ARJUN SUBRAMONIAN

arjun.subramonian@gmail.com • (408) 859-2148
arjunsubramonian.github.io • linkedin.com/in/arjuns22 • github.com/ArjunSubramonian • Google Scholar

EDUCATION

University of California, Los Angeles, B.S. 06/21
Major: Computer Science, GPA: 3.926
Coursework: AI, Algorithms, ML, Deep Learning, Graph DL/Mining, NLP, Computer Vision, RL, SWE, Data Structures, OS
Activities: Outreach Director @ UCLA ACM AI (teach AI at underserved LA schools, produce podcast to foster inclusion in AI), Equity, Diversity, and Inclusion Lead @ UCLA ACM, Co-Founder @ QWER Hacks

SKILLS

Python, PyTorch, Keras, TensorFlow, git, shell scripting, AWS, Azure, Java, Typescript, SQL, C++, C, React, Qiskit, Q#, LaTeX

EXPERIENCE

University of California, Los Angeles
Machine Learning Researcher, Department of Computer Science, Scalable Analytics Institute (ScAi) and UCLA-NLP 11/19 – Present

- Developed and **publishing** a self-supervised framework for pre-training graph neural networks with PyTorch Geometric that improves ROC-AUC performance on downstream graph classification tasks by 3-5%
- Researching and devising an adversarial framework for debiasing graph embeddings
- Optimized the implementation of the HetNet Transformer to efficiently embed knowledge graphs for link prediction
- Explored dynamic Bayesian network generation with graph variational autoencoders and application to learning neural templates for text generation

NSF Deep Learning Researcher, Department of Electrical and Computer Engineering, Ozcan Research Group 10/18 – 05/19

- Designed and **published** a neural network that detects bacterial resistance to antibiotics, which shortens the timeline of prescribing antibiotics to patients by greater than 60%
- Implemented and trained neural network with Python and Keras by tuning hyperparameters and visualizing learning curves, weights, and hidden-layer activations, achieving FDA essential agreement for 99.5% of drugs

Microsoft Corporation 06/20 – 09/20
Software Engineering Intern, Microsoft Teams

- Crafted a peer-to-peer anonymous, secure backend technical design for a feature to report harassment on Teams
- Leveraging Angular, React, and C# to rapidly implement the feature and ship it to production
- Authored an 8-page accessibility report with actionable insights to improve the feature for disabled individuals
- Developed a two-player card game to teach youth about quantum gates using Python and Q#

Heal (Doctor House Calls) – Consumer Technology Association Company of the Year, Humana Partner 06/19 – 09/19
Software Engineering Intern

- Leveraged Java, Python, PostgreSQL, and React to engineer full-stack integrations of mechanisms used every day at Heal that enhance the automated routing of medical providers, like automated triaging, doctor-assistant match prevention, phone number verification, telemedicine visits, and location-aware smart capacity
- Improved existing and designed new algorithms for automated routing in Python, which greatly increased the number of patients seen by doctors each day
- Adapted the automated routing system to optimally schedule telemedicine visits, which greatly benefits patients during the COVID-19 pandemic

Sike AI – UCLA Anderson Accelerator, VC-Backed Startup 11/18 – 09/19
Deep Learning Engineer

- Designed and implemented in-house deep learning model for personality trait-extraction from video with TensorFlow
- Used matplotlib to visualize crime occurrences in LA over time, by crime type and age group affected

PROJECTS

On the Complexity and Convergence of Approximate Policy Iteration Schemes 05/20 – 06/20

- Surveyed relevant literature in approximate policy iteration and provided theoretical proof sketches involved in the analysis of the complexity bounds, convergence guarantees, and rates of convergence for various approximate policy iteration algorithms

Robust Model-Agnostic Meta Learning for Binary Content Moderation Tasks in Natural Language Processing 01/20 – 03/20

- Researched and applied MAML++ to boost performance on binary content moderation tasks in low-resource contexts, to make the Internet more welcoming

Model-Agnostic Meta-Learning for a Policy Gradient Approach to MuJoCo Continuous Control Tasks 01/20 – 03/20

- Explored the adaptive power of MAML to help an agent transfer knowledge from previous experiences to new, unseen tasks via a policy gradient approach to MuJoCo continuous control tasks

MovieLens Recommender System – Third-Highest ROC-AUC on Test Set in Data Mining Course 11/19 – 12/19

- Surveyed the performance of content-based (TF-IDF, genre-based decision tree) and collaborative-based filtering (SVM, SVD, element-wise matrix factorization, tabular matrix factorization, hybrid matrix factorization)

AWARDS

IBM Quantum Challenge Winner Decomposed a large unitary gate for a minimal gate set with Qiskit 05/20
Siemens Competition Regional Finalist One of 101 finalists selected from 4092 competition entrants 10/17
Award of Achievement, Association for Computing Machinery, SF Bay Area Professional Chapter 04/16