Fan Cunwei

1603 E. Florida Ave. Urbana, IL 61802
cfan11@illinois.edu | +1-217-8981519

EDUCATION

UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN
Ph.D. Physics
Expect May 2023 | Urbana, U.S.A.

UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN
B.S. in Mathematics
B.S. in Physics
Cum Laude, 2017 | Urbana, U.S.A.

- Physics GPA: 4.00/4.00
- Mathematics GPA: 3.97/4.00
- Ernest M. Lyman Prize
- Yee Seung Ng Scholarship

LINKS

LinkedIn:// cunwei-fan-963a178a
Github:// fancunwei95

COURSEWORK

Mathematical Statistics
Stochastic Processes
Probability Theory
Data Science in Physics
Machine Learning
Statistical Learning
Deep Learning
Data Structure
Numerical PDE
Numerical Analysis

SKILLS

• Python • R • C++ • SAS
• Java • Unix/Linux • Git
• MySQL • Spark
• Pytorch • Tensorflow
• Matlab • Mathmatica
• Microsoft Office • Vim • Latex
• Parallel Computing
• Soccer Betting

EXPERIENCE

E-TRADING & ML SUMMER INTERN | Barclays
Jun, 2021 - Aug,2021 | New York, NY

- Predict closing price using closing auction data by clustering and regression methods

RESEARCH INTERNSHIP | ByteDance
Feb, 2021 - May,2021 | Beijing, China

- Using deep neural networks to improve precision of quantum chemistry calculation. Specifically, I implemented pseudo-potential methods with FermiNet in PyTorch and Jax. (https://arxiv.org/abs/2108.11661)

DATA SCIENTIST | for European Organization for Nuclear Research (CERN)
May, 2020 - current | Urbana, IL

- Work on projects of reconstructing tracks of particles with hits points on the detectors using machine learning and deep learning methods.

GRADUATE TEACHING ASSISTANCE |Data Science in Physics
Sep, 2019 –Dec,2019 | Urbana, IL

- Do theoretical analysis and produce standard solution to challenging homework

PROJECTS

LEPTON ISOLATION Feb, 2020- Present | Urbana, IL
Use RNN, LSTM and GRU to check whether lepton produced in CERN experiments are isolated to check the Supersymmetry theory

GRAVITATIONAL WAVE DETECTION Oct,2019 –Present | Urbana, IL
Integrate a Wavenet model to detect Gravitational waves embedded in noisy Ligo detected signals; Challenges are that signal noise ratio is around 0.5 and the noise is non-Gaussian.

ENTANGLEMENT ENTROPY IN HOLOGRAPHY Jan, 2019 –Jul, 2019
Prove area law does not determine gravity theory uniquely

- Phys. Rev. D: Second-order Lovelock Gravity from Entanglement in Conformal Field Theories, C. Fan, G. La Nave, P. Phillips.

FLUID SIMULATION IN BINARY SYSTEM Aug, 2016 - Jan, 2018
In L.Shapiro's group, simulate fluids in binary black hole system with code in Fortran and C#; Use finite element methods to capture shock waves accurately

TROJAN STABILITY IN THREE BODY SYSTEM 2016/06-2017/04
Write a Python code to simulate gravitational wave productions by three bodies with a ODE solver; Check whether the Trojan point is stable if gravitational radiation production is strong