Esmir Mesic

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Education

California Institute of Technology (Caltech) Pasadena, CA

B.S Double Major Computer Science, Business — Minor Data Science - GPA: 3.8/4.0 *Oct. 2019 – June 2023*

Technical Skills

Languages: Java, Python, C, OCaml, SQL, R, (currently learning) Rust
Frameworks: JUnit
Developer Tools: Git, Jupyter, Docker, Microsoft Azure Cloud, VS Code, Visual Studio, PyCharm, IntelliJ, Unity, Databricks
Libraries: Pandas, PyTorch, PyTorch Lightning, NumPy, Matplotlib, Scikit, Keras, Tensorflow, Kafka, SDL, Lark, Stan
Other: Microsoft PowerBI, Agile Development

Experience

AI & Machine Learning Summer Analyst June 2022 – August 2022

JP Morgan Chase & Co. *Palo Alto, CA*

- Developed 2 Neural Collaborative Filtering methods for product recommendation from scratch
- Created POC pipeline with over 15% improved accuracy and ˜2x faster training than production version
- Coordinated with a group of interns in Data Science case study regarding housing affordability
- Helped start Amazon Deepracer competition participation at JPMC's Palo Alto location

Undergraduate Researcher Nov. 2019 – Feb. 2021, Oct. 2021 – Present

Caltech - Aerospace Robotics and Control Lab *Pasadena, CA*

- Autonomous vehicle perception project to improve object detection accuracy and speed in extreme weather
- Landmark Based Navigation project using novel methods to improve navigation of aircraft using landmarks
- Used PyTorch and other machine learning libraries to fuse thermal and visible imagery with LiDAR to improveautonomous vehicle perception.
- Developed robustness metrics for how well certain networks train for certain objects

Computer Science Teaching Assistant Dec. 2020 – Present

Caltech *Pasadena, CA*

CS2: Datastructures (Java), CS3: Software Engineering (C), CS24: Systems Engineering

- Created autograded assignments using Junit tests
- Helped create assignments written in C
- Ran office hours for debugging help or conceptual questions
- Mentored teams of students in creating a physics-based game in C using SDL libraries

Software Engineering Intern (Data Science/ML) May 2021 – September 2021

NCR Corporation *Addison, TX*

- Developed big data machine learning pipeline for anomaly detection with time series forecasting with Microsoft Azure
- Generated dashboards to report ML findings using SQL, Kafka, Databricks, and Microsoft PowerBI
- Created ML foundation for the Payment Analytics Team

Projects

Spreadsheet Engine | *Python, Parsing, Git* January 2022 – March 2022

- Created a spreadsheet engine from scratch in Python in a team of 3
- Worked heavily on parsing cell contents and updating cell values, as well as debugging code
- Contributed over 10000 lines of Python

Courses

Computer Science: Datastructures, Software engineering (Team game design), Algorithms, Big Data & Machine learning (3 courses), Systems Engineering, Decidability and Tractability, Functional Programming
Business/Finance: Quantitative Risk and Portoflio Management, Options, Investments, Algorithmic Economics, Game Theory, Intro to Finance
Other Technical Courses: Applied Linear Algebra, Applied Probability and Statistics, Econometrics, Mathematical Models of Fintech, Discrete Math, Bayseian Statistics, Statistical Inference