

Valerie (Tianhui) Liu

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RESEARCH EXPERIENCE

Research Assistant

Sep 2022 - Dec 2022

University of Waterloo

Waterloo, ON

- Participate in paper reading group to study what makes a good empirical paper
- Compare Scatternet with CLIP under differential privacy settings in terms of generalization

NLP Research Assistant

May 2021 - Sep 2021

Harbin Institute of Technology -- Social Computing and Information Retrieval (SCIR)

Harbin, China

- Research in document-grounded dialogue generation
- Participate in literature review and paper sharing sessions
- Build models for text/poetry generation using Pytorch, NLTK, sklearn, and Pandas
- Measure knowledge utilization for generated responses comparing to external knowledge

PROFESSIONAL EXPERIENCE

R&D Security Engineer

Sep 2022 - Present

Huawei Technologies -- Data and Privacy Protection Technology Lab

Waterloo, ON

- Implement a high efficient attribute based encryption policy engine named PH+R+E-ABE which lead to patent for the company
- Add policy expansion and user revocation features to the original library
- Participate in R&D design and conduct thorough test with Google Test

R&D Security Engineer

Jan 2022 - Apr 2022

Huawei Technologies -- Data and Privacy Protection Technology Lab

Waterloo, ON

- Work with secure data transfer project based on IDS-RAM and add functionalities to support XATTR
- Research and add Linux Security Module that triggers upon file open for Ubuntu and Euler OS
- Build Java and C parser in ODRL grammar for file transfer policies in multiple dataspace connectors (IDS-RAM and EDC)

Back-end Developing Intern

Aug 2020 - Dec 2020

ByteDance -- Enterprise SaaS Application

Beijing, China

- Develop automatic testing tool for SSO protocols including OAuth 2.0, CAS, and SAML
- Support 241 SaaS customers and provided suitable solutions related to Lark platform online and on-site
- Implement and customize enterprise structure synchronization program for 5 clients
- Build Lark gadgets/mini programs that identifies user and collects device information and H5 sample program that invokes NFC

Backend Developer

Jan 2020 - Apr 2020

CGI -- Digital Banking

Markham, ON

- Enable HTTP/2 for Apache HTTP server docker container
- Build and demonstrate sample applications for all messaging models of Solace PubSub+
- Convert XML configuration to Java configuration for Spring Batch remote partitioning project

EDUCATION

Candidate for Bachelor of Computer Science

University of Waterloo, Waterloo, ON

Courses taken: Operating System, Database, Network, Algorithm, Security, Intro to AI, Intro to Cryptography, Data Intensive Distributed Computing

ADDITIONAL PROJECTS

WatDFS

Feb 2023

- Build simple distributed file system with FUSE library and RPC library

Sensitive Attribute Classification

Feb 2023

- Finetune BERT to classify sentences that contain sensitive information

Geomesh Generator

Dec 2022

<ul style="list-style-type: none"> • A feature of a final year design project which is an AR versioned Twitter which enable users to make postings at specified location • Geomesh feature is based on MongoDB that controls the number of postings in a geographic region and calculates geomeshes surrounding certain user which largely reduces the time consumed by real-time database fetching. 	
Topic Recommender	Sep 2022
<ul style="list-style-type: none"> • Recommend topics to users in certain region based on their randomly sampled posts using BERT 	
Lingroove Chat Application	Aug 2022
<ul style="list-style-type: none"> • Build real-time chat web application with Django • Design UI and add sentence generation and voice to text features 	
Adversarial attack on ML model	Jul 2022
<ul style="list-style-type: none"> • Compare FGSM and PGD in terms of attack power and robustness of adversarially trained model 	
Handwriting Number Generation	Jun 2022
<ul style="list-style-type: none"> • Generate data similar to MNIST using both VAE and GAN 	
Handwriting Gesture Recognizer	Apr 2021
<ul style="list-style-type: none"> • A mobile multitouch app built with Android SDK and Gradle to manage gestures and recognize handwriting shapes 	
Sketch It	Mar 2021
<ul style="list-style-type: none"> • A Drawing tool implemented with Java FX covering basic features such as sketching, erasing, selecting, basic shape drawing, bezier curve drawing, and line settings 	
Watopoly	Aug 2020
<ul style="list-style-type: none"> • Monopoly but based on UWaterloo campus map 	
Biquadirs	Jan 2020
<ul style="list-style-type: none"> • C++ multiplayer biquadris with bonus features such as leveling up and more complex game rules 	
Post It (Elle Hacks)	Feb 2019
<ul style="list-style-type: none"> • Implement UI to demonstrate a therapeutic anonymous sharing space 	
Photosensitive Epileptic Trigger Detector (Starter Hack)	Jan 2019
<ul style="list-style-type: none"> • Train model with Tensorflow to classify photosensitive epileptic triggers • Implement UI and photo uploading functionality with JQuery 	

Skills and Hobbies

Programming skills: C, C++, Java, Python, Spring Boot, Hadoop, Spark, Django, AngularJS, Pytorch, PostgreSQL

Hobbies: language learning, camping, snowboarding, kickboxing, badminton, table tennis