ZIWEI (SARA) GONG

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EDUCATION

Columbia University *September 2022*
Ph.D. in Computer Science, **Direction:** NLP; Multimodality Overall GPA: 4.04/4
Barnard College, Columbia University *September 2017 - December 2021*
Bachelor of Arts, **Majors:** Computer Science; Psychology Overall GPA: 3.66/4

PUBLICATION

[1] "Eliciting Rich Positive Emotions in Dialogue Generation", **Ziwei Gong**, Qingkai Min and Yue Zhang. First Workshop on Social Influence in Conversations (SICon 2023), ACL. Toronto, Canada.

[2]"Exploring New Methods for Identifying False Information and the Intent Behind It on Social Media: COVID-19 Tweets" Lin Ai, Run Chen, **Ziwei Gong**, Julia Guo, Shayan Hooshmand, Zixiaofan Yang, Julia Hirschberg. Sixth International Workshop on Social Sensing (SocialSens 2021), ICWSM, Atlanta.

[3] "A Mapping on Current Classifying Categories of Emotions used in Multimodal Models for Emotion Recognition", **Ziwei Gong**, Xinyi Hu, Muyin Yao, Xiaoning Zhu, Julia Hirschberg. Under review (ICASSP 2024).

[4] "Multi-Modality Multi-Loss Fusion Network", Zehui Wu*, **Ziwei Gong***, Jaywon Koo, Julia Hirschberg. Under review for ARR.

RESEARCH EXPERIENCE

Speech Lab, Computer Science Department, Columbia University New York, NY
Ph.D. student (Advisor: Julia HIRSCHBERG, Ph.D.) *September 2022-Present*

- Reasech on emotion detection under cross-lingual, cross-cultural, and multimodal setting as part of the Cross-culture Communication and Understand project funded by DARPA.
- Designed cross-lingual transfer learning model with a teacher-student network for multimodal emotion detection that preforms well in low resources setting.
- Research on emotion-shift in conversation setting.

Research Assistant, Project Student (Advisor: Julia HIRSCHBERG, Ph.D.) *January 2021-February 2022*

- Apply BERT model on sarcasm detection with experiments with a combination with pre-trained models and datasets to achieve best result on collected sarcasm tweets on COVID19, as part of the DARPA SemaFor project on identifying misinformation from social media
- Experiment to improve sarcasm detection through multi-modal information; collect and annotated data from talk shows on YouTube
- Propose and experiment to use grounded video description model to assist the reasoning of radicalization

Text Intelligence Lab, School of Engineering, Westlake University Hangzhou, China
Full-time Research Assistant/Visiting Student (Advisor: Yue ZHANG, Ph.D.) *July 2020 – February 2021*

- Developed algorithms to enable scalable analysis on what Bert attends to during sentiment analysis and fine-tuning to explore how the neural network derived the answers in sentiment analysis tasks. Designed and conducted model training and experiments
- Proposed to use rich emotion information to improve emotion elicitation task in dialogue generation using the MEmoR dataset by constructing latent emotion variable in CVAE model; achieved SoTA.

Speech Accessibility Project (VoiceNextPage on the Play Store), Computer Science Department, Columbia University New York, NY
Research Assistant (Advisor: David WILLIAMS-KING, Ph.D.) *September 2019 – June 2020*

- Extended voice-controlled ebook-reader automator app to support user-customized voice commands and chain commands mixed with arbitrary dictation, and sent the commands to a PC for execution
- Worked with an open-source speech engine (Kaldi) and extended it to support decoding on a remote server
- Reconstructed back-end structure to optimize space and speed to allow more users per server

PROFESSIONAL EXPERIENCE

Amazon Web Services East Palo Alto, CA, hybrid
Full-time SDE, Deep Learning at AWS *Feburary 2022 – September 2022*

- Designed, impletmented and tested Amazon SageMaker Debugger rules that: automatically optimize ML models training using training metrics in real-time and sending alerts when anomalies are detected; automatically stop training processes early when converged or anomalies detected to reduce the time and cost of training ML models; automatically identify bottlenecks of training and propose solutions to improve ML training.
- Dived deep to reconstruct and fully-automate an legacy pipeline to improve pipeline health for AWS ML Cloud service support.

Amazon Web Services East Palo Alto, CA, virtual
SDE I Intern, Deep Learning at AWS *June 2021 – September 2021*

- Built custom object detection YOLOv3 model for Amazon's SageMaker CV Framework, from scratch: built and trained Darknet53 backbone, FPN and Yolo head. Enabled multi-node and multi-gpu training
- Modified specialized CUDA operations (customized anchor generator and box assigner for training on GPU); implemented model optimizations (built-in DDP features, mixed precision, NHWC) to speed up training time
- Achieved 40% training speed optimization (ours: 170ms vs. baseline: 280ms)

Endeavor New York, NY
Endeavor Insight Intern *June 2019 – August 2019*

- Conducted in-depth research of more than 1000 entrepreneurship and entrepreneurial communities around the world to identify the key factors for successful ones and how policymakers can best support them
- Automated Excel importing and analysis of entrepreneur data-points in more than 300 metropolitan regions and different industries

TEACHING EXPERIENCE

Teaching Assistant, COMSE6998 Advanced Topics in Spoken Language Processing Spring 2023
Computer Science Departmemt, Columbia University *New York, NY*

Empirical Reasoning Fellow Fall 2019, Spring 2020
Empirical Reasoning Center, Barnard College *New York, NY*

Teaching Assistant, PSYCBC1101 Statistics Fall 2018
Psychology Department, Barnard College *New York, NY*

HONORS AND AWARDS

Member, **Psi Chi, International Honor Society in Psychology** *August 2020 – Present*
Beyond Barnard GHC Award in 2019 and 2020

SKILLS

Languages: English (fluent), Chinese(native), French(Elementary).
Interest: Archery, Oil Painting