

WEI-CHIH HUANG

EDUCATION

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PhD in Physics, Texas A&M University, US
BS in Physics, National Tsing Hua University, Taiwan

August 2019 - June 2025 (expected)
August 2015 - June 2019

PROJECTS

Aggie Job Referral - Django, SQLite, PostgreSQL, Heroku, Bootstrap

[website](#)

- Built a referral website to reduce the time of networking by 40%
- Deployed to Heroku with specially designed PostgreSQL database schema to save the disk space by 20%

PyBigstick - NumPy, Pandas, Matplotlib, Streamlit, Docker

[github](#)

- Saved 95% of time writing input scripts for **BIGSTICK** (Large Scale Nuclear Shell Model Code)
- Able to analyze any nucleus and predict experimental outcomes with at least 60% accuracy
- Created an interactive data dashboard with Streamlit
- Virtualized the app with Docker to run on any machine

Pro Cyclists Race Analysis - NumPy, Pandas, SciPy, BeautifulSoup, scikit-learn, XGBoost, Pytorch

[github](#)

- Implemented high performance multi-threading web scraping script by BeautifulSoup (5 times faster)
- Preprocessed the data (clean, format, normalize) with NumPy, Pandas, SciPy, and scikit-learn
- Used scikit-learn, XGBoost, and Pytorch to build linear, RF, DNN, RNN models and predict the race outcome, which is 20% better than a trivial model

RESEARCH EXPERIENCE

Inelastic Neutrino/Dark Matter - Nucleus Scattering by BIGSTICK

[arxiv](#)

- Parallelized and compiled BIGSTICK with MPI/OpenMP in computer cluster to
- Virtualized BIGSTICK with Docker to resolve the incompatibility with the cluster
- Did the statistical analysis on the multi-dimensional outputs by Python and Mathematica
- Published a paper and present several successful talks at workshops [slides](#), [slides](#)

Searching for Axions in High Energy Physics Experiments

[arxiv](#)

- Construct analytical models for axion (a theoretical particle) in the experiments
- Modularize and automate the statistical analysis

TEACHING EXPERIENCE

- **Teaching Assistant** *Texas A&M* Thermodynamics and Statistical Mechanics Fall 2019
- **Teaching Assistant** *Texas A&M* Newtonian Mechanics for Engineering and Science Spring 2020 - present
- **Teaching Assistant** *Texas A&M* Electricity and Magnetism for Engineering and Science Fall 2020 - present

EXTRA-CURRICULAR ACTIVITIES

- Project Manager at [Aggie Coding Club](#) Feb - Nov 2022
- Data Science Ambassador representing Physics Department at Texas A&M 2022 - 2023

HONORS AND AWARDS

- **Three Years Tsing Hua University Scholarship (2% acceptance rate)** 2015 - 2018
Tuition waiver plus accommodation and textbooks subsidy
- **Undergraduate Research Scholarship** Fall 2018
The scholarship for the New Gravity Theory
- **Data Science Ambassador Scholarship** 2022 - 2023
Data Science Ambassador Scholarship Program at Texas A&M Institute of Data Science