Nathaniel Petersen

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EDUCATION

Georgia Institute of Technology — Atlanta, GA
Master of Science in Computer Science, Concentration in Machine Learning — *Jan 2025 – Aug 2025*

Georgia Institute of Technology — Atlanta, GA
Bachelor of Science in Computer Science, GPA 3.83/4.0 — *Aug 2021 – Dec 2024*
- **Concentrations:** Artificial Intelligence and Information Internetworks
- **Organizations:** Vertically Integrated Projects, Phi Sigma Kappa Fraternity, Ski and Snowboard Club
- **Relevant Coursework:** Data Structures and Algorithms, Systems and Networks, Design and Analysis of Algorithms, Objects and Design, Probability and Statistics, Database Systems, Machine Learning, Computer Vision, Computer Organization and Programming, Computer Networking, Object-Oriented Programming
- **Academic Programs:** University of Oxford Study Abroad – Summer 2023

EXPERIENCE

Amazon Web Services — Arlington, VA
Software Development Engineer Intern — *May 2024 – Aug 2024*
- Developed an ETL Job using AWS Glue and PySpark to efficiently evaluate the quality of data stored in DynamoDB tables under a set of user-defined rules, mitigating the transfer of faulty data to downstream users.
- Enabled consistent notifications by implementing AWS Cloudwatch alarms, ticketing, Lambda functions, and SQS.
- Oversaw the transition of resources to alpha, beta, pre-production, and production cells, making optimizations that reduced the tool's runtime and total service costs by over 80%.

American Councils for International Education — Washington, DC
Software Engineering Intern — *Jun 2022 – Aug 2022*
- Seamlessly implemented a complete migration to the cloud, ensuring complete functionality and security of testing services while lowering server costs by over 15% and eradicating all server complications.
- Leveraged AWS CodePipeline to create a CI/CD pipeline, leading to more efficient production and testing.
- Guaranteed consistent logging and resource configuration tracking by administering AWS CloudTrail and Config.

Frontend Software Engineering Intern — *Feb 2020 – May 2020*
- Created user-friendly visual representations of testing statistics, displaying student performance based on factors including state of residence, age, and language tested.
- Employed PHP and SQL to collect data, used jQuery along with HTML and CSS to design the visualizations.

PROJECTS

Government Spending Forecaster | *Python, Pandas, BERT, PyTorch* — Aug 2023 – May 2024
- Collaborated closely with teammates to design and develop a predictive machine learning model for government spending based on historical and contextual data relating to presidential election cycles.
- Applied natural language processing and sentiment analysis techniques to create and label a unique dataset containing over 10,000 sentences from 33 presidential debate transcripts.
- Utilized our processed dataset along with BERT and PyTorch to create our deep-learning model, which achieved an F1 score of 0.7273 and a correlation coefficient of 0.865 when compared with actual government spending.

MacroMeals | *Python, Pandas, React, Flask, MySQL* — Jan 2024 – Apr 2024
- Developed a full-stack web application containing a unique dataset of over 27,000 recipes and a comprehensive React based UI that allows users to search for recipes that fit nutrient specifications.
- Merged a recipe dataset, RecipeNLG, with a nutritional dataset using regular expression parsing and string matching techniques to provide users with recipe instructions, ingredients, and their associated nutrient profiles.
- Used Python to implement the backend, leveraging SQLAlchemy to query a MySQL database containing recipe data and Flask to develop API endpoints.

TECHNICAL SKILLS

Languages: Java, Python, C, SQL, JavaScript, TypeScript, HTML/CSS, PHP, Assembly Language
Frameworks: AWS, Pandas, React.js, jQuery, numPy, PySpark, Flask, SQLAlchemy, BERT, PyTorch, Node.js, Regex, REST API, scikit-learn, TensorFlow, PyPlot, Apache Spark, Matplotlib, PyMongo, Agile Methodologies
Developer Tools: GitHub, Docker, Android Studio, Gradle, JUnit, LibGDX, Jupyter Notebook, IntelliJ, VS Code