WEI-CHIH HUANG

EDUCATION   Email ⋄ Linkedin ⋄ Github ⋄ Personal Website

PhD in Physics, Texas A&M University, US	August 2019 - June 2025 (expected)
BS in Physics, National Tsing Hua University, Taiwan	August 2015 - June 2019

PROJECTS

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

- 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

- 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, XGBoost, Pytorch   github

- Web scraping the data from an organization website by BeautifulSoup
- Increase the web scraping speed by 5 times with multi-threading
- Use scikit-learn, XGBoost, and Pytorch to build linear, RF, DNN, RNN models and predict the race outcome with 20% better than a trivial model

Curve Fitting GUI - SciPy, NumPy, Matplotlib, PyQT   github

- 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 arraies, 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 (CEνNS): 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

Teaching Assistant Math and physics *Shu Guang Girls' Senior High school*

Teaching Assistant Thermodynamics and Statistical Mechanics *Texas A&M University*

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

Lab Teaching Assistant Electricity and Magnetism for Engineering and Science *Texas A&M University*

Teaching Assistant Newtonian Mechanics for Engineering and Science *Texas A&M University*

Teaching Assistant Electricity and Magnetism for Engineering and Science *Texas A&M University*