

Dixing Xu Dex

DEEP LEARNING RESEARCHER · BLOCKCHAIN DEVELOPER

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"Felix, qui potuit rerum cognoscere causas."

Education

Xi'an Jiaotong-Liverpool University

B.S. IN INFORMATION AND COMPUTING SCIENCE

Suzhou, China

2015 - 2020

University of Liverpool

B.S. IN INFORMATION AND COMPUTING SCIENCE

Liverpool, UK

2015 - 2020

Experience

National University of Singapore

SUMMER INTERNSHIP AT NUS

- course: Computational Thinking and Community Detection in Large Graphs

Singapore

Jun. 2016 - July 2016

Xi'an Jiaotong-Liverpool University

SUMMER UNDERGRADUATE RESEARCH FELLOWSHIPS

- Implemented *Style Transfer for Anime Sketches with Enhanced Residual U-net and Auxiliary Classifier GAN* in PyTorch

Suzhou, China

Jun. 2017 - Aug. 2017

Research Institute of Big Data Analytics, Suzhou

STUDENT MEMBER

- Teaching Assistant of Internet of Things (IoT) courses
- Volunteer at International Conference on Big Data Analytics and Business Intelligence

Suzhou, China

Nov. 2016 - July. 2018

Linux Foundation

SUMMER INTERN (PART-TIME)

- Hyperledger Fabric Python SDK

Remote

Jun. 2018 - Nov. 2018

Research Institute of Beihang University, Suzhou

BLOCKCHAIN SOFTWARE DEVELOPER/RESEARCH ASSISTANT

- Develop course on blockchain
- Application Development based on Hyperledger Fabric

Suzhou, China

Oct. 2018 - PRESENT

Nanyang Technological University

RESEARCH ASSISTANT

- supervised by Prof. Tan Rui

Singapore

Mar. 2019 - Aug. 2019

Zhejiang University

RESEARCH ASSISTANT

- supervised by Prof. Cheng Peng

Hangzhou, China

Sep. 2019 - PRESENT

Honors & Awards

Nov 2017 **1st Prize**, HACK x FDU

Apr 2018 **2017 IBM Student Innovation Lab Program Award**, IBM GCG University Partnership

Jun 2018 **2nd Prize**, 2018 XJTLU & PNP AI Innovation Hackathon

Jul 2018 **3rd Prize**, DoraHacks x BCH Faith Hack

Jul 2018 **3rd Prize(Personal)**, 2018 EOS "Youzi" Hackathon Hangzhou

Jul 2018 **1rd Prize(Team)**, 2018 EOS "Youzi" Hackathon Hangzhou

Sep 2018 **Special Prize by Qtum (\$10,000)**, 2018 Wangxiang Blockchain Hackathon

Shanghai, China

Shanghai, China

Suzhou, China

Beijing, China

Hangzhou, China

Hangzhou, China

Shanghai, China

Projects

SELECTED PROJECTS

Portfolio Management with Deep Reinforcement Learning (PGPortfolio)

CO-AUTHOR & CORE DEVELOPER

Nov 2016 - PRESENT

- Keywords: Portfolio Management, Deep Reinforcement Learning, Cryptocurrency
- See our project on Github
- See our paper

DSharing - a blockchain-based online marketplace and hospitality service exchange platform

CORE DEVELOPER

Nov 2017 - Nov 2017

- View on Github: DexHunter/hackxfdu-DSharing

BitSwap

CORE DEVELOPER

Jul 2018 - Jul 2018

- A decentralized non-fungible asset exchange platform

Mercurius-lib

CORE DEVELOPER

Jul 2018 - Jul 2018

- A algorithmic trading library for deep learning researchers & data scientists.

Thanos

DEVELOPER OF SDK

Aug 2018 - Aug 2018

- An decentralized random number generator based on Nervos

QtumSwap

DEVELOPER OF ATMOIC SWAP BETWEEN BTC & QTUM

Sep 2018 - Sep 2018

- Swap Everything with QTUM

OPEN SOURCE CONTRIBUTION

backtrader

CONTRIBUTOR

- Python Backtesting library for trading strategies
- View on Github: backtrader/backtrader

fabric-py-sdk

CONTRIBUTOR & MAINTAINER

- Release of version 0.7.0 & ongoing

Publication

A Deep Reinforcement Learning Framework for the Financial Portfolio Management Problem

under reiew (Citations ~40)

ZHENGYAO JIANG, DIXING XU, JINJUN LIANG

[view on arxiv: 1706.10059]

- Financial portfolio management is the process of constant redistribution of a fund into different financial products. This paper presents a financial-model-free Reinforcement Learning framework to provide a deep machine learning solution to the portfolio management problem. The framework consists of the Ensemble of Identical Independent Evaluators (EIE) topology, a Portfolio-Vector Memory (PVM), an Online Stochastic Batch Learning (OSBL) scheme, and a fully exploiting and explicit reward function. This framework is realized in three instants in this work with a Convolutional Neural Network (CNN), a basic Recurrent Neural Network (RNN), and a Long Short-Term Memory (LSTM). They are, along with a number of recently reviewed or published portfolio-selection strategies, examined in three back-test experiments with a trading period of 30 minutes in a cryptocurrency market. Cryptocurrencies are electronic and decentralized alternatives to government-issued money, with Bitcoin as the best-known example of a cryptocurrency. All three instances of the framework monopolize the top three positions in all experiments, outdistancing other compared trading algorithms. Although with a high commission rate of 0.25% in the backtests, the framework is able to achieve at least 4-fold returns in 50 days.

Challenges of Privacy-Preserving Machine Learning in IoT

AIChallengelot'19

MENGYAO ZHENG, DIXING XU, LINSHAN JIANG, CHAOJIE GU, RUI TAN, PENG CHENG

[view on arxiv: 1909.09804]

- The Internet of Things (IoT) will be a main data generation infrastructure for achieving better system intelligence. However, the extensive data collection and processing in IoT also engender various privacy concerns. This paper provides a taxonomy of the existing privacy-preserving machine learning approaches developed in the context of cloud computing and discusses the challenges of applying them in the context of IoT. Moreover, we present a privacy-preserving inference approach that runs a lightweight neural network at IoT objects to obfuscate the data before transmission and a deep neural network in the cloud to classify the obfuscated data. Evaluation based on the MNIST dataset shows satisfactory performance.