

# 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

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

## PROJECTS

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

[website link](#)

- Create referrals/openings matching website to reduce the time networking by 40%.
- Deploy to Heroku and utilize PostgreSQL as database

**PyBigstick** - NumPy, Pandas, Matplotlib, Streamlit, Docker

[github link](#)

- Auto-generate input scripts for [BIGSTICK](#) (code for nuclear physics research)
- Save 95% of time writing input scripts
- Analyze any nucleus and predict experimental outcomes
- Create interactive data dashboard with Streamlit
- Virtualize the app with Docker to run on any machine

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

[github link](#)

- Web scraping the data from an organization website by BeautifulSoup
- Increase the web scraping speed by 5 times with multi-threading
- Model building and prediction with scikit-learn

**Curve Fitting GUI** - SciPy, NumPy, Matplotlib, PyQt

[github link](#)

- User friendly graphical user interface tool for curve fitting

## RESEARCH EXPERIENCE

**Inelastic Neutrino-Nucleus Scattering by BIGSTICK (Large Scale Nuclear Shell Model Code)**

[arxiv](#)

- Deploy BIGSTICK to MPI/OpenMP in computer cluster
- Virtualize BIGSTICK with Docker to resolve the incompatibility with the cluster
- Analyze the multi-dimensional outputs by Python and Mathematica.
- Present several successful talks at workshops [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

**Inflation and Late-time Acceleration in a New Gravity Theory**

- Create time-dependent partial differential equations to describe the features of the universe
- Program Mathematica and Python to stimulate and visualize the evolution of the universe

**Dark Matter in Merging Galaxies**

- Automate the analysis process of dark matter near a galaxy with CASA (data processing software for radio telescopes arrays, written in IPython)
- Present a talk at workshop [slides](#)

**Application of Deep Learning in AdS/CFT**

[text](#)

- Integrate deep learning with AdS/CFT (a well-known theory in high energy physics)

**Coherent Elastic neutrino-nucleus Scattering (CE $\nu$ NS): Sterile Neutrino Search**

- Construct a statistics model for sterile neutrino.

PUBLICATION

- 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](#)
- Data Science Ambassador representing Physics Department at Texas A&M

HONORS AND AWARDS

- **FlyUP Project Scholarship (3 years)**  
Tuition wavier, including housing and textbooks
- **Undergraduate Research Scholarship**  
The scholarship for the New Gravity Theory
- **Data Science Ambassador Scholarship**  
Data Science Ambassador Scholarship Program at Texas A&M Institute of Data Science

TEACHING EXPERIENCE

<b>Teaching Assistant</b> Math and physics <i>Shu Guang Girls' Senior High school</i>	Spring 2016
<b>Teaching Assistant</b> Thermodynamics and Statistical Mechanics <i>Texas A&amp;M University</i>	Fall 2019

\* Serving as TA for the courses below at Texas A&M for several semesters

<b>Lab Teaching Assistant</b> Electricity and Magnetism for Engineering and Science <i>Texas A&amp;M University</i>
<b>Teaching Assistant</b> Newtonian Mechanics for Engineering and Science <i>Texas A&amp;M University</i>
<b>Teaching Assistant</b> Electricity and Magnetism for Engineering and Science <i>Texas A&amp;M University</i>