Indrajeet Aditya Roy

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EDUCATION

Northeastern University, Boston, MA   **Sept 2023 - May 2025**
Master of Science, Computer Engineering (Artificial Intelligence & Machine Learning) GPA: 3.89
Coursework: Supervised ML, Unsupervised ML, Ensemble Learning, Deep Learning, Reinforcement Learning,Data Mining, NLP

Iowa State University, Ames, IA   **Aug 2018 - May 2022**
Bachelor of Science, Software Engineering

SKILLS

Programming Languages: Java, Python, C, C++, R, Elixir, Ruby, Javascript, Typescript, HTML & CSS, Kotlin
Python Libraries: Pandas, Numpy, Matplotlib, Seaborn, Plotly, Scrapy, Requests, Sql-alchemy
ML Libraries: Tensorflow, Keras, Scikit-learn, Scikit-optimize, Scipy, PyTorch, SpaCy, NLTK, XGBoost, PyCaret, HuggingFace
ML Ops: MLFlow, Weights & Biases, Prometheus, Grafana
Web Development: Django, Flask, React (Axios, Apollo, Redux, Redux-toolkit), Next.js, Node.js, D3.js, Rails, Spring, Spring Boot
Mobile Development Libraries: Android (Retrofit, Glide, Hilt/Dagger, Room, RxJava, Coroutines, Moshi, LiveData, ViewModel)
Databases: Relational (MySQL, PostgreSQL), NoSQL(DynamoDB, Redis)
Dev Tools/Applications: Git, Jenkins, Docker, Docker-compose, Kafka, Apache Spark, Algolia, Datadog, Bugsnag
Cloud Platforms: AWS (API Gateway, Lamda, EC2, DynamoDB, RDS, S3, SQS)

PROJECTS (www.indrajeetroyportfolio.com)

- **Neural Network Optimization for Minimized Error Probabilistic Classification**
  - Implemented softmax and ReLU activated FNN using Tensorflow
  - Trained FNN for posterior probability estimation and MAP classification to reduce classification error
  - Utilized Scikit-learn for iterative refinement, hyperparameter tuning, and model evaluation
- **News Article Classification**
  - Utilized Scikit-learn to classify 18,000 news posts into 20 topic groups 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 learning algorithm implementation
  - Utilized TensorFlow and PyTorch for training and optimizing CNN for Q-function approximation
- **Bayesian Vehicle Location Optimization in 2D space**
  - Optimized 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: Customer360 - User data aggregation & analytics tool**
  - Optimized data-driven decision making based on user profile, preferences and behavior insights
  - Developed API microservices for concurrent, real-time analysis and aggregation from multiple data sources. Integrated Algolia indexing and querying for search mechanism. Implemented caching using Redis for real-time data sync and verification.
  - Achieved consolidated user data single source of truth, optimizing efficiency and precision of data analytics and generated insights.
- **Project: Engineering Org Feature Flag Vendor Migration**
  - Transitionioned engineering org feature flag service vendor from LaunchDarkly to Harness
  - Developed data migration pipeline for automated ETL and redeployment of feature flag configurations between the two platforms. Implemented JSON schema-based data validation to ensure the consistency and validity of feature flag settings.
  - Achieved org vendor cost optimization and streamlined system transition for developers
- **Project: Get Paid Now - User consignment program**
  - Developed API microservices for creating an automated consignment processing pipeline to support React frontend. Integrated Kafka for real time event-driven data processing and notifications. Implemented search using OpenSearch and Algolia, integrated into a React frontend built using Axios, Apollo, Redux and Next.js.
  - Increased user consignment traffic and user retention rates post feature launch

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

- Refactored The RealReal web platform and optimized lighthouse score.
- Migrated Elixir Phoenix framework to a React ecosystem using Redux, Axios, Apollo,, Next.js for server-side rendering and static generation, Webpack for bundling and asset optimization and Jest for unit testing.

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 using Swift (iOS), Java/Kotlin (Android) and Python Flask (API). Successfully implemented fully functional beta versions of the ios and android platforms.

RESEARCH

- Mitigating Deanonymization and Denial-of-Service (DoS) Attacks in Decentralized Networks (View Paper)