**Siddharth Bisht**

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## Experience

**1. American Express, Gurgaon IN**

**Assistant Manager, US Consumer Credit Risk Modeling : Jan'23 - Present**

- Currently developing the next generations of Liquidity Risk Models for our US Consumer Portfolio of more than 40 million Credit Cards for Credit Authorization at Point of Sale and Credit Extension.
- Sole owner of the US Consumer Fair Credit Reporting Act workstream for Credit Limit Addition on No Limit Cards, Revolve Card Limit Management & New Account Applications ensuring sufficient Model Explainability for High risk customers to enable exposure control via strategy and policy decline.
- Led the model pruning and feature selection exercise for the 2023 US Consumer Risk Models to remove redundancy attributed to archaic definition, platform migration and unintuitive customer default rank correlation.
- Performed contrastive analysis on data mixes to identify best credit vintages that yield robust risk scores across emerging recessionary segments in the portfolio.
- Rationalized multiple alerts as part of the Model Interpretability Regulatory Guideline justifying model sensitivity, non-linearity, rank and partial dependence plot misalignment as well as shapely interaction for modeling variables related to internal payment medium, Credit Bureaus, Limit Utilization among others.
- Conducted root cause analysis and reviewed AmEx Platinum & Centurion Defaults to identify opportunities for newer variables, data sources, negative effect of missing being treated as absence and suggest enhancement in variable lookback.
- Assessed impact of Credit Limit assignment of prospects and existing customers on the Liquidity risk at similar AR and Average Daily Balance to verify that within defined constraints a higher line doesn't necessarily correspond to higher risk.

**Analyst, International Consumer Credit Risk Modeling : May'22 – Dec'22**

- Tracked model performance & response to delinquency for 24 International Consumer Markets while closely collaborating with multiple CCOs to incorporate any Ad Hoc business segment including but not limited to Small Business Owners (UK), CRIF Only Population (Italy), Deferred Payment Plan (Mexico), Flexible Payment Option (Canada) etc.
- Performed few stress assessments on the 2022 Risk models like
  - to measure sensitivity of the risk scores to a (1,2) standard deviation change in variable value
  - to estimate the effect of increasing paydown (& related variables) by X%.

**2. IBM Consulting, Bangalore IN**

**Associate Data Scientist, Microsoft Azure : Sep'20 – Apr'22**

- Led the development effort and reporting for IBM's Global Azure Team using Machine Learning and Azure Cloud (Subject Matter Expert for Azure Cognitive Services & Microsoft Power Platform).
- Collaborated with IBM US AI Elite Team & a Non-Profit Financial Service Organization to identify Debt Vulnerability in low income US population.
  - Analyzed Per User Transactions from PLAID to detect anomalous spending behavior, effect of Non-Profit on User Behavior,
  - Worked on Credit Modeling to quantify Likelihood of Debt and performed Correlation Analysis over Baseline, 6 Months and 12 Months to detect changing relationships between various features.
- Developed a Hierarchical Risk Audit Model (Text Classification, Similarity Search) for a Medical Device Manufacturing Client for Automatic Document Content Validation & processed ~100K Documents leading to 50% cost saving ($200-300 K per year) in the Manual Audit. Utilized Python, DistilBERT, Multinomial Naïve Bayes for the same.
- Designed a Recommendation Engine Pipeline using Autoencoders, OpenCV (for Image Augmentations) and Approximate Nearest Neighbor Search to recommend Icons for IBM's Carbon UI Design System when given an input drawing.
- Built a Name Matching Model using Ensemble of Locality Sensitive Hashing Learners and reduced inference time ~ 0.03 seconds per query.
- Created an Email Intent Identification Model and a Process Routing Pipeline (OCR, Document Classification, Key Value Pair Extraction) for asynchronous Email (with Attachments) Processing using

Power Automate, Azure Cosmos DB and Azure Form Recognizer, ~ 0.45 seconds per document (parallel execution).
- Developed Entity Extraction Model using NLP and designed the Database Pipeline to extract and process ~100 entities from Letter of Credit Documents for a large scale Steel Manufacturing Client using IBM Watson Discovery.

**Data Scientist Intern, Document Digitization : Jan'20 – Jul'20**

- Led the Synthetic Data Generation Project for Key Data (Commercial Invoices) and developed a Sequence Matching and Classification model using N-Gram Language Modeling, Laplacian Smoothing and LSTMs thereby reducing Misclassifications and Missed Detections by 30%.

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## Publications

System and Method of Automatic Generation of Syntactic and Semantic Glossary in Invoice Processing *(IBM Intellectual Property IP.com · Jan 31, 2021)*

## Personal Projects

- Topic Modeling using Hierarchical Agglomerative Clustering
- Denoising Diffusion Probabilistic Model

## Certifications & Courses

- IBM AI Certified Associate Data Scientist (Issued 01 Jul 2021)
- AWS Certified Machine Learning – Specialty (Issued 12 Apr 2021)

## Education

NIIT UNIVERSITY Rajasthan, IN

B.Tech., Computer Science with Specialization in Data Science. GPA 8.31

2016 - 2020

## Skills

Technical : SAS, Python Data Science Stack: Pandas, NumPy, Matplotlib, Seaborn, Scikit-learn, TensorFlow, Keras, PyTorch, SciPy, NLTK, Spacy

Big Data : PySpark, Hive

Database : MongoDB, SQL, Redis

Reporting : Power BI

Devops tools: Docker, Git

Cloud : Microsoft Azure (Azure Serverless Functions, Azure Machine Learning, Azure Web App service, Azure Cognitive Search, Azure Cognitive Services for NLP and Computer Vision, Azure Cosmos DB, Azure SQL Server), IBM Cloud (Watson Machine Learning Studio, Cloud Pak for Data, Watson Discovery, Watson Knowledge Studio, Watson Auto AI)

Language: Fluent English & Hindi and Beginner Japanese (N5 Certified)