Baojia(Tony) Tong

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Skills

Languages Python, C++, Chinese
Packages Pandas, Flask, NumPy, Sklearn, XGBoost, ROOT
Tools HTML, LaTeX, Bash, SVN, Git

Experience

Insight Boston, MA
Data science fellow 2018-present

- Built a web-app to convert live meeting audios into summary text in a fast, private and interpretable fashion
- Streamlined the Sphinx **audio recognition** software to convert sound files into text
- Integrated **natural language processing tools** including spacy for summarization and highlights

Harvard University Cambridge, MA; Geneva, Switzerland
Ph.D. student 2012-2018

- Searched for double Higgs Boson production at CERN's LHC, introduced novel signal regions and **tripled the search sensitivity**, corrected translational modeling effect and **improved background modeling**; published as thesis
- Optimized event selection using XGBoost to double the search sensitivity for rare triple boson signals
- Implemented a second order correction in Hough Transform extrapolation in C++, **reduced the fake local reconstruction rate** by 50%, and **saved hundreds of hours of computation time** every day
- **Designed live monitoring software** for reconstruction algorithms and detector performance, inspected and resolved bugs and detector malfunctions within days to maintain data quality
- **Organized weekly meetings** for monitoring software development, with a group of ten people across the international team
- Taught undergraduate analytical physics sections, introduction to electronics and experiment analysis in python, **received teaching awards** based on student reviews

California Institute of Technology Pasadena, CA
Undergraduate student 2008-2012

- Analyzed particle collision data, measured higher order fragmentation behaviors in unprobed kinematic regions
- Developed an optical position sensor, validated its stability under different thermal conditions using Matlab
- Designed double auction convergence experiments, conducted twelve-person experiments in person, analyzed time series data in python; published paper

Education

Harvard University, Ph.D. in Physics 2018
California Institute of Technology, B.A. with honors in Physics 2012