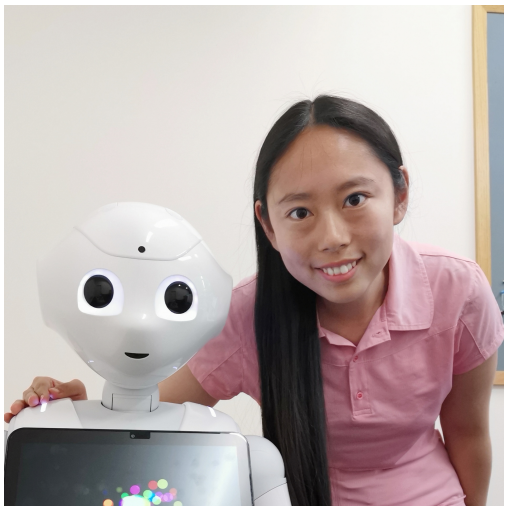
Dr. Leimin Tian



Research Fellow

Human-Robot Interaction group, ECSE, Engineering
Human-Centered AI Institute
Data Futures Institute
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Research Interests

Affective Computing, Human-Robot Interaction, Human-Centered AI, Multimodal Behavioral Analytics, Social Robotics, Dialogue Systems, Digital Health, Speech Processing, Natural Language Processing

Education

- Ph.D. in Informatics. The University of Edinburgh. 2013–2018.
  - *Thesis:* "Recognizing Emotions in Spoken Dialogue with Acoustic and Lexical Cues"
  - *Supervisors:* Prof. Johanna D. Moore and Dr. Catherine Lai
- M.Sc. in Artificial Intelligence (*with Distinction*). The University of Edinburgh. 2012–2013.
  - *Dissertation:* "Emotion Recognition using Feature-Level Fused Audio-Visual Data"
  - *Supervisors:* Prof. Johanna D. Moore and Dr. Catherine Lai
- B.Eng. in Artificial Intelligence. Beijing University of Posts and Telecommunications. 2008–2012.
  - *Dissertation:* "An Application of Audio-Visual Emotion Recognition"
  - *Supervisors:* Prof. Xiaojie Wang and Dr. Yongbin Liu

Grants and Awards

- Monash University Interdisciplinary Research Seed Grant. Jan. 2020–Dec.2020.
  - *Project:* "Understanding Robots in Public Spaces: Interdisciplinary Insights for Public Policy"
  - *Investigators:* Prof. Shanti Sumartojo (project lead), Prof. Dana Kulić, Dr. Leimin Tian, and Prof. Michael Mintrom
  - *Grant:* AUD 50,000, application success rate 16%
- Monash University Faculty of IT Early Career Researcher Seed Grant. July 2019–Aug.2020.
  - *Project:* "Developing a Robot Teleoperation Framework for Simulation Studies"

  - *Investigator:* Dr. Leimin Tian
  - *Grant:* AUD 13,000

- Fiorella De Rosis Award for the best Doctoral Consortium paper at the sixth International Conference on Affective Computing and Intelligent Interaction (ACII 2015).

- Full PhD scholarship funded by the University of Edinburgh.

Work Experiences

- *Research Fellow.* Monash University. 23rd July 2018–Present.

- *Consultant.* EmoTech Ltd. 19th Sep. 2016–19th Dec. 2016.

  - *AI of Emotion Project:* Designed and developed the emotion recognition, emotional interaction modelling, and emotion synthesis modules of Olly, a domestic personal assistant robot.

- *Research Intern.* Chinese Academy of Science, Institute of Psychology. Jul. 2011–Aug. 2011.

  - *Projects:*
    * Facial Expression Recognition System
    * Affect Modelling with Galvanic Skin Responses (GSR)
    * Creativity Test for Chinese University students
  - *Supervisor:* Prof. Xiaolan Fu

- *Research Assistant.* Beijing University of Posts and Telecommunications, Department of Computer Science. Jun. 2010–Nov. 2011.

  - *Project:* Intelligent Tutoring System for Pre-School Children
  - *Supervisor:* Prof. Xiaojie Wang

Teaching and Supervision

- *Co-instructor* of course ECE4078 (Intelligent Robotics): Monash University. Aug–Nov 2020.

- *Co-supervisor* of PhD candidate Subra Muthusamy: "Multimodal Anlaysis of Patients with Epileptic Seizure and Psychogenic Non-Epileptic Seizure". Monash Health. Feb 2020–Present.

- *Co-supervisor* of PhD candidate Chathurika Palliya Guruge: "Designing Multimodal Interfaces for Early Diagnosis of Dementia". Monash University. Feb 2019–Feb 2020.

- *Primary or co-supervisor* of Master thesis, Honor's thesis, and final year projects: Monash University. 2019–Present.

  - Darren Chuo and Linjun Lu: "Reinforcement Learning Agents with Emotion-Inspired Rewards" (final year project)
  - Luke McKenzie-McHarg: "Assertiveness Impression of a Robot and the Perceived Credibility of Information it Provides" (final year project)
  - Borislav Rakic: "An Adaptive Training Device for the Sport of Arm-Wrestling" (final year project)

  - Shuyi Cao: "Modelling Human-Human Emotion Dynamics in Spoken Dialogue System" (Master thesis)
  - Shujie Zhou (completed): "Exploring the Role of Emotions in Human-Multi-Agent Collaboration" (Master thesis)
  - Duc Huy Tran (completed): "Modelling Human-Human Emotion Dynamics in Spoken Dialogue" (Honor's thesis)
- *Co-supervisor* of MSc dissertations: The University of Edinburgh. 2016–2017.
  - Stanley Wang: "Representation Learning for Emotion Recognition"
  - Chenyu Wang: "Automatic Detection of Non-Verbal Vocalisations in Spoken Dialogues"
  - Xinran Shi: "Automatic Detection of Disfluencies in Spoken Dialogues"

Technical Skills

- *Programming languages:* Python (primary), Matlab, Perl
- *Robotic platforms:* Pepper, NAO, Cozmo, Fetch
- *Machine learning and deep learning:* Keras, PyTorch, TensorFlow, Scikit-Learn, R, WEKA, SPSS
- *Cloud platforms:* Amazon Web Services, Google Colab, Google ASR, Google Dialogflow
- *Signal processing and annotation:* OpenSMILE, Praat, ELAN, Amazon Mechanical Turk
- *Other:* ROS, Linux, LaTeX

Services

- *Regular reviewer*: ACII, ICMI, ICSR, IROS, RO-MAN, IEEE Transactions on Affective Computing.
- *Publicity chair*: ACII 2019, ICMI 2020.
- *Associate editor* and *Session chair* at RO-MAN 2020.
- *Organizer.* IJCAI Workshop on Artificial Intelligence in Affective Computing. 2019–Present.
- *Junior Executive Committee Member.* Association for the Advancement of Affective Computing (AAAC). Feb. 2018–Present.
- *Committee Member.* Faculty of IT's Early Career Academic committee. Feb. 2019–Feb. 2020.
- *Organizer.* Social Robotics Workshop. 12th Aug. 2019.
- *Committee Member.* British Science Association (Edinburgh Branch). Sep. 2012–Jun. 2018.

Public Engagement and Media Presence

- Robotics Logics of Public Space in the COVID Pandemic. 13th Aug. 2020, Mediapolis.
- She's Building a Robot: an Interview with Mick Liubinskas. 15th July 2019.
- Affective Computing: What We Do and Do Not Know. 22nd Nov. 2017, Emotech Ltd & Cocoon Networks, London, UK.
- Girls in Tech: in English and in Mandarin. 8th Mar. 2017

Scientific Referees

Available upon request

Full Publication List

Best Five:

1. Leimin Tian and Sharon Oviatt. A taxonomy of social errors in human-robot interaction. *ACM Transactions on Human-Robot Interaction (THRI)*, 10(2):1–32, 2021

2. Leimin Tian, Pamela Carreno-Medrano, Aimee Allen, Shanti Sumartojo, Michael Mintrom, Enrique Coronado Zuniga, Gentiane Venture, Elizabeth Croft, and Dana Kulic. Redesigning human-robot interaction in response to robot failures: A participatory design methodology. In *Extended Abstracts of the 2021 CHI Conference on Human Factors in Computing Systems*, pages 1–8, 2021a

3. Shujie Zhou and Leimin Tian. Would you help a sad robot? influence of robots' emotional expressions on human-multi-robot collaboration. In *2020 29th IEEE International Conference on Robot and Human Interactive Communication (RO-MAN)*, pages 1243–1250. IEEE

4. Leimin Tian, Catherine Lai, and Johanna Moore. Polarity and intensity: the two aspects of sentiment analysis. In *Proceedings of Grand Challenge and Workshop on Human Multimodal Language (Challenge-HML)*, pages 40–47, 2018

5. Leimin Tian, Michal Muszynski, Catherine Lai, Johanna D Moore, Theodoras Kostoulas, Patrizia Lombardo, Thierry Pun, and Guillaume Chanel. Recognizing induced emotions of movie audiences: Are induced and perceived emotions the same? In *Affective Computing and Intelligent Interaction (ACII), 2017 Seventh International Conference on*, pages 28–35. IEEE, 2017b

Other:

1. Leimin Tian, Sharon Oviatt, Michal Muszynski, Brent Chamberlain, Jennifer Healey, and Akane Sano. *Applied Affective Computing*. ACM Books (in preparation), 2021b

2. Michael Mintrom, Shanti Sumartojo, Dana Kulić, Leimin Tian, Pamela Carreno-Medrano, and Aimee Allen. Robots in public spaces: implications for policy design. *Policy Design and Practice*, pages 1–16, 2021

3. Enrique Coronado, Dominique Deuff, Pamela Carreno-Medrano, Leimin Tian, Dana Kulić, Shanti Sumartojo, Fulvio Mastrogiovanni, and Gentiane Venture. Towards a modular and distributed end-user development framework for human-robot interaction. *IEEE Access*, 9:12675–12692, 2021

4. Leimin Tian, Pamela Carreno-Medrano, Shanti Sumartojo, Michael Mintrom, Enrique Coronado, Gentiane Venture, and Dana Kulić. User expectations of robots in public spaces: A co-design methodology. In *International Conference on Social Robotics*, pages 259–270. Springer, 2020

5. Catherine Lai, Beatrice Alex, Johanna D Moore, Leimin Tian, Tatsuro Hori, and Gianpiero Francesca. Detecting topic-oriented speaker stance in conversational speech. In *INTERSPEECH Conference 2019*, pages 46–50. International Speech Communication Association, 2019

6. Michal Muszynski, Leimin Tian, Catherine Lai, Johanna Moore, Theodoros Kostoulas, Patrizia Lombardo, Thierry Pun, and Guillaume Chanel. Recognizing induced emotions of movie audiences from multimodal information. *IEEE Transactions on Affective Computing*, 2019

7. Jennifer Williams, Ramona Comanescu, Oana Radu, and Leimin Tian. Dnn multimodal fusion techniques for predicting video sentiment. In *Proceedings of Grand Challenge and Workshop on Human Multimodal Language (Challenge-HML)*, pages 64–72, 2018

8. Leimin Tian, Johanna D Moore, and Catherine Lai. Recognizing emotions in spoken dialogue with acoustic and lexical cues. In *Proceedings of the 1st ACM SIGCHI International Workshop on Investigating Social Interactions with Artificial Agents*, pages 45–46. ACM, 2017a

9. Leimin Tian, Johanna Moore, and Catherine Lai. Recognizing emotions in spoken dialogue with hierarchically fused acoustic and lexical features. In *Spoken Language Technology Workshop (SLT), 2016 IEEE*, pages 565–572. IEEE, 2016

10. Leimin Tian, Johanna D Moore, and Catherine Lai. Recognizing emotions in dialogues with acoustic and lexical features. In *Affective Computing and Intelligent Interaction (ACII), 2015 International Conference on*, pages 737–742. IEEE, 2015c

11. Leimin Tian, Johanna D Moore, and Catherine Lai. Emotion recognition in spontaneous and acted dialogues. In *2015 International Conference on Affective Computing and Intelligent Interaction (ACII)*, pages 698–704. IEEE, 2015b

12. Leimin Tian, Catherine Lai, and Johanna Moore. Recognizing emotions in dialogues with disfluencies and non-verbal vocalisations. In *Proceedings of the 4th Interdisciplinary Workshop on Laughter and Other Non-verbal Vocalisations in Speech*, volume 14, page 15, 2015a

13. Johanna D Moore, Leimin Tian, and Catherine Lai. Word-level emotion recognition using high-level features. In *International Conference on Intelligent Text Processing and Computational Linguistics*, pages 17–31. Springer, Berlin, Heidelberg, 2014