Akash Govindarajula

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EDUCATION

Northwestern University M.S. Artificial Intelligence (CS Specialization), 2019- 20 GPA: 4.0/4.0

Jawaharlal Nehru Technological University B.Tech. Mechanical Engineering, 2015 - 19 CGPA: 9.4/10

Notable Courses: Deep Learning, Statistical ML & Inference, Predictive Analytics, Multivariate Calculus, Optimization & Heuristics, Operations Research, Analytics Value Chain, Data Mining, Scalable Softwares, Data Structures, Information Theory.

SKILLS

- **Languages:** Python (TensorFlow, Keras, pandas, sklearn, numpy, Pytorch), SQL, Java, R, C++, Swift
- **Tools:** Shell, Excel, Git, Tableau, Hive, Spark, Postgres, MySQL, NoSQL, AWS, Kubernetes, Docker, MapReduce, GCP
- **Expertise:** Data Science, Neural Nets, Recommender Systems, A/B Testing (DoE), Probabilistic & Generative Models, Robotics, NLP

EXPERIENCE

Home Depot, Data Scientist - Capstone (Sep 2020 - Present) Chicago, USA

Data Science Practicum* (Apr - Jun 2020)

- Applied analytics/regression models to extract KPIs, outliers and improved its precision by 8%, integrating with kNN / **XGBoost**.
- Forecasted the sales performance and pricing/demand predictions at 95% accuracy, and deployed to use for data pipelines in US East.
- Expanded the models for 3500+ products, presenting a report to the regional director with insights and correlations (*SHAP/ALEs*).

Retail Analytics Council, **Data Science Intern** (June - Sep 2020) Chicago, USA

- Evaluated store KPIs, transactions to filter and identify deal-prone customers, offer impacts, and brand-switch for 33M data records.
- Designed analytics models for customer **churn** and segmentation, and detailed changes to grow the retention by **28%** in 7 geo-zones.
- Implemented A/B Tests and clustering to explore demand, price elasticity, and proposed strategies to enhance Q3 returns/conversion rates.

IIT Hyderabad, Machine Learning Intern (May - Aug 2018) Hyderabad, India

- Conducted ARIMA, AR **time-series** on Apple, Microsoft, and NSE stocks, to forecast profit margins and returns with 87% accuracy.
- Cross-validated the APR, Sharpe results of the backtesting analysis, with results of **B-LSTMs** (*SPY quotes and benchmark metrics*).
- Employed **Monte Carlo** analysis on y-finance, to calculate stock payoffs and predict early-calls for various long-term portfolios.
- Harnessed CNNs to determine shelf-life and machine deformation rate from noisy images, at an exceeding **93%** accuracy.

Larsen and Toubro, Data Science Intern - Robotics (Nov 2017 - Jan 2018) Tokyo / Chennai

- Spearheaded a team of eight trainees (*on-site and Tokyo*), to optimize sensor efficiency and performance of industrial robots by **45%**.
- Automated production with dashboards designed on Excel/**SQL**, to multiply rotor sales and capacity planning workflows.
- Analyzed CNC machinery by logistic regression, and cut down oil discharge by 18% and operational expenses by 60% (***$8,500** savings/year*).

Tata Consultancy Services, **Machine Learning Intern** (May - July 2017) Hyderabad, India

- Led a team of five, to develop image classifier apps for defect-recognition in surgical tools, made with TF modules and RESTful APIs.
- Built chat-and-voice-bots (*api.ai*) in parallel, while collaborating with clients' product team for scaling & fund approval of classifier app.
- Reduced operational/test times by 20% for final app, and presented a *Kaizen* report to senior partners at TCS (*now used by **175+** employees*).

PROJECTS & RESEARCH

- Cycle-GAN: Implemented denoising and non-parallel voice conversion with PyTorch, achieving high resolution and MOS scores. Scaled the models to AWS and Docker, with pre-trained ResNet weights, fine-tuned PatchGANs, and 2-1-2D CNNs, attaining error rates < 0.17.
- Wiki/News Parsing and BERT-QA: Utilized feed-forward neural nets to extract data from news articles, expanding to create attention-based encoder-decoder models. Improved accuracy by 30%, by parameter tuning for perplexity/loss functions. Ensembled the models with **BERT**, for QA and NER tasks, and submitted the results for publication. [**report**]
- AWS Sales Analysis: Inspected purchase patterns by (*SVM, Random Forest, k-means*) PCA across 0.14 M records. Attained 92% accuracy for feature engineering forecasts, and **published**[1] results in JARDCS. Presented a **white paper** listing changes to minimize lead response times.
- Chicago Police Project: Analyzed allegations/repeat-offenders in the force, by **Spark** & Postgres queries. Built a violence map in Tableau/D3, generated by **LDA** topic modeling (*nltk*) on compliant records. Achieved high f1-score of **0.84**, surpassing the advisor's expectations. [**report**]
- Autonomous Car Projects: Harnessed **CNNs** to analyze and calculate speed, localization, and obstacle response times from video data and real-time. Simulated various driving and ADAS traversals in Matlab, and evaluated the parameters with **statistical** models.
- Others: Explainable Semantic Systems, **Thomson Reuters** Capstone, Airbnb Rentals Analysis, iOS ML Projects (Sentiment analysis/GANs).

***** (More projects available at Technical Portfolio and https://github.com/gvsakash)

HONORS AND PUBLICATIONS

- Paper[1]: Effective Analysis of Sales Dataset using Advanced Classifier Techniques, JARDCS, ISSN1943-023X, Oct 2019. [**PDF**]
- Certificate of Academic Excellence, Dean's List, and Merit Scholarship for all semesters. **1st** in ME class of 2019 and at NU.
- Technical Advisor / Board Member in SAE, IEEE, and Robotics Club. Delegate at IEEE-CS and NVIDIA-GTC conferences.