KUNHAO ZHENG

Deep Learning & Artificial Intelligence

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EDUCATION

Ingénieur Polytechnicien Degree (M.S.)

Ecole Polytechnique

March 2019 – Sept 2021 Palaiseau, France

- 2nd year: Pure/applied mathematics, advanced physics and CS. GPA 3.88/4.0
- 3rd year: Computer Science - Data Science Track. ML & DL. Fencing Team.

B.Eng. & M.Eng. in Information Engineering

Shanghai Jiao Tong University (SJTU)

Sept 2016 – March 2023 (Expected) Shanghai, China

- Honored first-class scholarship of SJTU-SPEIT (Rank 3rd). GPA 3.91/4.3

EXPERIENCE

Research Engineer (1-year contract)

Sea AI Lab

March 2022 – March 2023 Singapore, Singapore

- AI for System: Designed learning-based algorithm and an interactive environment *HloEnv* to automatically optimize DL computation graph runtime.
- AI for Science: Brought gradient descent and neural network into quantum mechanics. Proposed new methods for solving DFT and wrote a JAX library. Collaboration with Nobel laureate Kostya Novoselov.

Research Intern

OpenAI

March 2021 – Sept 2021 San Francisco, USA (remote from Paris)

- AI for Formal Math: Pushed the limit of AI's reasoning ability of proving mathematics theorem written in Metamath and Lean system.
- Wrote synthetic statement generator of formal mathematics using Rust and constructed a cross-system benchmark *miniF2F*.

Part-time Intern

Inria (CEDAR Team)

Oct 2020 – March 2021 Palaiseau, France

- Learning to rank trees in a heterogeneous Knowledge Graph with applications in investigative journalism.

Rust Back-End Developer (Intern)

Stockly

June 2020 – Sept 2020 Paris, France

- Improved and developed API features for micro-services on Rust & Javascript.
- Implemented matching algorithms with Rust & PostgreSQL.

MOST PROUD OF

Open Source
Enthusiastic to projects that benefit the community: translate Rust Book, maintain *miniF2F*, etc.

Quick Learning
Learned Java and built an application in platform Android from scratch within 1 week. Same for Rust & Lean.

3rd Place
RAMP European University Data Challenges 2021.

KNOWLEDGE

Deep Learning | CV | NLP | GNN | Neural Theorem Proving | RL | Database System | DL Compiler Optimization | Quantum Mechanics | Topological Data Analysis

SKILL STACK

Python ●●●●●
Rust ●●●●○
C/C++/Java ●●●○○

Jax/TensorFlow 2.0 ●●●●●
Pytorch ●●●●○
Linux ●●●○○
TCP/IP/gRPC/MPI ●●○○○

LANGUAGES

Mandarin Chinese ●●●●●
Cantonese ●●●●●
English ●●●●○
French ●●●●○
Japanese ●●●○○

PUBLICATION

- *D4FT: A Deep Learning Approach to Kohn-Sham Density Functional Theory* (2022). Submitted to ICLR2023.
- "Formal Mathematics Statement Curriculum Learning" (2022). *arXiv:2202.01344*.
- "HloEnv: A Graph Rewrite Environment for Deep Learning Compiler Optimization Research" (2022). *NeurIPS 2022 MLSys Workshop*.
- "MiniF2F: a cross-system benchmark for formal Olympiad-level mathematics" (2021). *ICLR2022*.
- "Prompting visual-language models for efficient video understanding" (2021). *ECCV2022*.