David Belgrod

⌂ About Me ✉ db2762@nyu.edu | 👤 ArXiv | ⌂ dbelgrod | 📍 U.S. Citizen

EDUCATION

New York University
Masters of Science in Computer Science; GPA: 3.7

Sep. 2020 – May 2023
New York, NY

- **Coursework**: Geometric Modeling, GPUs, Computer Vision, PDEs, Numerical Methods for PDEs
- **Research**: Time of Impact Dataset for Continuous Collision Detection and a Scalable Conservative Algorithm
- **Projects**: Skin Blending Animation, Multiresolution Mesh Editing, Deep Marching Tetrahedra

McGill University
Bachelor of Commerce in Finance and Mathematics, Minor in Computer Science

Sep. 2013 – Jun. 2017
Montreal, Canada

- **Coursework**: Stochastic Processes, Dynamic Programming, Machine Learning, Real Analysis, Abstract Algebra
- **Teaching**: Grading Assistant for Finance 1

RESEARCH

NYU Geometric Computing Lab
Supervisor: Daniele Panozzo

Oct. 2020 – Present
New York, NY

- Developed a comprehensive collision detection (CD) library, enabling users to efficiently test CD algorithms for accuracy, performance, and more. The library currently supports 15 state-of-the-art CD algorithms.
- Employing CUDA (GPU), designed a CD algorithm that leverages the GPU's memory structure to achieve a 10-16x performance improvement over existing correct CD methods.
- Implemented a CUDA-based CD narrowphase inclusion-based root finder to optimize GPU scaling, resulting in up to 80x faster performance compared to the CPU implementation. This narrowphase conservatively estimates the time of impact for a collision and was verified symbolically using Mathematica.

EXPERIENCE

Asset Management One
Senior Quantitative Developer

Aug. 2018 – Present
New York, NY

- Implemented Airflow as a scheduler for production trading weight processes, achieving a 3x performance speedup by developing an algorithm to maximize parallelization of task graphs (DAG) using AWS (ECS) workers
- Created a serverless workspace cluster (Fargate) for a standardized Python environment, saving over 30 users hours of setup time each month
- Deployed JupyterHub using Docker and Python for collaborative Python notebook development, optimizing containerization for resource allocation, user priority, and seamless updates; JupyterHub is currently used for daily production trades for 30% of algorithms

Safra National Bank
MIS (Trading Operations)

Jun. 2017 – Jul. 2018
New York, NY

- Automated over 25 hours of weekly work, including Excel manipulation, Outlook email handling, web scraping, and SQL query execution, using Python
- Employed natural language processing toolkit to tokenize email content and build a Word2vec-based word similarity dataset for classifying emails related to account mergers and addons

SKILLS & INTERESTS

Languages : Python, CUDA, C/C++, Wolfram Language, Matlab, SQL
Tools/Platforms : Bash, CMake, Docker, LaTeX, aws
Interests : Road cycling, French, Published 2nd most read article on Quantum computing samosas, Bouldering & 200+ hours virtual reality climbing