Indrajeet Aditya Roy

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EDUCATION

Iowa State University **Aug 2018 - May 2022**

Bachelor of Science, Software Engineering

Northeastern University **Sept 2023 - Present**

Master of Science, Computer Engineering (Artificial Intelligence & Machine Learning concentration)

Coursework: Supervised ML, Unsupervised ML, Artificial Intelligence, Deep Learning, Info Retrieval, Data Mining, Natural Language Processing

SKILLS

Programming Languages: Java, Python, C, C++, R, Elixir, Ruby, Javascript, Typescript, HTML5 & CSS3, Kotlin

Python Libraries: Pandas, Numpy, Matplotlib, Seaborn, Tensorflow, Keras, Scikit-image, Scikit-learn, Scipy, Pytorch, NLTK, XGBoost

Web Dev Framework/Libraries: Django, Flask, React (Axios, Apollo, Redux, ReactQuery), Next.js, Node.js, Rails, Spring, Spring Boot

Mobile Development Libraries: Android (Retrofit, Glide, Hilt/Dagger, Room, RxJava, Coroutines, Moshi, LiveData, ViewModel)

Database Systems: Relational (MySQL, PostgreSQL), NoSQL(DynamoDB, Redis)

Dev Tools/Applications: Version Control **(**Git, GitBucket), Jenkins, Docker, Docker-compose, VirtualBox, Maven, Kafka

Cloud Platforms: AWS (API Gateway, Lamda, EC2, DynamoDB, RDS, S3, SQS, CloudTrail)

PROJECTS (www.indrajeetroyportfolio.com)

Neural Network Optimization for Minimized Error Probabilistic Classification

- Implemented softmax and ReLU activated feed forward neural networks using tensorflow.
- Trained neural networks for posterior probability estimation and MAP classification to reduce classification error.
- Utilized Scikit-learn for iterative refinement, hyperparameter tuning, and model evaluation.

K-Means Clustering & Document Classification

- Utilized scikit-learn to cluster 18,000 newsgroup posts into 20 topics using K-Means clustering
- Employed TF-IDF for feature extraction and PCA for dimensionality reduction.

Q-Learning with ε-Greedy Exploration

- Implemented Q-Learning with an ε-Greedy strategy within an OpenAI Gym grid environment.
- Utilized Stable Baselines for efficient learning algorithms.
- Utilized TensorFlow and PyTorch for training and optimizing convolutional neural networks (CNN's) for Q-function approximation.

Bayesian Vehicle Location Optimization in 2D space

- Optimizing positional accuracy in a 2D space using Bayesian techniques such as range measurements and MAP estimation.
- Utilized Scipy and NumPy for computation and probabilistic analysis.

EXPERIENCE

The RealReal (San Francisco, CA) **June 2022 – Aug 2023**

Software Engineer

Project: ***"Pricing Estimator & Customer360" - User data aggregation & analytics tool***

Objective: Optimize data-driven decision-making based on user profile, preferences and behavior.

Action: Developed microservices for concurrent, real-time analysis and aggregation from multiple data sources. Implemented search mechanism for querying and search. Developed cache validation strategies for real-time data synchronization and verification.

Impact: Increased user traffic and product revenue by 30% post feature launch.

Project: ***Engineering Org Feature Flag Vendor Migration***

Objective: Transition engineering org feature flag service vendor from LaunchDarkly to Harness.

Action: Developed data migration pipeline for automated fetching, transformation, and re-deployment of feature flag configurations between the two platforms. Implemented JSON schema-based data validation to ensure the consistency and integrity of feature flag settings.

Impact: Achieved org vendor cost optimization; streamlined system transition for developers.

Project: ***"Get Paid Now" - User facing consignment product***

Objective: Boost user consignment traffic.

Action: Implemented automated consignment processing pipeline with real-time valuation and status updates via microservices for concurrency and event-driven notifications. Implemented search using OpenSearch and Algolia, integrated into a React client built using Axios, Apollo, Redux etc.

Impact: Increased user consignment traffic and user retention rates post feature launch.

The RealReal (San Francisco,CA) **June 2021 – Aug 2021**

Software Engineering Intern

Transitioned The RealReal web platform from Elixir Phoenix framework to a React ecosystem. Utilized (Redux, Axios, Apollo), Next.js for server-side rendering and static generation, Webpack for bundling and asset optimization and Jest for unit testing. Increased user traffic and retention post refactor.

Carlin Fit (Philadelphia, PA) **May 2020 – Aug 2020**

Software Engineering Intern

Developed ios/android mobile app for communication and pairing with UV light hardware component utilizing Swift (iOS), Java/Kotlin (Android), Python (API). Fully functional Beta versions of the app were available on Android/ios platforms.

RESEARCH

Deanonymization and Denial-of-Service (DoS) attacks against decentralized networks. (View Paper)