENCE

- **Indraprastha Institute of Information Technology, Delhi** Delhi, India
Research Assistant (Advisor: Prof. Ganesh Bagler) *Aug 2017 - Present*
 - (Ongoing) Using **Bayesian hierarchical models** in conjunction with data on flavor, nutrition and disease associations of foods to statistically model the evolution of world cuisines.
 - Integrated the data of dietary factors (food and chemicals), their health consequences (diseases) and genetic mechanisms towards the development of a **database (DietRx; <http://cosylab.iitd.edu.in/dietrx>)**.
 - Created **machine learning pipelines** to predict the flavor of a compound using its molecular descriptors. Among these, those predicting the dichotomy of bitter-sweet taste were the most accurate and are documented in a research article (under review).
 - Developed a **machine learning web-server (BitterSweet; <http://cosylab.iitd.edu.in/bittersweet>)** with the functionality to predict bitter-sweet taste, sweetness intensity and linked bitter-receptors of a compound using its molecular descriptors.
 - Curated the data of foods and their flavor molecules from biomedical literature using **natural language processing**. The compiled dataset was used in the development of **FlavorDB** (<http://cosylab.iitd.edu.in/flavordb>), which is a (published) **database**.

June 2017 - July 2017

 - Created a **deep learning based text-mining protocol** to assimilate the beneficial and adverse disease associations of food items from biomedical research articles. Application of the pipeline for herbs and spices and subsequent analysis of the extracted associations ensued a research article (published). The code is now open-sourced and available on Github (<https://github.com/cosylabiiit/spice-disease-associations>).
- **Bobble AI Technologies** Delhi, India
Data Science Intern *Dec 2016 - Feb 2017*
 - Generated leads for content development through **text-analytics** on user feedback data.
 - Developed a host of **statistical- and machine-learning models** (n-grams, support vector machines, random forests, recurrent neural networks) for next-word prediction.
- **Safecity (NGO)** Mumbai, India
Assistant Data Scientist *Aug 2016 - Oct 2017*
 - **Spearheaded the Analytics team** consisting of 20+ data analyst volunteers through multiple initiatives to promote women safety.
 - Projects included - identification of **location- and time-based trends** in Safecity's crowd-sourced database of crimes against women, **monitoring incidents** of harassment on Twitter, and **safest route prediction**.

Feb 2016 - Aug 2016

 - Investigated the impact of tweet-content on user engagement through application of **inferential statistics**, **natural language processing**, and **statistical topic models** to help the social media team optimize their outreach strategy.

PUBLICATIONS

- **Tuwani R**, Wadhwa S, Bagler G (2018) BitterSweet: Building machine learning models for predicting the bitter and sweet taste of small molecules. bioRxiv 426692 (*preprint*)
doi: <https://doi.org/10.1101/426692>
- Rakhi NK, **Tuwani R**, Mukherjee J, Bagler G (2018) Data-driven analysis of biomedical literature suggests broad-spectrum benefits of culinary herbs and spices. PLOS ONE 13(5): e0198030
doi: <https://doi.org/10.1371/journal.pone.0198030>
- Garg N, Sethupathy A, **Tuwani R**, Rakhi NK, Dokania S, Iyer A, Gupta A, Agrawal S, Singh N, Shukla S, Kathuria K, Badhwar R, Kanji R, Jain A, Kaur A, Nagpal R, Bagler G (2018) FlavorDB: a database of flavor molecules. Nucleic Acids Research, Volume 46, Issue D1, 4 January 2018, Pages D1210D1216
doi: <https://doi.org/10.1093/nar/gkx957>

TEACHING ASSISTANTSHIP

Teaching Assistant to Dr. Ganesh Bagler for Chemoinformatics course (Winter Semester, 2018) at IIT-Delhi.

ACADEMIC PROJECTS

- **Predicting the Prices of Used Cars**
 - **Advisor:** Dr. Veena Budhraja
 - Scraped user-cars listings from eBay.
 - Built a linear regression model and subsequently used various statistical tests to investigate the presence of multicollinearity, heteroskedasticity, and autocorrelation.
- **Effects of Demographics and Social Life of Students on their Career Aspirations**
 - **Advisor:** Prof. Akash Varshney
 - Manually collected the data on age, gender, family income, education level of parents, number of close friends, amount spent on eating out, choice of major and other indicators relating to the demographics, social life and career motivations of undergraduate students at Sri Venkateswara College, University of Delhi, India.
 - Applied factor analysis towards unearthing the latent features driving students' career aspirations.

INDEPENDENT COURSEWORK

- **Machine Learning Engineer Nanodegree** from Udacity.
- **Learning From Data** by Dr. Yaser S. Abu-Mostafa (edX).
- **Analytics Edge** from MITx (edX).
- **Machine Learning** by Dr. Andrew Ng (Coursera).
- **Practical Deep Learning Part 1 & 2** from fast.ai.

PROGRAMMING SKILLS

- **Languages:** Python (proficient), R (proficient), JavaScript (familiar), bash scripting, SQL, \LaTeX .
- **Frameworks & Libraries:** Tensorflow, Keras, PyTorch, PyMC3, Scikit-learn, Pandas, NumPy, Caret, dplyr, SpaCy, NLTK, Matplotlib, Plotly, ggplot2, Flask.

ACHIEVEMENTS & OTHER ACTIVITIES

- **Analytics Head, BlueChip:** Co-founded the analytics division of BlueChip (Finance & Investment Cell) in August 2016. Guided 10+ group of students towards completion of various data science projects based on real-world data.
- Achieved the **3rd best score** in a national level healthcare hackathon organized by ZS Associates.
- **International fellow** at fast.ai for the course "Practical Deep Learning (Part 2)".
- **Technical Head** at the Fine Arts Associations, Sri Venkateswara College for the period 2015 - 2016.
- **3rd placed** finish at a national level Business Olympiad organized by Bombay Stock Exchange.
- Drummer, Guitarist, Fitness enthusiast.