

# Tyler King

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## Education

<b>B.S. in Computer Science</b> , <i>Cornell University</i> <b>Coursework:</b> OOP and Data Structures, Differential Equations, Electromagnetism, Discrete Math, Machine Learning; GPA: 4.10/4.0	08/2021 – present
<b>Dual Enrollment</b> , <i>Moorpark College</i> <b>Coursework:</b> Calc III (M25C), Linear Alg (M31A), Solid/Fluid Mechanics (M20A); GPA: 5.0/5.0	09/2020 – 08/2021
<b>High School Diploma</b> , <i>Newbury Park High School</i>	08/2017 – 06/2021

## Relevant Experience

<b>Machine Learning Intern</b> , <i>Institute for Creative Technologies</i> <a href="#">🔗</a> <ul style="list-style-type: none"><li>Leveraged various deep learning architectures (CNNs, GNNs, ResNets) to try and make predictions on complex dependent choices.</li><li>Preprocessed/augmented data and leveraged hyperband for hyperparameter optimization.</li><li>Gave a poster presentation about complex choices at HCI International conference.</li></ul>	05/2022 – present
<b>Research Intern</b> , <i>McMahon Lab</i> <a href="#">🔗</a> <ul style="list-style-type: none"><li>Developed an interruptable implementation for coherent ising machines (CIMs).</li><li>Helped prepare datasets for implementing vehicle routing problems with time windows (VRPTWs) on CIMs in conjunction with ExxonMobil.</li></ul>	01/2022 – present
<b>Research Intern</b> , <i>Cislunar Explorers</i> <a href="#">🔗</a> <ul style="list-style-type: none"><li>Established ground station uplinking/downlinking protocol for PSK31 transmission from FlatSat.</li><li>Created unit test cases and worked with Unscented Kalman Filters (UKFs) for Optical Navigation.</li><li>Helped streamline and clean up UKF implementation; built experience working on a large codebase.</li></ul>	08/2021 – 05/2022
<b>Research Assistant</b> , <i>University of Notre Dame</i> <a href="#">🔗</a> <ul style="list-style-type: none"><li>Analyzed quantum circuits and processors under Professor Hoffman using IBM's Quantum hardware and Qiskit SDK.</li><li>Conducted error analysis of different Grover's algorithm implementations on hardware (<i>ibmq_lima</i>) and noisy simulations (<i>qasm_sim</i>).</li><li>Leveraged MATLAB and Matplotlib to model results and statistically compare error.</li></ul>	06/2021 – 09/2021

## Publications

<b>Minimum Path Star Topology Algorithms for Weighted Regions and Obstacles</b> , <i>arXiv</i> <a href="#">🔗</a> Novel algorithms for minimum distance computations that generalize Weiszfeld's algorithm to weighted regions and obstacles. Research conducted with Professor Soltys at CSUCI.	09/14/2021
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## Projects

<b>Deep Learning with 2-qubit system</b> <ul style="list-style-type: none"><li>Done as a part of iQuHACK. Implemented a game that involved using quantum unitary operations to try and match an initial statevector to a target statevector.</li><li>Leveraged deep Q reinforcement learning to train a bot to play the game and implemented a versus mode (player vs bot).</li></ul>
<b>Optimized Weighted Region A* Pathfinding Algorithm</b> <ul style="list-style-type: none"><li>Applying A* pathfinding on squares under pre-drawn paths.</li><li>Observed results that are within 3% of best-case while achieving exponential speedups in time complexity.</li></ul>

## Awards

<b>Engineering Dean's List</b> , <i>Cornell University</i>
<b>AT-PAC Math League: Top 3 Nationally</b> , <i>Atlantic-Pacific Math League</i>
<b>SSI: International Environmental Ideathon</b> , <i>Summer STEM Institute</i> <ul style="list-style-type: none"><li>Finalist, project on theoretical optimization of aquaculture using Naive Bayes</li></ul>

## Skills

Languages	Tools	Data Analysis/ML	Misc
Java, Python, MATLAB, Julia, R	Eclipse, JUnit Testing, VS Code, Jupyter Notebook, Anaconda, Git/GitHub	Pandas, Numpy, Matplotlib, Seaborn, Sklearn, Pytorch	Networkx, NI Multisim, WSL, Qiskit, Jira, Microsoft Office