Amanpreet Singh

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Education

- **Stony Brook University** — New York, U.S.A.
  Master of Science in Computer Science; GPA: 3.97 — *2019 – 2021*
  - **Courses**: Analysis of Algorithms, Probability & Statistics, Data Science, Natural Language Processing
- **University of Mumbai** — Mumbai, India
  Bachelor of Engineering in Information Technology; First Class with Distinction (73%) — *2011 – 2015*
  - **Courses**: Data Structures and Algorithms, Operating Systems, Discrete Mathematics, Databases

Experience

- **SS&C Intralinks** — Boston, MA
  Machine Learning Engineer (NLP) — *May 2020 – Dec 2020*
  - **Abstractive Summarization**: Business document summarization system built on deep learning and REST frameworks:
    1. Curated and published a dataset of 18k open access business articles with their abstracts as summaries.
    2. Improved ROUGE score of SOTA seq2seq models like BART and T5 by more than 10 points via fine-tuning.
    3. Built a custom encoder-decoder to compress larger inputs by 50% and avoid out of memory issue during training.
    4. Adapted the fine-tuned model to ONNX quantization format reducing its size by 75% and inference time by 30%.
    5. Flask based service to return the raw abstractive summary with the salient parts of the PDF highlighted.
- **J.P. Morgan Chase & Co.** — Mumbai, India
  Senior Software Development Engineer — *Feb 2018 – Aug 2019*
  - **Data Access Control System (DACS) Authentication**: Authorised access to live prices over JMS based metafluent queue. Crucial in helping the firm avoid audit issues and reduced subscription costs per trader by 50%.
  - **Trader Analytics**: Introduced statistical enhancements in the core application such as absolute and percent variance, market share and standard deviation of historical stock prices to aid in trading decisions.
  - **Memory Optimization**: Application heap usage profiling and G1 Garbage Collection tuning through careful analysis of humongous allocations resulting in 80% fewer memory related issues.
  - **Real-Time Pricing**: Developed a component using Spring, REST, JMS and TDD principles that approximates real-time risk using live prices; and publishes them out. It helped retire a legacy system saving the firm ∼$250k.

  Software Development Engineer — *July 2015 – Jan 2018*
  - **Risk Management System**: Worked extensively on the core app used by traders for visualizing and hedging risk:
    1. Optimized the trades feed using LMax Disruptor, a low latency Java queue for upto 20% faster trades processing.
    2. Framework to validate critical live market data results which reduced manual testing effort by 90%.
    3. Mechanism to switch from a MongoDB replica set to standalone instance in the event of a data center failure.

Technical Skills

- **Languages**: Java, Python, Unix Shell Scripting, SQL
- **Frameworks**: Spring, Spring-Boot, Swagger, JUnit, Mockito, Java MBeans, Flask, Pandas
- **CI Tools**: Git, Jenkins, Gradle, Team City, Bitbucket, Ant
- **Databases**: Sybase ASE, MongoDB, MySQL

Projects

- **Online Toxicity**: Deep learning model for identifying Toxicity/Hate in Wikipedia Comments.
- **Email Template Generator**: Built on the handlebars framework, creates templates to send out reactive email alerts.
- **Machine Learning/NLP**: Chess ELO rank predictor, Startup Acquisition, sequence labelling in system specifications
- **Pratham NGO**: A system to keep track of the underprivileged students supported by the NGO. Migrated data from Salesforce to Azure SQL using Pentaho Kettle and developed a Java utility for reporting faulty data.
- **Reliable UDP**: Server-Client Exchange with Checksum validation and re-transmission in case of corrupt data.
- **Physual**: Text to scene system to visualize Mechanics problems using NLP, Java 3D and Blender Models.