John Eagan

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EDUCATION

Bachelor of Science in Computer Science
California State University, Fresno
Master of Science in Computer Science Expected Spring 2024
California State University, Fresno

COURSEWORK

- Artificial Intelligence
- Machine Learning
- Data Structures & Algorithms
- Software Engineering
- Operating Systems
- Databases
- Web Development

PROJECTS

Word Of Mouth **Fall 2021**

- Website designed to connect employers to self-employed and local businesses.
- Designed and developed a sentiment analysis model using natural language processing techniques to assess reviews and provide sentiment values (positive, negative, neutral).

GPU Acceleration of Matrix Multiplication **Fall 2021**

- Researched existing literature extensively to determine the current limitations and problems surrounding matrix multiplication.
- Designed a novel algorithm for matrix multiplication that can take advantage of GPU-based hardware acceleration through large-scale parallelization.
- Tested and compared the algorithm against other paper's parallelized matrix multiplication algorithms and found improved performance over existing methods.

Not For Thieves **Spring 2022**

- Website created for artists to securely share their creations with others with active theft detection and alerting.
- Designed an AI/ML-based solution for detecting image theft with allowances for image transformations and alterations.

Reinforcment Learning Agents in Racing Environment **Fall 2023**

- Designed reinforcment learning algorithm based on proximal policy optimization to teach agents to race in a custom racing environment.
- Created custom simulated environment for agents to learn through experience.
- Tested and trained agents across millions of iterations in different learning configurations to establish most efficient agents and learing parameters.
- Produced agents that could effectively race in solo, cooperative, and competitive racing environments with no human-directed control.

Publications & Presentations

Eagan, J., Maltezo, M., Marin, A., Quigg, T., Sales, J., Valencia, M. (2021, December). *Word of Mouth*. High Impact Practices (HIPs) Student Symposium. Fresno, CA

Eagan, J., Maltezo, M., Marin, A., Quigg, T., Valencia, M. (2022, May). *Not For Thieves*. High Impact Practices (HIPs) Student Symposium. Fresno, CA

J. Eagan, M. Herdman, C. Vaughn, N. Bean, S. Kern and M. Pirouz, "An Efficient Parallel Divide-and-Conquer Algorithm for Generalized Matrix Multiplication," 2023 IEEE 13th Annual Computing and Communication Workshop and Conference (CCWC), Las Vegas, NV, USA, 2023, pp. 0442-0449, doi: 10.1109/CCWC57344.2023.10099141.

AWARDS & HONORS

HIPs Certificate of Distinction — Distinguished Presentation 2021

- Project Presentation: Word of Mouth

IEEE CCWC 2023 — Best Paper In Track 2023

- Paper: ”An Efficient Parallel Divide-and-Conquer Algorithm for Generalized Matrix Multiplication”
- Track: Parallel & Distributed Algorithms

President’s List Fall 2018 - Fall 2023

- California State University, Fresno
- Qualified by achieving 4.0 GPA in each term

TECHNICAL SKILLS

Languages: Python, C, C++, HTML, CSS, JavaScript, PHP, Liquid, SQL, NoSQL, Haskell, Prolog
Developer Tools: VS Code, Jupyter, Google Colab, AWS
Technologies/Frameworks: Pandas, Scikit Learn, TensorFlow, Linux, Git, ReactJS, NodeJS, ExpressJS, Mongo

REFERENCES

Shih-Hsi ”Alex” Liu, Professor of Computer Science and Department Chair
Department of Computer Science
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Athanasios Aris (Thanos) Panagopoulos, Professor of Computer Science
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