

# 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, Sqlalchemy

**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, Lambda, EC2, DynamoDB, RDS, S3, SQS)

## PROJECTS ([www.indrajeetroyporfolio.com](https://www.indrajeetroyporfolio.com))

- **Neural Network Optimization for Minimized Error Probabilistic Classification** (Northeastern University)
  - 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** (Northeastern University)
  - 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  $\epsilon$ -Greedy Exploration** (Northeastern University)
  - Implemented Q-Learning with an  $\epsilon$ -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** (Northeastern University)
  - 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
  - Implemented search mechanism using Algolia for indexing and querying
  - 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**
  - Migrated 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 companion app and API services to interface with the UV light hardware device component of the Purple-Bug UV ride-share cleaning product using Swift for iOS (UIKit, Core Data, Core Bluetooth), Java/Kotlin for Android (Android SDK, Retrofit, Glide, Room, RxJava, Coroutines) and Python Flask for API

## RESEARCH

- Mitigation techniques against deanonymization and denial-of-service (DoS) Attacks in Decentralized Networks ([View Paper](#))