Jiakai (Victor) Shi

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SUMMARY

- An innovative problem-solving with proven experience in handling ill-defined tasks and design thinking capability.
- A reliable and enthusiastic team player who can also handle tasks independently.
- Skilled programming/coding rich experience in applying adaptive learning algorithms to solve real-life problems.

EDUCATION

Bachelor of Science: Specialist in Computer Science, Major in Statistics | GPA: 3.77/4.0 **Sep. 2017 - Jun. 2022**
University of Toronto *Toronto, ON*
Honors and Awards: Dean List (Winters 2020 & 2021), SUDS Award (Summer 2022)

Master of Engineering in Electrical & Computer Engineering **Sep. 2022 - Exp' Mar. 2024**
University of Toronto *Toronto, ON*

RESEARCH & WORK EXPERIENCE

Research Scholar **Jun. 2022 – Aug. 2022**
Data Science Institute at University of Toronto *Toronto, ON*
Explore designs of prompts and optimize Large-Language Models like GPT-3 in mental health chatbots

- Developed a Flask chatbot interface with API connections to OpenAI's GPT3-models for generating messages.
- Designed a randomized factorial experiment with 945 participants on Mechanical Turk for testing prompts in GPT-3 model.
- Submitted paper in *ACM CHI Conference on Human Factors in Computing Systems*. Preprint link: https://arxiv.org/abs/2209.11344
- Submitted paper in *2022 Conference on Digital Experimentation @ MIT*.

Automate simulations for varying real-world scenarios of adaptive experiments

- Ran simulations with multiple Multi-Armed Bandit Algorithms with Thompson Sampling in Python.

Develop RESTful APIs in online framework for running adaptive experiments

- Develop APIs for designing sampling policies in adaptive experiments and downloading data from Django datastore for analysis.

Undergraduate Research Assistant **Sep. 2020 – May. 2022**
Intelligent Adaptive Interventions Lab at University of Toronto *Toronto, ON*
Design software interventions to encourage participants taking vaccines against COVID-19

- Performed randomized adaptive experiments for message personalization to encourage participants taking vaccines during the spread of COVID-19.
- Designed multi-armed bandits algorithms for message content factorization.
- Accepted poster in *ACM CHI Conference Late-Breaking Work*. Paper link: https://dl.acm.org/doi/10.1145/3491101.3519760
- Submitted poster in *2022 Conference on Digital Experimentation @ MIT*.

Apply machine learning algorithm in Qualtrics surveys and collect data from Mechanical Turk deployments

- Designed and launched 20+ real-time Mechanical Turk deployments by applying Thompson Sampling Bandit Algorithm, which were incorporated in the bandit algorithm paper.

Build intelligent self-improving technology for student education & health by integrating machine learning, statistics, economics, and computational social science knowledge.
Project link: *http://www.josephjaywilliams.com/gradcourse*

- Assisted researchers in designing reinforcement learning models and algorithms, including multi-armed (contextual) bandits for optimizing the effectiveness of how certain message sequences motivate users (aka reward in multi-armed bandit).
- Built and utilized Azure Bots Framework (C#) and Django web app (Python) integrating Twilio for generating/sending/receiving text messages that send to & receive from users and storing user information.
- Integrated reinforcement learning models and algorithms with SMS by connecting Django web app with the component of the interface, called MOOClet Engine, which allows researchers to deploy multi-armed (contextual) bandits algorithms for experiments.

PROJECT EXPERIENCE

DRPI-CGAN | *Python, PyTorch, Git* | https://github.com/VictorS67/DRPI-CGAN **Mar. 2022 - May. 2022**

- Designed and implemented Detection and Restoration of Photoshopped Images using Convolutional GAN model.
- Analyzed the accuracy and efficiency of model for facial image manipulation detection and recovery.

Barrage | *JavaScript, HTML, CSS, Heroku, Git* | *https://github.com/VictorS67/CSC309 INDIVIDUAL.git* **Sep. 2020 - Dec. 2020**

- Independently designed a JS library to present the comments in a specific way, with tasks including creating a library called "Barrage.js", creating a landing page for examples & introduction for Barrage, and designing an API Documentation for this library..

TECHNICAL PROFICIENCY

- **Languages**: Python, Java, JavaScript, HTML/CSS, R.
- **Developer Tools**: Git, SQL, Pandas, Seaborn, Django Rest Framework.
- **Frameworks**: PyTorch, Django, Flask.