Jordi Del Castillo

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EDUCATION

New York University   New York, NY
Bachelor of Science in Computer Science & Minor in Mathematics   *Sep 2021 – Jan 2025*
- **Courses**: Bayesian Machine Learning*, Mathematical Statistics*, Deep Learning*, Independent Research, Multivariable Calculus, Honors Linear Algebra, Linear and Nonlinear Optimization, Theory of Probability
- **Honors**: Dean's List ('22 - *Present*), Math Modeling Group, OSIRIS Lab, Competitive Programming Club

EXPERIENCE

DRW   Chicago, IL
Machine Learning Engineer Intern - AI Research & Development   *Jun 2024 - Aug 2024*
- Developed **Retrieval-Augmented Generation** chatbot and deployed to production **Kubernetes** cluster
- Trained **Physics-Informed Convolutional Transformer** with **PyTorch** to predict change in volatility surface
- Modified loss function to adopt **Black-Scholes** equation as a physics-informed term to regularize the model

CILVR Lab @ NYU   New York, NY
Research Assistant - Advised by Rob Fergus & Ulyana Piterbarg   *Feb 2024 - Jun 2024*
- Focused on reasoning and open-ended interaction with large generative models above infinite time horizon
- Researched superior methods over instruction finetuning and reinforcement learning with human feedback
- Utilized **High-Performance Computing** cluster and open-instruct to **instruction-tune** large language model

JPMorgan Chase & Co.   Plano, TX
Software Engineer Intern - Chief Technology Office   *Jun 2023 – Aug 2023*
- Spearheaded seamless transition of firm's RMS from public **AWS** to internal **ServiceNow** cloud platform
- Developed news analysis with **BERT** models and **convolutional neural networks** to detect insider trading
- Deployed **Flask** APIs to automate the collection, cleansing, and processing of scattered firm data

North Dakota State University   Fargo, ND
Research Intern - Advised by Jeremy Straub   *Jun 2022 – Aug 2022*
- Details of the research are classified due to ITAR and NDA; email to jeremy.straub@ndsu.edu

Lockheed Martin   Remote
Software Engineer Intern - Cloud Transformation Team   *Jun 2020 – Dec 2020*
- Deployed machine vision applications into rovers utilizing **NVIDIA DeepStream** with **AWS IoT Core**
- Aided in clearing cloud migration backlogs to support rapid AWS migration for various government clients
- Constructed **AWS**-hosted WordPress application to facilitate cloud migration support for developer teams

RESEARCH

ARVO | *Python, Docker, HuggingFace, Parallel Computing*   *May 2023 – May 2024*
- Published paper "**ARVO**" as a co-first-author and submitted it to the *33rd USENIX Security Symposium*
- Automated OSS bug fix with **LLM** with **SLURM** batch jobs and evaluated benchmark with 37% success
- Built the largest known **Dockerized** database of 9000+ binary vulnerabilities and fixes for OSS projects

Quantum NLP | *Python, lambeq, Qiskit, JAX*   *Jun 2023 – Aug 2023*
- Modeled natural sentences as quantum circuits and tensor networks with **lambeq** and **Ansatz** frameworks
- Trained quantum classifier models to classify sentences into two categories using **IBM Qiskit**'s **AerBackend**
- Leveraged **JIT** and **JAX** to optimize experiment runtime by simulating quantum computing backend

HONORS

- 1st at Amazon CTF, Finalist at DEFCON 31 CTF
- Putnam '24 (10pts), Meritorious award at SCUDEM Math Modeling Competition
- Tandon Scholarship, Alan Paller Honor Scholarship

TECHNICAL SKILLS

Advanced: C/C++, Python, Pandas, NumPy, PyTorch, TensorFlow, SK-Learn, JAX, Slurm, Matplotlib, Tensorboard, Transformers, Git, Docker, Kubernetes, Deep Learning, Optimization, Statistics

Familiar: FastAPI, Java, Julia, R, CUDA, MATLAB, Assembly, Rust, SQL, GCP, Azure, Slurm, Linux Kernel