

# WEI-CHIH HUANG

## EDUCATION

[Email](#) ◇ [Linkedin](#) ◇ [Github](#) ◇ [Personal Website](#)

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

Aug 2019 - Aug 2025 (expected)  
Aug 2015 - Jun 2019

## PROJECTS

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

- 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)
- Analyzed any nucleus and predict experimental outcomes with at least 60% accuracy
- Used Streamlit and Docker to create an interactive data dashboard on any platform

**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
- Made the prediction with 20% better performance than a trivial model with scikit-learn, XGBoost, and Pytorch

## RESEARCH EXPERIENCE

**Inelastic Neutrino/Dark Matter - Nucleus Scattering by BIGSTICK**

- Parallelized and compiled BIGSTICK with MPI/OpenMP in computer cluster
- Did the statistical analysis on the large multi-dimensional outputs by Python and Mathematica
- Published 3 papers and presented several successful talks at workshops

**Searching for Axions in High Energy Physics Experiments**

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

## PUBLICATION

- Probing the dark sector with nuclear transition photons [arxiv](#)  
*Bhaskar Dutta, **Wei-Chih Huang**, Jayden L. Newstead*
- Inelastic nuclear scattering from neutrinos and dark matter [arxiv](#)  
*Bhaskar Dutta, **Wei-Chih Huang**, Jayden L. Newstead, Vishvas Pandey*
- Axion-Like Particle Production at Beam Dump Experiments with Distinct Nuclear Excitation Lines [arxiv](#)  
*Loyd Waites, Adrian Thompson, Adriana Bungau, Janet M. Conrad, Bhaskar Dutta, **Wei-Chih Huang**, Doojin Kim, Michael Shaevitz, Joshua Spitz*

## EXTRA-CURRICULAR ACTIVITIES

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