Elijah Johnson

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Education

Massachusetts Institute of Technology **June 2026**
Bachelor's, Artificial Intelligence & Decision-Making
- Past Coursework: Data Structures and Algorithms, Controls, Probability, Assembly Programming, Machine Learning, Signal Processing
- Fall 2024 Coursework: Robotics, Computer Architecture, Advanced Algorithms, Data Science, Computer Visio

Professional Experience

Amazon **Seattle, WA, USA**
Software Development Engineer *May 2024 - Present*
- Developing a web application using AWS technologies (Lambda, S3, Elasticsearch) to enhance the efficiency of log queries for external Amazon services and applications based on specific key identifiers.
- Leading a cost-reduction initiative by researching and implementing AWS querying optimizations. Implementing log aggregation into labeled S3 buckets and utilizing Elasticsearch, which is projected to reduce operational costs by over 40\%.
- Gathering data and using supervised machine learning classification to identify common characteristics of mislabeled, undelivered packages.

Amazon **Seattle, WA, USA**
Full Stack Developer *June 2023 - September 2023*
- Created a QR reading module on static website for employees in Amazon fulfillment centers to easily access training modules in over 20 countries
- Used AWS Lambda to authenticate employee tokens before launching training to ensure security of content from any location.

Projects & Outside Experience

Dual Path RNN Time-Domain Single-Channel Guitar String Separation - *Link to project*
- Leveraged a voice separation model trained on the WSJ0 dataset (141 hours of speech recordings) using Dual Path RNN and TasNET to encode and separate audio. Successfully applied transfer learning by training the model on MIDI guitar data.
- Improved model performance by further training on diverse guitar songs and developing a classifier to identify notes from specific strings.
- Employed signal processing techniques (DFT Filtering) to manually silence background noise, isolate the string of interest, and deamplify unwanted sounds.

Event Manager Website - *Link to project*
- Efficiently managed guest check-in process for Phi Kappa Sigma events, successfully checking in over 300 attendees using a system of custom QR invitations. Each guest's unique identifier was temporarily stored in a DynamoDB table, ensuring accurate and quick access to attendee information.
- Utilized web sockets and API Gateway to achieve real-time UI updates as guests checked in

Python Lisp Interpreter - *Link to project*
- Developed a basic LISP interpreter in Python supporting a subset of the Scheme programming language.
- Implemented key components including tokenization, parsing, evaluation, and error handling.
- Created an interactive Read-Eval-Print Loop (REPL) for real-time evaluation of Scheme expressions.

Research

MIT Personal Robots Group - *Link to paper*
Teacher and Researcher for Data Activism
- Utilized Pandas and Seaborn modules to extract data on Environmental Justice, Food Insecurity, and Housing in Boston
- Developed custom functions class using Pandas and Seaborn to make data extraction beginner friendly for high school students
- Collaborated in writing research paper on computing with the purpose of empowerment which was published and Sponsered by Black Issues in Computing Education (BICE)

Skills

Languages: Python, JavaScript, Java, Julia, MATLAB, HTML/CSS, TypeScript, java, C, Go, Wolfram Language
Developer Tools: AWS, Mathematica, Git, Intellij
Technologies/Frameworks: Node.js, React.js, Tensorflow, Pytorch, Django, Pandas, Seaborn, NumPy