Arun Kumar

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Education

Stony Brook University **Aug 2021 - Dec 2022 (exp.)**
Master of Science in Computer Science *Stony Brook, NY*

Indian Institute of Technology (BHU) Varanasi **Jul 2013 - Jun 2017**
Bachelor of Technology: CGPA 8.4/10 *Varanasi, India*

Relevant Coursework

Data Structures, Algorithms, System fundamentals (Intro to C and Operating Systems), Computer Vision

Experience

American Express **Jul 2019 - Jul 2021**
Data Scientist/Risk Analyst *Gurgaon, India*

- Credit Risk Modeling: Responsible for building, maintaining and deployment of Amex's critical Total Structural Risk and Credit Default Scoring System (CDSS, transaction authorization) models using gradient boosting. Responsible for assessing new data sources, like home equity, commercial bureau info, bank statements, cellular data and changes in bureau scores versions on Amex's proprietary models.
- Consumer Default Definition - Revamped Amex's pre-existing default definition by discounting pre-emptive customer cancellation from the objective function for international markets. The proposed modification significantly increased the PD model's sensitivity to true defaults, reduction in write-off losses, and improved customer experience, with an expected incremental impact of 6M USD over 2 years.

EXL Analytics **Sep 2017 - Jul 2019**
Analytics Consultant *Gurgaon, India*

- Digital transformation: Automated the campaigns measurement using VBA. The tool now provides an extensive report, with functionality to segment performance on financial/risk attributes and significance testing of KPIs.
- A/B Testing and Test-Control Design: Designed Testing Framework to compare the performance of card activation sticker (promoting different channels of activation online/offline) and email marketing campaigns, servicing campaigns and push notifications using uplift modelling.

Technical Skills

Languages: C/C++, Python, SAS, SQL, Valgrind, GDB Debugger, HIVE, pyspark
Skills: Machine learning, Data Structures and Algorithms, A/B Testing, Risk Modelling, Computer vision

Projects

- Seam Carving: Implemented "Seam Carving for Content-Aware Image Resizing" paper by Shai Avidan (2007) in opencv(python) that supports content-aware image resizing for both reduction and expansion of images using dynamic programming for selecting the optimum seam.
- Compression Utility in C: Wrote a command line utility to perform compression of a data stream by applying the "move-to-front transform", followed by Fibonacci coding. MTF was implemented using tree data structure and input/output using bit-wise manipulations and the use of pointers.
- Dynamic memory allocator in C: Implemented segregated free list allocator for the x86-64 architecture which does free, malloc and realloc. Allocator has supports immediate coalescing of blocks on free with adjacent free blocks, boundary tags to support efficient coalescing and free lists maintained using last in first out (LIFO) structure.

Academic/Extracurricular

- Recipient of MCM Scholarship by IIT BHU Varanasi (Full tuition fees waived).
- Research paper on "Study of path instability of a rising oil droplet using PIV" selected for poster presentation at ICTAM'16 Canada.
- Secured All India Rank (AIR) of 2665 (Top 99.8 percentile) in IIT JEE Advanced examination 2013.
- School Valedictorian for scoring highest marks in AISSCE Examination (Class XII).