

Vasileios Vittis

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PROJECTS EXPERIENCE

Online Credit Card Fraud Detection

- Developed a distributed semi-supervised binary classification ensemble model, on 100M+ streaming data, by deploying it on 32 parallel computational nodes over Apache Flink using Scala and Java, resulting in 92% accuracy and 95% F1-score.
- Reduced computational bottlenecks and network synchronization problems, by advanced algorithmic Scala code, reaching throughput of 10k instances/sec. Addressed imbalance classes, handled missing values, formatting and normalizing issues by performing online exploratory data analysis, resulting in a seamless online scalable ML module.

Clinical Data and Machine Learning

- Pioneered an advanced diagnostic system in clinical neurology by leveraging machine learning algorithms, including SVM, KNN, Naïve Bayesian, and Random Forest, for the nuanced classification of NPSLE patients and healthy controls, enhanced by strategic feature selection and reduction methods, resulting to an average cross-validated accuracy of 75%.

ToDo OpenAI – Developed a PyCharm extension which offers AI-generated code suggestions & small descriptions for code changes.

DBMS performance monitoring system

- Achieved 30% reduction in query response time, as measured by server logs, by implementing ETL transformations and recovery strategies in a MySQL environment under JDBC, along with optimizing triggers and views deployment.
- Implemented query optimization code, increasing transaction throughput by 25%, by optimizing query plans, join orders & indexes.

IEEE TUC Student Branch managing system

- Built a full-stack web app for my student branch, enhancing user experience and increasing registration and participation by 40%.
- Utilized Django framework, Python, PostgreSQL, HTML, and CSS to create a robust platform that facilitated team creation for contests, streamlined workshop management, and provided up-to-date posts and news sections.

EDUCATION

University of Massachusetts Amherst

09/22 - Expected 2027

Doctorate in Computer Science | GPA: 3.3 / 4.0 | **UMass CICS Scholarship for Best PhD Applicant 2022**

Relevant (600 Level) Courses: *Advanced S/W Engineering: Analysis and Evaluation (B+), Advanced Machine Learning (B+)*

Technical University of Crete

09/15 - 11/21

Bachelor's Degree in Electrical and Computer Engineering | GPA: 3.3 / 4.0 | **Major GPA: 3.6 / 4.0** | **Class Rank: Top 6%**,

Relevant (500 Level) Courses: *Advanced Topics in Database Systems (A), Approximation Techniques Massive Databases (A-)*

WORK EXPERIENCE

Graduate Research Assistant | *University of Massachusetts Amherst*

09/22 - Present

- Developed advanced online processing algorithms for managing complex SQL queries, resulting in a 75% reduction in query time compared to traditional methods by providing approximate answers with mathematical guarantees.
- Constructed incremental optimization system, resulting in a 40% improvement in overall system performance under memory constraints by maintaining online integer linear programming optimal solution.

Undergraduate Associate Research Assistant | *Technical University of Crete*

11/22 - 07/22

- Developed and implemented a distributed ensemble learning system utilizing multiple decision trees (Random Forest) deployed in 25M+ evolving streaming data on top of Apache Spark, resulting in improved accuracy of 90% under data drifts.
- Researched and proposed three scaling optimizations for data modeling, including the implementation of Gaussian Approximation for streamlined handling of numerical attributes in unbounded data streams, leading to a 95% improvement in resource allocation.
- Re-engineer the Online Bagging approach by centralizing its function, resulting in reduced network data transactions by 80%.

Blockchain Test Developer | *Startup Ethereum Attestation Service*

09/21 - 01/22

- Developed front and back-end modules for the Ask Question App, on Rinkeby, an Ethereum TestNet decentralized internet platform, incorporating secure blockchain authentication through Metamask wallet integration. Implemented smart contracts using Solidity and Truffle Suite to enable Q&A interactions and tipping (upvoting) of posts, increasing user engagement by 70%.
- Utilized Node.js and React.js, allowing for seamless scalability and increased user accessibility, reaching 3k users.

Web Search Evaluator | *Appen CO.*

04/18 - 07/18

- Contributed to the quality check and discovery of advertisement training data by matching search engine results with predefined rules, improving the accuracy of training data by 20%.

LEADERSHIP

IEEE TUC Chairman | *IEEE TUC Student Branch*

09/19 - 09/20

- Organized 20+ hackathons, workshops & lectures, initiated specialized mentorship sub-teams; Led web dev & data science.

Co-Founder | *ReScan*

10/19 - Present

- Founded ReScan, a start-up initiative for recycling awareness, won 1st Place Entrepreneurship Initiative Pitch Greek Section

SKILLS

Programming Languages: Python, Java, C++, SQL, Scala, MATLAB, PHP, Javascript, Solidity, R

Technologies: MySQL, PostgreSQL, Apache Flink, Apache Spark, HDFS, Apache Kafka, Databricks, Pandas, numpy, scikit-learn, PyTorch, Tensorflow, numpy, matplotlib, seaborn, Dash Plotly, Gurobi, CPLEX