Damiano Carrioli

⚲ San Francisco, CA   ✉ Email   📞 213 999 3961   🔗 Website   in LinkedIn   ⌂ GitHub

Education

University of Southern California (USC) *Los Angeles, CA*
MS in Computer Science *Aug 2020 – May 2022*
- GPA: 3.462/4.0

University of Southern California (USC) *Los Angeles, CA*
BS in Computer Science, Minor in Mathematics *Aug 2017 – May 2020*
- GPA: 3.75/4.0, Magna Cum Laude

Experience

Software Engineer *Foster City, CA*
Visa *Sep 2022 – Present*
- Designed, developed and deployed reinforcement learning and deep learning projects for Visa Direct to increase profitability (+25%) and decrease settlement times (-18%) on average for 12M transactions/yr.
- Designed, developed and tested new features for Visa's B2B Connect platform, the non-card-based, high-value, low-volume payment ecosystem for businesses.

Graduate Researcher *Los Angeles, CA*
Parallel Computing Lab (USC) *Jan 2022 – May 2022*
- Implemented a novel tensor decomposition algorithm to reduce the memory footprint of deep learning models to enable deployment on edge devices.

Software Engineer Intern *Foster City, CA*
Visa *May 2021 – Aug 2021*
- Developed a natural language virtual assistant for answer selection from pre-defined questions, improving support speed for 50 internal users.
- Automated data extraction workflows, reducing manual effort by 30%.

Projects

WikiText-103 Language Model *private repo*
- Developed a stochastic mixture of experts attention model with 512 tokens context window and 600M parameters shared across 12 experts.
- Achieved a test perplexity of 20 on WikiText-103 (42nd on PapersWithCode benchmark).
- Parallelized model through SPMD to run on multiple GPUs to speed up training.

Hierarchical Transformer for Autoregressive MNIST completion *github.com/Carrioli/mnist*
- Developed an autoregressive model to complete handwritten digits given an initial sequence of pixels.
- Reduced attention complexity from $\mathcal{O}(n^2)$ to $\mathcal{O}\left(\left(\frac{n}{\mathcal{D}}\right)^2\right)$ by generating $\mathcal{D}$ pixels at a time.

Technologies

Languages: Python, Java, C++, SQL.

ML/Frameworks: Jax, Optax, Flax, HuggingFace, Mlflow.

Data: Spark-SQL, Postgres, HuggingFace Dataset.

Activities

Walk-on NCAA division 1 pole vaulter for the USC Trojans track and field team, PR: 14' 11".