Viska (Sijia) Wei

viskawei.github.io · (510)-502-0711 · *swei20@jhu.edu*

Education

Johns Hopkins University

2019 - now PhD, Physics & CS — Advisor: Prof. Alex Szalay & Prof. Vladimir Braverman

Carnegie Mellon University — **GPA 4.0/4.0**

2019 Summer — Intermediate programming

University of Chicago — **GPA 4.0/4.0**

2017 - 2019 M.S.,Physical Science — Advisor: Prof. Carlos Wagner

University of California, Berkeley — **GPA 3.9/4.0**

2012 - 2017 B.A.,Physics — Advisor: Prof.Robert Littlejohn

- 8 graduate-level courses with GPA 4.0
- 7 courses with A+ for extraordinary achievement

Research

Reinforcement Feedback loop in Al telescope 2019-present

- Developed various network architectures and robust training methods for regressional, generative and autoencoder applications in the field of stellar spectroscopy
- Investigated data compression methods (Compressed Sensing, Variational Autoencoders) to optimize information retrieval from high resolution, noisy spectra.
- Simulated large-scale instrumental and observational effects of stellar spectra
- Developing spectra interpolation web services in sciserver
- Developing a reinforcement learning feedback loop for telescope target selections

Geo-distributed tSNE and UMAP (count-sketch) 2019-2020

- Developed scalable dimension reduction tools utilizing sketching algorithm [IEEE BigData]

Symmetric norm estimation sliding windows 2020-2021

- Implemented a heavy-hitter algorithm that optimize symmetric norms estimation. [COCOON]

SUSY Phenomenology 2017-2019

- Worked on bounding the charm yukawa coupling [PhysRevD]
- Numerical and theoretical analysis on Trilinear Higgs coupling of SM Higgs boson in the framework of Next-to-Minimal Supersymmetric Standard Model (NMSSM)

Publication

- **V. Wei**, L. Dobos,T. Budavari, A. Szalay. Physics informed autoencoders for astrophysics. In Prep
- **V. Wei**, L. Dobos, A. Szalay. Interpolation and Compression of Synthetic Stellar Spectra. In Prep
- V. Braverman, **V. Wei**, S. Zhou. Symmetric Norm Estimation and Regression on Sliding Windows. [COCOON 2021]
- **V. Wei**, N. Ivkin, V. Braverman, A. Szalay. Sketch and Scale: Geo-distributed tSNE and UMAP. [IEEE BigData 2020]
- D.Yang, **V.Wei**, Z.Jin, Z.Yang, X.Chen, A UMAP-based clustering method for multi-scale damage analysis of laminates [Applied Math Modelling]
- N. Coyle, C.E.M. Wagner, **V. Wei**, Bounding the Charm Yukawa, [PhysRevD.100.073013]

Graduate Level Courses

CS: Deep Learning, Reinforcement Learning, Randomized Algorithm, Parallel Computing.
Math: Probability, Algebraic Topology, Differential Geometry and Topology, Low-Dimensional Topology.
Physics: Standard Model and Beyond, Particle Physics Phenomenology, General Relativity, Statistical Field Theory, Quantum Field Theory, Adv Math Methods, Quantum Mechanics, Electrodynamics

Talks

NAML(2021); PFS(2021, 2020); IEEE-BigData(2020);

Awards

University of Chicago **Scholarship** 2017-2019

Skills

Python, Java, C
SQL, Flask, Django, AWS/Azure, Pytorch, Tensorflow, Openmp, Matlab, Mathematica.