# Tianyi Zhang

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## Education

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| 2023.02- now | **Postdoc Researcher, Vrije Universiteit Amsterdam** |
| | Research project: Automatic personality assessment based on video interviews |
| 2018.07-2022.07 | **Ph.D. Candidate, Computer Science, Centrum Wiskunde en Informatica** |
| | Thesis: On Fine-grained Temporal Emotion Recognition in Video: How to Trade off Recognition Accuracy with Annotation Complexity? |
| 2015.09-2018.04 | **M.S.**, **Control Engineering**, **NUAA** |
| | Thesis: Obstacle avoidance for mobile robot based on stereo vision |
| 2011.09-2015.06 | **B.S.**, **Electrical Engineering and Automation**, **NUAA** |
| | Thesis: Research on autonomous takeoff and landing based on computer vision for a multi-rotor aircraft |
| 2013.08-2014.01 | **Exchange Student**, Lassonde School of Engineering, York University, Canada |

## Project

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| 2018.07-2022.07 | Industrial Ph.D. funded by **Xinhuanet, Centrum Wiskunde & Informatica** |
| | **Topic**: Evaluate the emotional response of users for media content |

## Internships

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| 2018.06-2018.07 | **Research Assistant**, Xinhuanet, Beijing, China |
| | **Project**: Quantifying audience experience using physiological signals |
| 2017.07-2017.09 | **Research Assistant**, AE2, KOSTAL Asia R&D Center, Shanghai, China |
| | **Project:** Driver Monitor Camera System for fatigue driving identification |

## Skills

- **Programming language**: Python, C/C++, Matlab, Embedded C, vb.net
- **Statistical skills:** SPSS, R, Python, Matlab
- **Machine Learning knowledge**: supervised learning, weakly supervised learning, one/few-shot learning, generative models and autoencoders on time serial data
- **Machine Learning framework**: TensorFlow/Keras, Pytorch, Scikit-learn
- **Other skills**: embedded systems (Arduino-based), mobile app development (Android studio), desktop app development (QT)

## First-author publications

1. **Zhang T**, El Ali A, Wang C, Hanjalic A, Cesar P., Weakly-supervised Learning for Fine-grained Emotion Recognition using Physiological Signals, *IEEE Transaction on Affective Computing 2022*.
2. **Zhang T**, El Ali A, Wang C, Hanjalic A, Cesar P. Few-shot Learning for Fine-grained Emotion Recognition using Physiological Signals, *IEEE Transaction on Multimedia 2022*.
3. **Zhang T**, El Ali A, Wang C, Hanjalic A, Cesar P. RCEA: Real-time, Continuous Emotion

Annotation for Collecting Precise Mobile Video Ground Truth Labels. In Proceedings of the *CHI Conference on Human Factors in Computing Systems* **2020** Apr 21 (pp. 1-15).

4. **Zhang T**, El Ali A, Wang C, Hanjalic A, Cesar P. Corrnet: Fine-grained emotion recognition for video watching using wearable physiological sensors. *Sensors*. **2021** Jan;21(1):52.

5. **Zhang T**, El Ali A, Wang C, Zhu X, Cesar P. CorrFeat: Correlation-based Feature Extraction Algorithm using Skin Conductance and Pupil Diameter for Emotion Recognition. In Proceedings of the *International Conference on Multimodal Interaction (ICMI)* **2019** Oct 14.

6. **Zhang T**. Multi-modal Fusion Methods for Robust Emotion Recognition using Body-worn Physiological Sensors in Mobile Environments. In Proceedings of the *International Conference on Multimodal Interaction (ICMI)* **2019** Oct 14 (pp. 463-467).

7. **Zhang T**, Le Meur BO. How old do you look? Inferring Your Age from your Gaze. In 2018 25th *IEEE International Conference on Image Processing (ICIP)* **2018** Oct 7.

## Co-authored publications

1. Xue T, El Ali A, **Zhang T**, Ding G, Cesar P. RCEA-360VR: Real-time, Continuous Emotion Annotation in 360 VR Videos for Collecting Precise Viewport-dependent Ground Truth Labels. In Proceedings of the 2021 *CHI Conference on Human Factors in Computing Systems* **2021** May 6 .

2. Furdui A, **Zhang T**, Worring M, Cesar P, El Ali A. AC-WGAN-GP: Augmenting ECG and GSR Signals using Conditional Generative Models for Arousal Classification. In Proceedings of the *UbiComp* **2021** Sep 21 (pp. 21-22).

3. Xue T, El Ali A, **Zhang T**, Ding G, Cesar P. CEAP-360VR: A Continuous Physiological and Behavioral Emotion Annotation Dataset for 360 VR Videos. *IEEE Transactions on Multimedia*. **2021** Nov 13.

4. Chen, H., Jiang, B., **Zhang, T.**, and Lu, N.  Data-driven and Deep Learning-based Detection and Dagnosis of Incipient Faults with Application to Electrical Traction Systems. *Neurocomputing*, **2020**, 396, 429-437.

5. Xie, J, Chen, X, **Zhang,T**, Zhang, Y, Lu, S,Cesar,P, and Yang, Y; Multimodal-based and Aesthetic-guided Narrative Video Summarization, *IEEE Transaction on Multimedia 2022*.

**Citations: 207, h-index: 7, i10-index: 7**
**Full publication list at**: *https://scholar.google.com/citations?&user=k-ogUq0AAAAJ*

## Master's thesis co-supervision

1. Mihir Kapadia, *Few-Shot Emotion Recognition using intelligent voice assistants and wearables*, TU Delft, the Netherlands, 2022

2. Andrei Furdui, *Intelligent Data Augmentation for Physiological Signals using Conditional Generative Attention Models*, University of Amsterdam, the Netherlands, 2020

## Patents

[1] China Patent for invention (**Second inventor**): A method for emotion recognition during film-watching based on skin conductance and pupil diameter, CN201910926880.8

[2] China Patent for invention (**Second inventor**): Real-time, Continuous Emotion Annotation for Collecting Precise Mobile Video Ground Truth Labels, CN202010055463.3

[3] China Patent for invention (**First inventor**): Obstacle avoidance method and system for Unmanned Aerial Vehicle based on stereo vision and optical flow, CN201611069481.7

[4] China Patent for invention (**First inventor**): A vision-based obstacle detection algorithm for

automatic driving, CN201710043586.3.

## Awards

1. China National Scholarship **(Top 1%)**
2. National (China) Graduate Student Mathematical Contest in Modeling (**2nd Prize**)
3. National (USA) Model United Nations Conference (**Outstanding Delegation)**