Aldo Gael Carranza

Email: aldogael@stanford.edu | Phone Number: 915-892-9004 | Website: agcarranza.github.io

Education

Stanford University, Stanford, CA — Sept. 2017 — Present (Expected June 2023)
Doctoral Candidate in Computational & Mathematical Engineering — GPA: 3.7/4.0

- Selected Coursework: machine learning, reinforcement learning, natural language processing, optimization, statistics
- Research Interests: bandit learning, reinforcement learning, natural language processing, causal inference

The University of Texas at Austin, Austin, TX — Aug. 2013 — May 2017
Bachelor of Science in Mathematics with High Honors — GPA: 3.9/4.0

- Minors/Certificates: Computer Science, Computational Science & Engineering
- Distinctions: University High Honors, Mathematics Departmental Honors

Experience

Stanford University, Stanford, CA — Sept. 2018 — Present
Graduate Research Assistant & Graduate Teaching Assistant

- Working on research related to contextual bandit learning and offline policy learning.
- Currently conducting research on off-policy learning in multiple-source and federated learning settings to learn a contextual action-assignment policy with offline heterogeneous observational data.
- Worked as a teaching assistant for various undergraduate and graduate courses in calculus, linear algebra, game theory, and optimization.

Google, Mountain View, CA — June 2022 — March 2023
Research Intern & Student Researcher

- Worked on research projects exploring the use of large language models in building privacy-preserving ad recommender systems.
- Conducted research on differentially private training large language models to use in synthetic query generation for training a downstream retrieval system that preserves user query privacy yet maintains high accuracy.

LinkedIn, Sunnyvale, CA — June 2021 — Sept. 2021
Applied Research Data Science Intern

- Developed a semi-supervised NLP-based incident ticket auto-tagging system. Achieved significant performance gains on average and worst-case group classification for top root cause sources, covering >70% of infrastructure incidents.
- Explored multiple approaches for text embedding including word2vec and transformer-based models. Wrote pre-training and fine-tuning package for transformer language model using Pytorch.

Adobe, San Jose, CA — June 2018 — Sept. 2018
Data Science Research Intern

- Developed a fast, scalable, higher-order spectral clustering algorithm for heterogeneous networks that outperforms state-of-the-art algorithms over common baseline methods for clustering, link prediction, and network compression tasks.
- Proved guarantees of near-optimality of our algorithm using methods from spectral approximation algorithms.

Publications & Preprints

- Aldo G. Carranza, Rezsa Farahani, Natalia Ponomareva, Alex Kurakin, Matthew Jagielski, Milad Nasr, "Privacy-Preserving Recommender Systems via Synthetic Query Generation using Differentially Private Large Language Models". 2023. arXiv preprint arXiv:2305.12407. Link.
- Aldo G. Carranza, Susan Athey, "Federated Offline Policy Learning with Heterogeneous Observational Data". 2023. arXiv preprint arXiv:2305.12407. Link.
- Aldo G. Carranza, Sanath Krishnamurthy, Susan Athey, "Flexible and Efficient Contextual Bandits with Heterogeneous Treatment Effect Oracles". Proceedings of The 26th International Conference on Artificial Intelligence and Statistics, PMLR 206:7190-7212, 2023, *(AISTATS '23)* Link.
- Aldo G. Carranza, Marcel Goic, Eduardo Lara, Marcelo Olivares, Gabriel Y. Weintraub, Julio Covarrubia, Cristian Escobedo, Natalia Jara, Leonardo Basso, "The Social Divide of Lockdowns in Santiago During the Covid-19 Pandemic". Management Science. 2021. Link. (*Winner of 2022 INFORMS Franz Edelman Award Competition*)

- Aldo G. Carranza, Ryan A. Rossi, Anup Rao, and Eunyee Koh. "Higher-order Clustering in Complex Heterogeneous Networks." In Proceedings of the 26th ACM SIGKDD International Conference on Knowledge Discovery & Data Mining, pp. 25-35. 2020, *(KDD '20)*. Link
- Ryan A. Rossi, Nesreen K. Ahmed, Aldo G. Carranza, David Arbour, Anup Rao, Sungchul Kim, and Eunyee Koh. "Heterogeneous Graphlets." Transactions on Knowledge Discovery from Data (TKDD), pp. 43. 2020. Link

Patents

- Ryan A. Rossi, Aldo G. Carranza, Anup Rao, Eunyee Koh, *Higher-order Network Clustering and Embedding*, Adobe Research, Patent granted 11/2/2021. US Patent No. 11,163,803.
- Ryan A. Rossi, Aldo G. Carranza, David Arbour, Anup Rao, Sungchul Kim, Eunyee Koh, *System for Identifying Typed Graphlets*, Adobe Research, Patent granted 11/9/2021, US Patent No. 11,170,048.

Skills and Interests

- **Programming Languages**: Python (Numpy, Scipy, TensorFlow, JAX, PyTorch), C++, R
- **Natural Languages**: English (native), Spanish (native), French (intermediate), Korean (beginner)