Manav Garkel

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Software Engineer with 4+ years of experience building scalable backend systems, APIs, and ML-powered solutions across finance and AI domains.

PROFESSIONAL EXPERIENCE

Freddie Mac   **McLean, VA May 2021 - Current**
Sr. Software Engineer
- Developing a forecasting and analysis tool to reduce manual reporting, improve risk assessment accuracy, and accelerate credit decision-making for Multi-Family loans
- Collaborated with stakeholders to gather data and reporting requirements for ERCF capital reporting, leading end-to-end development through UAT and production deployment
- Partnering with stakeholders to gather requirements and lead end-to-end development of capital forecasting reports by integrating financial forecasting results with ERCF spot capital, from initial design to production
- Maintaining codebase with 100% unit test coverage, developing integration and regression tests, conducting code reviews, and mentoring junior engineers
- Developed reusable microservices and APIs to provide streamlined access to company data sources, improving developer efficiency and integration workflows

Selling.com   **Alexandria, VA March 2023 - March 2024**
Freelance AI and Software Engineer
- Built a web-scraping application to automate the collection and classification of ***10,000*** daily news articles, enabling a new feature in the premium subscription service that provides users with actionable insights on company events
- Applied NER to extract company mentions and leveraged GPT-3.5/4-turbo for multi-label classification of news events (e.g., mergers, layoffs, product launches), driving structured, actionable insights from unstructured text
- Architected a robust, cloud-native data pipeline with AWS DynamoDB, SQS, and S3 to support scalable processing and access to enriched classification data

Selling.com   **Fairfax, VA May 2020 - August 2020**
Data Science and Machine Learning Intern
- Built TF-IDF + SVM-based classification models with 90%+ accuracy to categorize 13M job titles by level and department
- Developed NER-based scripts to extract CEO information for 1.2M companies via web mining

PROJECTS
- **[User Churn Prediction](#):** Built and validated a classification model to predict user churn using millions of user log records
- **[Topic Modeling on CORD-19](#):** Applied LDA using PySpark to uncover latent topics in the CORD-19 research dataset
- **Movie Recommendation System:** Developed and compared user-user, item-item collaborative filtering, and content-based models for personalized movie rating predictions

SOFTWARE SKILLS
- **Languages**: Python, Java, JavaScript, SQL, Bash, Groovy, C, C++, MATLAB
- **Web & API Development:** Flask, FastAPI, Streamlit, Node.js/Express, AngularJS, Grails, RESTful APIs, HTML5, CSS, jQuery, Requests
- **Databases:** Oracle, IBM DB2, Sybase, MSSQL, DynamoDB, MongoDB, Snowflake
- **DevOps & Tools:** Docker, Kubernetes, Jenkins, Git, Linux/Unix, Poetry, Conda, .venv, Pre-commit hooks, Oauth2.0, Postman, JIRA, Heroku, Twilio, Wireshark
- **Cloud Platforms:** AWS, GCP, Azure
- **Testing & Automation:** Pytest, monkeypatch, FitNesse, Integration & Regression Testing
- **Data Science & ML:** Pandas, NumPy, Scikit-learn, PySpark, Hadoop, Classification, Clustering, Recommendation Systems, Anomaly Detection, Association Rule Mining, Dimensionality Reduction, Data Preprocessing
- **AI/LLMs:** LLMs, RAG, Agentic Systems
- **Other:** Microservices, Agile Methodologies, Web Scraping

EDUCATION

George Mason University   *Fairfax, VA*
Master of Science in Computer Science: GPA: 3.9/4.0   *May 2019 - May 2021*

University of California, San Diego   *San Diego, CA*
Bachelor of Science in Chemical Engineering: Major GPA: 3.7/4.0   *Sept 2012 - Dec 2016*