Anthony Elkommos Youssef

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Dynamic and results-driven engineer with a passion for shaping the future of Artificial Intelligence. Strong foundation in software design patterns, with expertise in data-focused development, statistical modeling, web crawling, and data mining. Proven success integrating AWS S3 with AI/ML models, building predictive and regression models, and implementing web scraping.

Skills

- **Programming languages:**
  - **Expert:** Python, R, Java, Typescript / JavaScript, C#, SQL, BigQuery
  - **Familiar:** C, C++, MATLAB, Assembly (x86 & MIPS), Verilog, PHP, Scala

Experience

Qamous.org (Social Media Dictionary & Blogs Platform - Developed Single-Handedly) — New York, NY
Software Engineer (Founder) — *September 2023 – September 2024*
- Achieved a 91% performance score by engineering with ReactJS, TypeScript, NestJS, Sass, MySQL, TypeORM, Docker, Jest
- Planned and executed the deployment strategy using AWS: Leveraged ECR and ECS for backend and database deployment; ensured secure API access via ALB with HTTPS; integrated Amazon EFS and S3 for scalable logging and data backup
- Implemented GitHub Actions CI/CD; automated testing; designed authentication strategy with bcrypt, Express, and Passport.js
- Scraped data for 3k terms; implemented RESTful APIs; integrated React Query for seamless front-to-back data communication
- Migrated from CRA to Vite, cutting server startup time by 12.9x (1.2s vs 15.5s) + enabling near-instant HMR for rapid iteration

eClinical Solutions — New York, NY
Full Stack Software Engineer - AI/ML Team — *December 2022 - September 2023*
- Integrated and deployed AWS S3 AI/ML models; performed SQL migrations; optimized query performance by 10%
- Resolved 15+ bugs using OOP principles and full-stack development expertise, reducing system downtime and enhancing UX
- Designed and implemented 20+ features based on market research and collaborated in an Agile Scrum framework
- Developed and maintained backend APIs; performed software restructuring; developed a new AI/ML dashboard

Columbia University — New York, NY
Application Systems Developer (Part Time) — *June 2022 - December 2022*
- Performance-tuned the Directory of Classes system, decreasing update runtime by 83%, eliminating redundant processes in C
- Tested the performance and reliability of the new system using python and bash, contributing to the system's data accuracy
- Prepared UNIX shell scripts for system testing and validation, ensuring system stability for over 4,000 students and staff

Wayfair — Boston, MA
People Analytics Co-op (Intern) — *December 2021 - June 2022*
- Selected as Co-op Captain: created and facilitated events for hundreds of co-ops fostering engagement and community-building
- Built and published SQL queries on BigQuery and DataStudio, improving non-technical employees' time efficiency by over 25%
- Automated a dashboard in Python, cutting time by 68%, saving 16 hr/month in data extraction and 6.25 hr/month in data cleanup
- Analyzed and compared the value of M7 MBAs, identifying recruitment enhancements and presented insights to leadership
- Programmed a Slack chatbot saving employees valuable hours finding time-sensitive resources

IBM — New York, NY
Client Services & Consulting: Talent Identification Program (Intern) — *May 2021 – August 2021*
- Presented a consulting solution that was reviewed and implemented for a high-priority case study (https://shorturl.at/VyuVA)

Education

The University of Texas at Austin — Austin, TX
M.S. in Artificial Intelligence | Cumulative GPA: 4.0 — *September 2024 – Present*
- **Relevant Coursework:** *AI391L* – Machine Learning: Classification, Regression, Naïve Bayes, SVMs, HMMs, Statistical Learning Theory, SVD / PCA, MVN, Kernel Methods; *AI394R* – Reinforcement Learning: TD Learning, Monte Carlo, SARSA, Q-Learning, Dynamic Programming, Dyna-Q, Policy Gradients, REINFORCE, MCTS; *AI395T*– Deep Learning: SGD, Convolutional Neural Networks (CNN), Recurrent Neural Networks (RNN), Transformers and Attention Mechanisms using PyTorch and Scikit-Learn

Northeastern University — Boston, MA
B.S. Computer Science with a concentration in Artificial Intelligence | Dean's List — *September 2019 – August 2022*
- **Resident Assistant:** fostered relationship development among over 100 students and planned staff meetings
- **Relevant Coursework:** *IS4200* – indexing, crawling, search engine architecture, ElasticSearch, feature engineering; *CS4100* – MDPs, Hidden Markov Models; *DS4400* – regression, classification, decision trees, hypothesis testing, k-NN, k-means clustering
- **Research Assistant, Outreach Coordinator:** analyzed and applied Computer Vision on mice dMRI images, updated websites

Projects

- **Loan Default Risk Analysis:** ML loan default prediction using CV AdaBoost Classifier, Support Vector Classifier (SVC), and Logistic Regression with cross-validated hyper-parameter values
- **Basketball Point Prediction:** parsed and cleaned data from sportsdata.io to be used for linear regression, ridge regression, and neural nets and compared the prediction accuracies
- **Stonkorithm:** implemented a 3-layer Sequential model with Keras & TensorFlow to predict stock prices using market data and sentiment analysis on Reddit & Twitter
- **NLP Sarcasm Detection:** semantic modeling of sentences using neural networks using nltk, Keras, and Tensorflow
- **Real-time Transaction System:** Java & Spring ledger system, utilizing Event Sourcing Pattern to maintain a transaction history
- **Ray Tracing:** Followed Peter Shirley's Ray Tracing book and added multi-threading support in C++

Volunteering, Leadership & Mentoring

- **TKOL Scouting Group President & Founder, COSF President, Peer2Peer Ambassador:** mentored and trained 100+ youths
- **Awarded Wood Badge:** advanced course in Project & Time Management, Conflict Resolution, Team Building, Leadership
- **Chief Executive Connector at Young Alumni Advisory Board:** serving to create and lead events for alumni and students