Yi Xue Chong

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SKILLS

Programming Languages: Python, MATLAB, C++, Excel VBA, SQL, Shell Scripting, Bash
Databases and Tools: Apache Spark, Airflow, PostgreSQL, BigQuery, GCP, Apache Kafka, S3, AWS
Other: Data Structures, Algorithms, Distributed Computing, Cassandra, Jupyter Notebook, Git

EXPERIENCE

Data Engineering Fellow, *Insight,* Boston   **September - Oct. 2020**

- Consulting project for a company to tackle their latency problem in analytical charts visualization in Chartio.
- Communicate with the client to lay out project requirements, investigate the existing pipeline to identify bottlenecks and proposed setting up a data warehouse as a solution.
- Designed and implemented the data warehouse by setting up a Spark cluster to ingest more than 10 million records of transactional PostgreSQL database into a schema convenient for analytical querying, with weekly updates using Airflow to demonstrate 10x query speed improvement.

Postdoctoral Researcher, *Cornell University LASSP*   **June 2020 - Present**

- Reduced dataset processing time 6 fold in the registration of two atomic STM images by building a Matlab GUI that combines relevant image processing algorithms, leading to a publication (arXiv 2007.15228)
- Upgraded Scanning Tunneling Microscope acquisition system and wrote Matlab scripts to process binary files into a correct data structure for compatibility with legacy lab analysis toolkit.

Graduate Research Assistant, *Cornell University Davis Lab*   **May 2015 - May 2020**

- Discovered important ingredients for next generation electronics by studying unconventional superconductors and topological materials with low temperature Scanning Tunneling Microscopy.
- Uncovered an important factor contributing to the low onset temperature of a novel topological edge conduction phenomenon by correlating spatial variation in band structure and surface state.
- Troubleshoot root cause for suboptimal cryostat performance and perform successful upgrades.
- Assembled, installed and tested a reservoir prototype that allows helium capture while vibrationally isolating sensitive experiments from the environment, resulting in hundreds of dollar savings per week.

PROJECT

Machine Learning to Deduce Electron Location from Detector Signal   **March 2019**

- Implemented a 2D convolutional neural network (CNN) implemented using Keras python package with TensorFlow backend by training on simulated data of electrons entering a detector array.
- Achieved 4x improvement in predicting 100 to 1000keV electrons entrance point, compared to traditional estimation methods.

EDUCATION

PhD	Experimental Physics	Cornell University	2014-2020
MSci	Physics	University of Birmingham	2010-2014