Indrajeet Aditya Roy

Boston, MA | 2672699650 | indrajeetadityaroy9@gmail.com | www.linkedin.com/in/indrajeet-aditya-roy | www.indrajeetroyportfolio.com

Education

Northeastern University | **MSECE (AI & ML)** | **GPA: 3.89** | *September 2023 - May 2025* | Boston, MA
- *Coursework: Machine Learning, Deep Learning, Reinforcement Learning, Natural Language Processing, Unsupervised Data Mining, LLM-based Dialogue Agents, Data Visualization, Parallel Data Processing, Applied Probability and Stochastic Processes*

Iowa State University | **BSECE** | *August 2018 - May 2022* | Ames, IA
- *Coursework: Data Structures and Algorithms, Distributed Systems, DBMS, Object Oriented Design, Large Scale Data Analysis, Software Architecture*

Technical Skills

- **Languages:** Java, Python, Ruby, R, Elixir, JavaScript, TypeScript, HTML, HTML ERB, CSS, C, C++, GraphQL
- **Python Libraries:** Pandas, Numpy, Matplotlib, Seaborn, Plotly, Pydantic, Psycopg2, Functools, Statsmodels, Scrapy, Requests
- **Machine Learning Libraries:** Keras, Tensorflow, PyTorch, Skorch, Scikit-learn, Imbalanced-learn, SpaCy, NLTK, Gensim, Scipy, Peft, Transformers, Optuna, Hyperopt, Featuretools, PyCaret, Prophet, RLlib
- **LLM Application Tools**: LangChain, LangSmith, LangGraph, Rasa, LlamaIndex, Faiss, Redis
- **Web Development:** Ruby on Rails, Elixir Phoenix, Django, Flask, FastAPI, React, Axios, Apollo, Redux, Redux-toolkit, Next.js, Node.js, Tailwind CSS
- **DBMS:** MySQL, PostgreSQL, DynamoDB, Cassandra, Neo4j, Redis
- **Development Tools**: Git, Docker, Postman, Git, GitHub Actions
- **Observability Tools**: Datadog, Bugsnag, Prometheus, Grafana
- **Cloud Tools:** AWS (DynamoDB, RDS, S3, Lambda, Kinesis, EC2, MSK, CloudWatch), Terraform

Work Experience

Software Engineering Intern | Amwell | *June 2024 - August 2024* | Boston, MA
- Enhanced user healthcare data analytics and engagement by integrating Validic and Amwell Conversa Health platforms, enabling automated syncing of health monitoring device data with healthcare programs.
- Improved data management and device synchronization efficieny by implementing Ruby on Rails RESTful API services, interfacing with the Validic REST API for user data and device management functionality.
- Streamlined data stream ingestion and storage by integrating Validic Inform Streaming API with Conversa API services utilizing AWS Kinesis, Lambda, and DynamoDB.
- Eliminated redundant account creation, reducing database load and improving service efficiency by modifying API services to create Validic accounts only for users with connected devices.

Software Engineer | The RealReal | *June 2022 – May 2023* | San Francisco, CA
- Enhanced data integration and accessibility by implementing API services for Customer 360, an unified analytics and machine learning data aggregation platform, utilizing Ruby, Elixir, AWS MSK, MSK Connect, and DynamoDB.
- Improved web platform usability and increased Lighthouse performance score by 41% by migrating The RealReal's web platform from Elixir Phoenix to a React ecosystem utilizing Redux, Axios, Apollo Client, Next.js, Jest, and Webpack.
- Reduced vendor costs by transitioning feature flag management from LaunchDarkly to Harness, implementing and automating feature flag migration workflows using Sidekiq and Resque for asynchronous job processing, Rufus-Scheduler for ETL orchestration, and Rake tasks for data extraction, transformation, and validation.
- Refactored and optimized Kafka pub-sub messaging architecture for event-driven updates across backend services, improving scalability and efficiency and reducing data integrity overwrite errors.

Software Engineering Intern | The RealReal | *June 2021 – August 2021* | San Francisco, CA
- Implemented a frontend admin dashboard using JavaScript, HTML ERB, and Ruby on Rails for the Get Paid Now program, enabling program rule updates and user interaction management, reducing admin task time.
- Implemented backend for the Get Paid Now program, improving data integrity and supporting efficient CRUD operations by developing RESTful API services in Ruby on Rails and GraphQL API services in Elixir with AWS RDS PostgreSQL.
- Reduced database load with Redis caching for frequently accessed data, optimizing CRUD operations and reducing database row lock errors by 60%.

Software Engineering Intern | Carlin Fit | *May 2020 – August 2020* | West Chester, PA
- Developed Android companion app to interface with the UV light hardware device component of the Purple-Bug UV ride-share cleaning product, utilizing Java/Kotlin, Retrofit, Glide, Room, RxJava, and Coroutines.

Projects & Research (www.indrajeetroyportfolio.com)

- **Enhancing Research Paper Summarization Through Language Abstractive Methods, LLM Fine-tuning and RAG**
Enhanced academic journal summarization precision and comprehension by integrating language model fine-tuning methodologies such as Parameter-Efficient Fine-Tuning (PEFT) and Low-Rank Adaptation (LoRA) with Retrieval-Augmented Generation (RAG).

- **Wikipedia Web Traffic Prediction and Time Series Forecasting**
Implemented and optimized a WaveNet-based Convolutional Neural Network for time-series forecasting of Wikipedia page views to significantly improve predictive accuracy and inform data-driven capacity planning.

- **Database EDA via Natural Language Queries Using GPT-4 and Fine-Tuned OpenCodeInterpreter-6.7B Models**
Implemented natural language into SQL query conversion utilizing GPT-4 and a QLoRA plus fine-tuned OpenCodeInterpreter-6.7B model, enabling exploratory data analysis on Databricks and Snowflake databases.