SIYUAN SHI
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EDUCATION

NUAA, Nanjing, Jiangsu, China **Sep2015 – Jun 2019**
Bachelor of Science, Information Engineering, GPA: 3.5/5.00

UW Madison, Madison, USA **Sep 2017 – Dec 2017**
Exchange Program, GPA: 3.75/4.00

NYU, Brooklyn, NY **Sep 2019 – Present**
Program: Master's in Computer Engineering, Current GPA: 3.85/4.00

WORKING EXPERIENCE

NYU Multimedia and Visual Computing Lab, Brooklyn, New York June 2020 - July 2020
Assistant

- Implemented Classification model of Hyperspectral Image based on 3D Convolution.
- Improved Few Shot Object Detection based on Faster R-CNN model.
- Acquired basic understanding of Meta-Learning by implement Meta R-CNN model.
- Experienced in developing under Linux, including remote coding, remote debugging using pdb, etc.

Zhongxing Telecommunication Equipment Corporation, Nanjing, Jiangsu
Intern Aug 2018 - Sep 2018

- Acquired skills in router and switch operation, configuration of various protocols on the telecommunication router ZXR10M6000, Layer 2 switch and Layer 3 switch, including VRRP, OSPF, BGP, etc.
- Learned basic concepts of data communication, routing algorithms and protocols.
- Completed various design experiments and improved the ability to design and debug the communication system.
- Discussed related problems and found solutions with my mentor.

ACADEMIC PROJECTS

CSAW HackML 2020 Backdoor detection, Brooklyn, New York October 2020 - December 2020
Group leader

- Project aimed at detecting and repairing backdoors in ML model using Keras framework.
- Detect untargeted trigger and/or single or multi targeted trigger in the given test dataset and repair the given backdoored models.
- Implemented backdoor detection using STRIP based on the idea that triggers have strong effect to force a fixed wrong prediction.
- Repaired the models with fine-pruning. Backdoors in the model is disabled by removing neurons that are dormant for clean inputs.

E-mail Spam Filtering, Brooklyn, New York September 2020 – October 2020

- Project aimed at designing an e-mail spam filter on the ling-spam dataset.
- Extracted features based on IG of each word after lemmatization and removing stop-word.
- Implemented 4 Statistical filters: Bernoulli NB classifier with binary features, Multinomial NB with binary features, Multinomial NB with term frequency (TF) features and Support Vector Machine (SVM) based spam filter.
- Achieved adversarial attack and defence on the models based on "Adversarial Classification".

Embedded Challenge Term Project "Embedded Sentry", Brooklyn, New York April 2020 - June 2020

- Project aimed at gesture recording and recognition.
- Implemented on SAMD21 Xplained Pro with an Inertial Measurement Unit MPU6050 integrated, coded on Arduino IDE using C++.
- Sample data of acc and gyro using accelerometer and save data on the microcontroller via I2C.
- Use Kalman filter to smooth the time sequence and DTW (Dynamic Time Warping) algorithm to match patterns in time sequence.

Database System Design and Web-based User Interface, Brooklyn, New York March 2020 - May 2020
Group Member

- Project aimed at experiencing a full life cycle of Database System development, including planning enterprise modeling, conceptual data modeling analysis, logical database design, database implementation.
- Designed ER model and relational model design with Oracle datamodeler.
- Implemented the designed database system with MySQL DDL (Data Definition Language) and DML (Data Manipulation Language).
- Designed a web-based UI with features such as user login system, data encryption and admin authorization. Implemented with Django framework and Python.

Pipeline MIPS Simulator, Brooklyn, New York October 2019 - November 2019

- Project aimed at implementing a cycle-accurate simulator for a 5-stage pipelined MIPS processor.
- Designed a simulator model the execution of a subset of MIPS instruction with cycle accuracy and can deal with RAW hazards and Control Flow Hazards.
- Implemented the model in C++ and evaluated the performance using given test data.

QPSK System Implementation Based on FPGA and MATLAB, Nanjing, China May 2018 - June 2018

- Got acquainted with the ISE development environment of FPGA in Xilinx company and principles of QPSK.
- Mastered the hardware method for m-sequence generation, the hardware design and implementation of filter, the joint use of auxiliary tools, such as Modelsim and MATLAB, with ISE, and the utilization of chipscope for aided design and debugging.
- Knew the principles of QPSK and used FPGA and MATLAB to simulate the QPSK system.
- Took charge of hardware (FPGA) programming and debugging and participated in most of the software (MATLAB) simulation experiments.

HONORS

- Scholarships of New York University **Sep 2019**
- First-Class Academic Scholarship of the University **April 2017**
- First-Class Outstanding Student Scholarship of the University **November 2016**

SKILLS

- Programming Language: C/C++, Python, Django, HTML, MySQL
- Software and Framework: Pytorch, Keras, TensorFlow, MATLAB, Mathematica, Linux, OpenFlow, Ryu, Hadoop