Zixiong Lin

2708-7 Grenville St., Toronto, ON M4Y 0E9
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EDUCATION

University of Toronto, St. George 2019 – Present
Honours Bachelor of Science - Computer Science Specialist, Focus in Artificial Intelligence
CGPA: 3.87/4.0
Relevant Courses: Introductory Machine Learning, Introduction to Databases, Introductory Probability, Data Structures and Analysis, Algorithm Design and Analysis, Formal Language and Automata, Introduction to Artificial Intelligence, Operating Systems, MLOps in Digital Health

University of Toronto Scarborough 2017 – 2019
Honours Bachelor of Science - Computer Science Specialist (Co-op)
CGPA: 3.70/4.0 (except a course still petitioning for late withdraw due to illness)
Relevant Courses: Calculus, Linear Algebra, Discrete Mathematics, Introduction to Computer Science, Software Design, Software Tools and Systems Programming

RESEARCH INTEREST

- Apply machine learning techniques to collected healthcare data, evaluate the health condition, make the prediction, and identify potential risks.
- Apply AI and machine learning models in clinical diagnoses.

AWARDS & SCHOLARSHIPS

University of Toronto Dean's List Scholar 2022
Award recognized outstanding Faculty of Arts & Science students with a cumulative GPA of 3.50 or higher after completing 6.5 credits.

University of Toronto Dean's List 2018, 2019
Award recognized students who have achieved a cumulative grade point average of 3.5 or better in their most recent year of study in the past Fall, Winter, and/or Summer sessions.

RESEARCH EXPERIENCE

AID4MH Lab, CAMH, Toronto, ON, Canada May 2022 – Aug 2022
Research Trainee – Supervisor: Dr. Abhishek Pratap

- Researched on digital health application framework CardinalKit (https://cardinalkit.org/), explore its ability of collecting passive data, active data, and saving the collected data to Firebase (https://firebase.google.com/), oriented the result to supervisor.
- Implemented QPrism (https://github.com/aid4mh/Qprism), quality assessment toolbox for data collected from sensors in smartphones and wearables. Introduced 9 data quality metrics that can assess the data from 3 categories: correctness, completeness, and consistency.
- Wrote well-documented, correct, and reusable code that can be modified at low cost in the future. Created API for the package using Read the Docs (https://qprism.readthedocs.io/en/latest/). Published the developed python package to PyPI (https://pypi.org/project/QPrism/).
- Conducted literature review for more than 500 papers for a systematic review, excluded the reviewed paper in accordance to the guideline. Indicated the exclusion criteria for each excluded paper.

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Motion and Adaptation Science Laboratory, UHN, Toronto, ON, Canada Feb 2022 – Aug 2022
Research Studentship – Supervisor: Dr. Kei Masani

- Formatted and cleaned a dataset consists of 900 time series data from excel files into pandas dataframes that can be used for further research.
- Reviewed the literature to find reasonable machine learning models that can be applied to this particular dataset, researched on the data processing procedure to decrease the number of noise in the signal (low-pass filter combined with down sampling).
- Applied Convolutional Neural Network on the formatted Posturography Centre of Pressure (COP) data to make the diagnoses that whether the patient with given data has neurological diseases affecting balance.
- Validated, selected, and improved the machine learning models based on the outcome of previous models, tuned the hyper-parameters, tried to achieve an 80% F1-score to make it practical.

DEEDS Project, University of Toronto Scarborough, Toronto, ON, Canada May 2018 – Aug 2018
Research Assistant – Supervisor: Dr. Michael Gervers

- Debugged the online, searchable database application of 11,000 English property-transfer documents (https://deeds.library.utoronto.ca), made the application usable and successfully installed online.
- Communicated with the professor weekly to report the fixed bugs, newly tested flaws, and ambiguous codes, listed the work that has been done clearly then adjusted the prospective work next week based on the response from supervisor.
- Presented the demo of debugged application to the supervisor at the end of the work term, demonstrated the application can be installed with the proper functionalities. Summarized and reported the fixed bugs.

PROFESSIONAL EXPERIENCE

Jilin Province Picual Foods Co., Ltd., Changchun, Jilin, China 2019 – 2020
Python Developer

- Programmed customized add-ons for the enterprise resource planning system that the company was using, made the ERP system suits the actual requirements of the company.
- Developed ethical python scripts to download and clean more than 1,000 sales data daily from the company's clients' website, made the daily routine became automatic.
- Implemented Python scripts that clean and insert the sales data to the ERP system through its API, reduced the monthly workload of other employees by more than 20 hours.

Freelance Project 2020
Python Developer

- Independently developed an ethical Python script which can automatically download all the luxury hotel prices in a specific area (https://github.com/ZixiongLin1/CtripSpider).
- Demonstrated the downloaded data (saved in csv file) to the employer, communicated for further improvement of the application to make it fits the employer's needs more properly.
- Updated the application after communication, made it capable of download advanced data, like distance to landmarks, exact location in longitude and latitude.

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PUBLICATION

- Halabi, R., Selvarajan, R., **Lin, Z.**, Herd, C., Li, S., Kabrit, J., Tummalacherla, M., Neto, E. C., Pratap, A., "Comparative assessment of multimodal sensor data quality collected using Android and iOS smartphones in real-world settings", (submitted).
- Halabi, R., **Lin, Z.**, Selvarajan, R., Kabrit, J., Herd, C., Li, S., Pratap, A., "QPrism: A Python Library for Quality Assessment of Sensor Data Collected in Real-world Settings", (submitted).

CONFERENCES & PRESENTATIONS

Krembil Centre for Neuroinformatics Open House, Toronto, ON, Canada June 2022
"Qprism: Real-World Data Quality Analysis Pipeline", oral and poster presentation.

TECHNICAL SKILLS

- **Programming:** Python, SQL, R, Java, JavaScript, PHP, HTML, C, Shell, UNIX commands
- **Common Python libraries used in machine learning:** NumPy, pandas, scikit-learn, PyTorch, Matplotlib, TensorFlow, tslearn, Scipy, Pyod
- **Version Control:** SVN, git

ADDITIONAL TRAINING & LANGUAGES

- Responsible Conduct of Research (RCR), CITI Program
- **Languages:** English (Proficient), Chinese (Native)