

Jesse Doan

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Stanford University

M.S. in Computer Science (AI), GPA: 4.05/4.0 *June 2022*

B.S. in Computer Science (Theory), GPA: 3.84/4.0 *Dec 2021*

Relevant Coursework:

Deep Learning, Convolutional Neural Networks for Visual Recognition, Optimization & Algorithmic Paradigms, Modern Algorithmic Toolbox, Design & Analysis of Algorithms, Technology for Learners, Teaching Computer Science

Programming Languages:

C, C++, Java, Python, R, SQL

Work Experience

MITRE

Graduate Machine Learning/Software Engineering Intern

June 2021 - Sept 2021

- Developed a novel and efficient clustering algorithm to identify hotspots of activity from large mobility datasets
- Implemented algorithm at scale using existing open-source and in-house data analysis libraries, including Google's S2 Geometry, used to tile the surface of the earth into grid cells
- Evaluated algorithm's performance on Microsoft's GeoLife dataset, containing 17,621 GPS datapoints from 182 users over a span of 3 years, achieving a runtime of 3 minutes
- Obtained a 20x runtime speedup and improved scores by 30% from baseline DBSCAN algorithm

TeacherPrints

Machine Learning/Software Engineering Intern

May 2021 - July 2021

- Fixed model output data pipeline with Django/Docker
- Engineered Design/Prototype of Teacher Portfolio
- Implemented ML application of Speaker Diarization, which tracks unique speakers throughout an audio file

300 Selective

Software Engineering Intern

June 2020 - Aug 2020

- Engineered an AI-powered recommendation model that suggests a student's next step in increasing test scores
- Extracted, modified and augmented the education dataset in designing the best model

Computational Education Lab

Project Leader/Research Intern

Mar 2019 - Dec 2019

- Spearheaded TinyFeedback, a web development tool that provides incremental teacher feedback in CS courses
- Organized an exploratory study which concluded that TinyFeedback improves student and teacher performance through enhanced engagement and more positive experiences with CS

Stanford Computer Science Department

Teaching Assistant

Mar 2018 - Present

- Lead 45 students in weekly sections of Stanford's introductory CS courses in Java, C++, and Python
- Teach modern software engineering principles (i.e. abstraction, decomposition, and testing)

Gooru

Software Intern/Content Creator

June 2018 - Aug 2018

- Built a progress bar displaying a student's mastery in a vast array of topics
- Increased efficiency of skyline construction by simultaneously handling minor updates, highest proficiency calculations, and skyline graphics
- Developed 150+ fun and challenging math problems and quizzes for grades K-12 in 4 weeks

Projects

Active Tutored Learning through Adaptive Systems (ATLAS)

stanford.edu/~jdoan21/atlas_slides.pdf

- Awarded 2nd Place Capstone Project for EPIC Fellowship
- Developed a novel educational tool for students to highlight text from PDFs and websites for concepts generation and quiz questions generation
- Conducted Iterative User Interviews
- Designed and Implemented Frontend Components
- Developed a Yake! and TF_IDF Machine Learning Model for keyword extraction feeding into content generation with T5-Transformers Based models

CIFAR-10 Challenge

- Categorized 60,000 images using a multi-layered CNN with max pooling, batch normalization, and hyperparameter tuning
- Increased naive accuracy of 10% to an improved 75.7%

Generative Grading

stanford.edu/~jdoan21/sage/sage.html

- Code.org data for 45k students, 10 problems, 100k submissions
- Generated sample student solutions with various rubric errors and predicted rubric scores for solutions
- Solved a zero-shot learning problem using RNNs and LSTMs with 94.94% accuracy and an f1 score of 0.85

For The Rising Math Olympians

- Wrote two math competition handbooks for elementary and middle school students who are interested in learning advanced problem-solving and critical-thinking skills
- Developed 20 frequently tested math topics and created 1000+ examples and problems in Number Theory, Algebra, Counting & Probability, and Geometry using LaTeX

Activities

Educational Data Science and Learning Engineering Fellow

EPIC @ Berkeley

Jan 2021 - Aug 2021

Director of Logistics

Stanford Programming Contest (Stanford ProCo)

Jan 2018 - May 2019

- Organized a programming contest for 300 students from 50+ high schools
- Managed registration, volunteers, and logistics

Awards

USA Mathematical Olympiad (USAMO) Qualifier

Mathematical Association of America

2015, 2017