Tianyang Zhao

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EDUCATION

Pennsylvania State University, University Park, PA

Ph.D. Informatics, Advisor: Dr. Shomir Wilson, GPA: 3.95/4.00 Anticipated: May 2026

Pennsylvania State University, University Park, PA

M.S. Computer Science and Engineering, Advisor: Dr. Rui Zhang, GPA: 3.69/4.00 August 2022

Pennsylvania State University, University Park, PA

B.S. Computer Science, minor in Psychology, GPA: **3.93**/4.00 May 2020

RESEARCH INTERESTS

▪ Natural Language Processing ▪ Machine Learning ▪ Privacy ▪ Artificial Intelligence

PUBLICATIONS & PROFESSIONAL SERVICES

Publications

- **Zhao, T.**, Shomir, W. (2023). Large-Scale Automatic Question-Answer Pair Extraction for Privacy Policies. Long paper submission under review at *EMNLP 2023*.
- Bandyopadhyay, S., **Zhao, T.** (2020). Natural Language Response Generation from SQL with Generalization and Back-translation. In *Proceedings of the First Workshop on Interactive and Executable Semantic Parsing (at EMNLP 2020)*.

Peer Reviewer

▪ EMNLP 2023 Industry Track ▪ EMNLP 2022: 3 submissions ▪ NAACL 2022: 1 submission

Professional Membership

Association for Computational Linguistics November 2020 – Present

- Presented my publication at the First Workshop on Interactive and Executable Semantic Parsing of the 2020 Conference on Empirical Methods in Natural Language Processing (EMNLP 2020).

RESEARCH EXPERIENCE

PrivaSeerQA: A Large-Scale Corpus of Question-Answer Pairs from Privacy Policies

Role: Research Assistant | Pennsylvania State University August 2022 – Present

- Collected questions and responses in privacy policies with an automated approach.
- Developed a question-answering system with state-of-the-art performance to show the usability of the corpus and the effect of its large scale.
- Compared the privacy questions addressed in policies and those which the general public is most interested in.

Robustness and Augmentation with Universal Adversarial Triggers on Dialogue State Tracking

Role: Researcher | Pennsylvania State University May 2021 – June 2022

- Analyzed how Universal Adversarial Triggers influence performance of TripPy on Dialogue State Tracking.
- Investigated if augmenting data with these triggers can improve TripPy's performance.

Efficient Sub-Pixel Convolutional Neural Network for Spectrum Image Processing

Role: Researcher | Pennsylvania State University December 2020 – May 2021

- Reviewed related literature to find approaches for pattern recognition.
- Implemented these ideas, ran analysis experiments, and evaluated their accuracy as well as efficiency.

Adversarial Machine Learning with SQL-to-Text Translation

Role: Team Member | Independent Research Project May 2020 – August 2020

- Improved the robustness of a model by training with extra adversarial data.
- Identified common types of noise and generated noisy datasets corresponding to each type.
- Designed various character perturbations and compared effects on original and noisy datasets.

SELECTED PROJECTS

New York City Pick-up and Drop-off Demands Prediction Tool

- Built a web application using HTML for front-end web pages and Flask for the back-end interactions.
- Carried out data analysis to clean the data, discover useful features, and generate visualizations.
- Compared various approaches: random forest, nearest neighbors, ARIMA, and linear regression with Lasso.

CanvasPath: A Course Management System with Database Support

- Conducted requirement analysis to find out the expected functionalities and the best suited development tools.
- Designed a database to capture the requirements, expressed by an entity relationship diagram.
- Implemented the system as a web application with different interfaces for various types of users.

SKILLS

- Selected Deep Learning Python Libraries: PyTorch, Keras, TensorFlow, scikit-learn, Transformers
- Selected Data Processing Python Libraries: NLTK, NumPy, Pandas, matplotlib, SciPy
- Programming Languages: Python, Matlab, C, Java, C++
- Web Development: SQL, HTML, JavaScript, CSS, Flask
- Miscellaneous: LaTex, Git, Jupyter Notebook

TEACHING EXPERIENCE

Teaching Assistant, Pennsylvania State University, College of IST

Intermediate & Object-Oriented Application Development August – December 2022

Teaching Assistant, Pennsylvania State University, Department of CSE

Data Structures and Algorithms August 2021 – May 2022
Discrete Math for Computer Science January 2021 – May 2021
Programming and Computation I: Fundamentals August 2020 – December 2020