Dr. Chakravarthy R.V.K.

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Work Experience

Cognira **June 2023 – present**
Retail Promotions, Senior Data Scientist

- Devised scalable end-to-end recommendation system for retail goods using PySpark MLLib and SynapseML.
- Achieved 100% improvement in NDCG metric in comparison to vanilla frequency based recommendations.
- Enhanced promotion planning by analyzing cross-product interactions to identify halo/cannibal product pairs.

Intel - Georgia Tech (DARPA project) **May 2022 – May 2023**
Robust AI for Computer Vision, Graduate Research Assistant

- Developed robust defense against adversarial attacks on ground-based and overhead tracking in PyTorch.
- Improved accuracies of Faster-RCNN based single- and multi-object trackers by 10 and 15 pp respectively.
- Achieved 4x increase in computational throughput by optimizing function calls and variables within GPU.

Boeing - Research & Technology **Dec. 2017 – Jul. 2021**
Stochastic Regression, Aerodynamics Engineer III

- Built stochastic regression toolbox based on Gaussian process regression to fuse multiple data sources and provided quantitative estimates on uncertainty, resulting in significant reduction in aircraft certification costs.
- Supervised the integration of statistical modeling framework from Matlab into Python to achieve seamless interaction with Boeing's existing design tools, thus achieved multi-fold increase in the toolbox's reach.
- Formulated cross-functional research projects to meet the requirements of business and engineering units.

Education

Georgia Institute of Technology **Jan. 2022 – May 2023**
MS in Analytics - Data Science & Business Analytics, GPA: 4.0/4.0

École Polytechnique, France **Dec. 2012 – Dec. 2015**
Ph.D., Department of Mechanics, GPA: High Honors (Très honorable)
Title of the Thesis: Local and global instabilities in buoyant jets and plumes

Indian Institute of Technology Madras (IIT-M), India **Aug. 2007 – Jul. 2012**
Bachelor & Master of Technology (Dual Degree), Aerospace Engineering.

Projects

Automated Essay Scoring I, II **Machine Learning, Natural Language Processing**

- Developed supervised (neural networks) and unsupervised models (k-Means, GMM) based on BERT, RoBERTa, GloVe and Tf-Idf encodings to classify high-school essays using Kaggle datasets.
- Achieved 64% reduction in test error by varying language models and improved robustness across classes through multi-task learning, balanced re-sampling and data augmentation using auto-encoders.

Coca-Cola Pricing Strategy **Business Analytics Practicum**

- Identified pricing mismatch across sales channels to enable Coke achieve 10x growth in sales and become a market leader in Spain's still water market.
- Generated $1.4 million additional annual profit by ending Coke's ineffective price discounting strategy.

Airbnb Price Prediction **Regression Analysis**

- Developed multi-linear regression model to predict Airbnb listing price in NYC based on Kaggle dataset.
- Reduced prediction error by 50% through geo-location (ArcGIS) based feature engineering and model selection.

Crude Oil Price Prediction **Computational Statistics**

- Modeled crude oil prices as Hidden Markov Model and deduced the underlying hidden state representation.
- Discovered a weak correlation between the Markov hidden states and the public sentiment on crude oil (obtained by using FinBERT on news articles related to crude oil/energy).

Technical Skills and Leadership

- Refereed manuscripts for **J. Fluid Mech.** and **Physics of Fluids**, highly reputed peer-reviewed journals.
- **Programming:** Python, SQL, PySpark, R, PyTorch, OpenCV, CPLEX, Shell scripting, Matlab.
- **Data Modeling:** Linear regression, variable selection, random forest, boosting trees, PCA, clustering, sequence models (LSTM, RNN), time series (ARIMA, Prophet), Computer Vision, NLP, linear programming.