VIBHA BELAVADI

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EDUCATION

The University of Texas at Dallas, **Richardson TX** GPA 3.71/4.00
MS/PhD Computer Science — Fall 2021 (expected)
Focus: Adversarial Machine Learning, Deep Learning, Data Privacy & Security.

Birla Institute of Technology and Science (BITS-Pilani), Rajasthan, India
B.E.(Hons.) Computer Science — Spring 2014

RESEARCH WORK

- MultiModal Deception Detection: Accuracy, Applicability, Generalizability; **IEEE TPS 2020;** *Vibha Belavadi*, et al. (UT Dallas & U.S. Army Research Lab).
- Attacking Machine Learning Models for Social Good; **GameSec 2020;** *Vibha Belavadi*, et al.
- Multi-Concept Adversarial Examples; **under submission;** *Vibha Belavadi*, et al.
- Reviewer for KDD, ACM CODASPY, IEEE TDSC, WebConf, PAKDD and SDM.

EMPLOYMENT

Data Scientist Intern, Swiss Re at Armonk, New York — Summer 2018
- Extracted relevant causal features that helped successfully predict the user's propensity for insurance enrollment more than 80% of the times.
- Performed feature engineering, synthetic data generation and dictionary creation using NLP and data science methods.

Software Engineer Intern, **SAP Labs** at Bengaluru, India — Fall 2013
- Designed & developed web services for SAP BusinessObjects and released in production.
- Wrote automation testing framework for BOUM2 backend to improve product quality.

SKILLS

- **Technologies:** TensorFlow, Keras, PyTorch, Python, Pandas, Spark, Java, Scala, R/R Studio, Scikit-Learn, OpenCV, MATLAB, SQL/NoSQL, Jupyter, Hadoop, HBase, Tableau, LaTex, Git.
- **Methodologies:** Object Oriented Programming, Functional Programming, Agile/Scrum.
- **Courses**: Deep Learning, Machine Learning, Data Structures & Algorithms, Databases, Computer Vision, Natural Language Processing, Data Science, Big Data.

ACADEMIC PROJECTS

- **Improving Loan Acceptance for social good:** Designed a cost formulation framework on the loan data that advised the users to change certain attributes in their loan application to get loan approval, with 90.4% success rate.
- **Preserving Privacy of Sensitive Attributes**: Generated adversarial artifacts and applied it on facial data to protect the Gender attribute. Achieved 100% attack success rate (misclassification of Gender) for 279 female and 266 male candidate images.
- **Human Expressions Detection**: Trained HAAR cascade classifiers in OpenCV to detect 'shh expression' and 'wink expression' in images and live video. Achieved 85%+ accuracy.
- **Web Search Engine for food**: Developed topic-based web search engine using Apache Nutch, Apache Solr, Apache Lucene Page rank/HITS, query expansion & clustering.
- **Probabilistic graphical modeling**: MCMC sampling, Bethe Free energy approximation, Loopy Belief Propagation, Approximate MAP inference, Gibbs Sampling, MLE & Bayesian Structure Learning using MATLAB.
- **Data Modeling and Analytics**: Implemented Monte Carlo Simulations, exploratory data analysis, data visualization, regression fitting, A/B Testing using null and alternate hypothesis, student-t test, and chi-square test, GBM and XGBoost models, K-Means clustering, PCA, One-hot encoding.