

Mokai Pan

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Education

ShanghaiTech University

Undergraduates, Major: Computer Science

Shanghai
Sep. 2021 - Present

- GPA: 3.63 / 4.0
- Relevant Course:
 - Mathematical Analysis I: A
 - Introduction to Programming: A+
 - Mathematical Analysis II: A
 - Probability and Statistics I: A+
 - Introduction to Machine Learning: B+
 - Convex Optimization: A
 - Computational Science and Engineering: A

Skills

- Programming** C, C++, Java, Python
- Drawing & Typesetting** Office, L^AT_EX
- Languages** Chinese(Native), English(fluent)

Selected Research & Projects

Course Projects in Computer Network

Acoustic Network

Shanghai
Sep. 2023 - Jan. 2024

- Build a local area network named Aethernet using audio signals to transmit data through the method of PSK and ASK modulation and demodulation and connect our Aethernet to the campus Wi-Fi.
- Implement some protocols of the Internet including ICMP Protocol, DNS Protocol and NAT Protocol and implement some important structures like routers, NAT tables and DNS local cache in simple version in our Aethernet. Realize capturing the network packets from the network and parse the contents of these packets to find some important information like destination and source IP address, destination and source Ethernet address and ICMP identification.
- Use 'Java.pcap4j', 'Java.JAsioHost' and 'org.xbill.DNS' to realize the local area acoustic network and the implementation of Internet protocols and connection with campus Wi-Fi.

Course Projects in Convex Optimization

Reproduction of Deep Declarative Networks

Shanghai
May. 2024 - Jun. 2024

- The research reproduces the node of Deep Declarative Networks, discusses their theoretical foundations and tests the performance on the mini-ImageNet and point cloud dataset. By leveraging the implicit function theorem, DDNs enable gradient back-propagation through declaratively defined nodes, facilitating end-to-end learning.
- Reconstruct some equations into unconstrained or constrained optimization problem and solve the optimization problem through the KKT conditions and compute gradients.
- Reproduce the test of the comparisons between DNN's running time and memory consumption and the normal networks.
- Explore the Deep Declarative Networks' application potential: use the node of DDNs to solve the hyperparameter optimization of the Ridge Regression Models which can be rebuild as a bi-level problem and tests the performance of the algorithm on common datasets like Iris and Diabetes dataset.

Extracurricular Activities

Shanghai International Marathon

Volunteer

Shanghai
Nov. 27 2022

Awards and Honors

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| Nov. 2021 | Contest: Second Prize in "Chinese Mathematics Competitions" | Shanghai |
| Nov. 2022 | Contest: Second Prize in "Chinese Mathematics Competitions" | Shanghai |
| Nov. 2023 | Contest: Second Prize in "Chinese Mathematics Competitions" | Shanghai |