CHRIS STRYNAR

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CAREER SUMMARY

Computational Scientist • Quantum Physicist • Software Developer

- ***A dynamic software developer*** *with over 5 years of experience, having seen success in both independent and team settings, with diverse project experience.*
- ***A technically-inclined mind*** *that has aced highly advanced math and physics courses, and has done state-of-the-art grant-funded research.*
- ***A creative problem-solver*** *with a proven track record of innovative solutions in computational science and software engineering.*

AREAS OF EXPERTISE

- Quantum Physics
- Quantum Machine Learning
- Numerical Research
- Cloud Computing
- Product Development
- Python, C#
- Flask
- Scikit-learn, TensorFlow
- NumPy, Pandas, Matplotlib
- Linux, Git
- Agile Methodologies
- Software Development

WORK EXPERIENCE

INDUSTRIAL ROBOT HELP

Software Developer Contractor **January 2024 – Current**

- ***Lead projects*** *to deliver* ***custom robotic automation solutions*** *to clients.*
- ***Developed robot control interfaces over various communication protocols****. Ethernet, Modbus, RS232 etc.*
- ***Designed multithreaded GUI applications in C#*** *that work with a variety of robot control interfaces, such as the Igus CRI ethernet interface, or the Epson remote-control interface.*

TECH HEDGE INC

Software Developer **April 2020 – March 2022**

- ***Implemented a variety of real-time options trading algorithms*** *in Python using the TDA API****.***
- ***Strategies based on mathematical principles*** *such as Kelly Criterion, the Secretary Problem, and the Black-Scholes model.*
- ***Developed a web-interface using Flask*** *for managing account trading parameters in real time.*

QUANTUM COMPUTING INC

Software Developer **Summer 2019; Summer 2020**

- ***Assisted with QUBO processing pipeline with Azure Cloud Services,*** *a type of optimization problem that quantum computers are unusually good at.*
- ***Optimized runtime by 3x*** *by finding and rewriting algorithmic inefficiencies.*
- ***Worked on a new set of algebraic processing tools*** *to remove unwanted dependencies on external code.*

ACADEMIC EXPERIENCE

UMASS DARTMOUTH, North Dartmouth, MA, USA **September 2021 – August 2023**

Tier 1 Research University

Graduate Research Assistant **September 2022 – May 2023**

Funded research in Quantum Information and Quantum Machine Learning.

- ***Designed Parameterized Quantum Circuits*** *(PQCs) in Qiskit to do adversarial learning on quantum datasets.*
- ***Analyzed large amounts of data*** *to predict scaling capabilities in the limit of powerful quantum hardware.*
- ***Presented a poste****r for the project at the American Physical Society's March Meeting in 2023.*

Project Leader **September 2022 – May 2023**

Computer-based simulations of Geodesics in Curved Spacetime, for visualizing black holes.

- ***Developed a modular platform in Unity*** *for accurately simulating the appearance of objects in different spacetimes, with an emphasis on black hole simulation.*
- ***Implemented a hybrid ray-tracing algorithm,*** *suitably generalized to obey the Einstein Field Equations.*
- ***Versatile code structure*** *allows for the simulation of many different initial conditions.*
- ***Medium-sized team with short development cycles,*** *with strong emphasis on AGILE principles.*

MOSCOW UNIVERSITY

Dr. Igor Baskin

Research Assistant **September 2019 – May 2021**

Detailed simulations of molecules for accelerated pharmaceutical research.

- ***Implemented algorithms for rigid pairwise molecular alignment*** *such as the Arun least-squares algorithm, and the SEAL (Steric and Electrostatic Alignment) algorithm.*
- ***Developed a codebase in both Python and R*** *that allowed users to simulate relevant chemical properties of molecules before laboratory testing.*

EDUCATION

Master of Science, Physics **2023**

University of Massachusetts Dartmouth, MA, USA

GPA 3.97, Coursework: Linear Algebra, Computational Physics, Quantum Machine Learning

Bachelor of Liberal Arts in Extension Studies, Math Major; CS Minor **2020**

Harvard University, Boston MA

Coursework: Web Design with Django, Python Development, Real Analysis, Linear Algebra, Data Structures, Statistics

PAPERS

Applying the Lyapunov Condition for CLT on Large Datasets

https://www.researchgate.net/publication/380485068_Applying_the_Lyapunov_Condition_for_CLT_on_Large_Datasets