WEI-CHIH HUANG

EDUCATION

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

EXPERIENCE

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, BeautifulSoup, scikit-learn, XGBoost, Pytorch, Runpod — 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
- Deployed the data and model to Runpod (GPU cloud service) for training and saved 80% costs

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

- 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%

Inelastic Neutrino/Dark Matter - Nucleus Scattering by BIGSTICK — github

- 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 conferences

Searching for Axion/Dark matter in High Energy Physics Experiments — axion, dark matter

- Construct analytical models for axion and dark matter, and automated the statistical analysis with Python
- Used Python multiprocessing and function caching to speed up the numerical analysis by 1000 times on average

PUBLICATION

- Probing the dark sector with nuclear transition photons — arxiv
- Inelastic nuclear scattering from neutrinos and dark matter — arxiv
- Short Baseline Neutrino Anomalies at Stopped Pion Experiments — arxiv
- Axion-Like Particle Production at Beam Dump Experiments with Distinct Nuclear Excitation Lines — arxiv

EXTRA-CURRICULAR ACTIVITIES

- Project Manager at Aggie Coding Club — 2022
- Data Science Ambassador representing Physics Department at Texas A&M webpage — 2022 - 2023

HONORS AND AWARDS

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