

Zelun Wang

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Education

Texas A&M University <i>Ph.D. Student in Computer Science, GPA 3.9/4.0</i>	College Station 2014.9–current
Xi'an Jiaotong University <i>B.Eng. in Automation, GPA 89.0/100</i>	Xi'an 2010.9–2014.7
National Tsing Hua University <i>Exchange Student in Electrical Engineering, GPA 4.2/4.3</i>	Taiwan 2012.9–2013.1

Research Interests

- Wearable Sensors, Affective Computing, Computer Vision, Machine Learning

Technical Skills

- **Language:** C, C++, JAVA, PYTHON, RUBY, JAVASCRIPT, PHP
- **Tools:** MATLAB, ANDROID, LATEX, EAGLE PCB

Publications

- **Z Wang**, T Jin, P Lin, R Gutierrez-Osuna, "Mixture quantification in the presence of unknown interferences", *The International Symposium on Olfaction and Electronic Nose*. (2017)
- **Z Wang**, A Parnandi, R Gutierrez-Osuna, "BioPad: Leveraging Off-the-Shelf Video Games for Stress Self-Regulation", *Journal of Biomedical and Health Informatics*. (2017)
- C Liberatore, S Aryal, **Z Wang**, S Polsley, R Gutierrez-Osuna, "SABR: Sparse, Anchor-Based Representation of the Speech Signal", *Sixteenth Annual Conference of the International Speech Communication Association*. (2015)
- **Z Wang**, J Wang, S Zhang, Y Gong, "Visual Tracking based on Online Sparse Feature Learning", *Journal - Image and Vision Computing*. (2015)
- S Zhang, J Wang, **Z Wang**, Y Gong, Y Liu, "Multi-target tracking by learning local-to-global trajectory models", *Journal - Pattern Recognition*. (2014)

Professional Experiences

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|--|---|
| Research Assistant | <i>Texas A&M University, 2015.06–current</i> |
| o Advised by Dr. Ricardo Gutierrez-Osuna | |
| o Performed research on stress detection, biofeedback training, and chemical sensing | |
| Teaching Assistant | <i>Texas A&M University, 2014.09–2015.05</i> |
| o Taught CSCE 121: Introduction to Program Design (C++) | |
| o Instructed laboratory sessions for over 150 students | |
| Undergraduate Research Assistant | <i>Xi'an Jiaotong University, 2013.06–2014.06</i> |
| o Instructed by Dr. Yihong Gong and Dr. Jinjun Wang | |
| o Performed research on visual tracking in video sequences | |

Projects

Pressure Mouse

Texas A&M University, 2017–current

- o Designed a customized computer mouse with pressure sensors inside
- o Streamed sensor data via Adafruit Feather Bluetooth
- o Designed a PC software for logging mouse activities in Python
- o Designed an online Color Word Stroop test in Javascript

Breath Components Analysis

Texas A&M University, 2016–current

- o Implemented an active sensing algorithm to analyze the infrared spectrum of breath mixtures
- o Inferred the concentrations of individual chemicals
- o Designed a PCB on top of a Raspberry Pi to control the infrared sensors to collect spectrum data

Campus Parking Website Design

Texas A&M University, 2016

- o Developed an on-campus parking suggestion system based on Google Maps API
- o Offered personalized information to users and made suggestions for most convenient parking places

Website Design for Texas Auctioneers Association

Texas A&M University, 2015

- o Developed a membership management website for the Texas Auctioneers Association
- o Developed an linked database system based on MongoDB and Ruby on Rails
- o Supported membership management, registration, etc.

Biofeedback Game Design

Texas A&M University, 2015

- o Developed a biofeedback tool to leverage off-the-shelf video games for biofeedback training
- o Manipulated the game controller signals based on physiological data from wearable sensors
- o Conducted a user study with 30 people on stress management training

Anchor-based Representation of the Voice Conversion

Texas A&M University, 2014

- o Decomposed the speech signal into speaker-dependent and speaker-independent components
- o Used the centroid for each phoneme as an acoustic anchor
- o Applied Lasso regularization to represent each speech frame as a sparse combination of the anchors
- o Successfully converted the voice of a source speaker to a target speaker

Compressive Tracking based on Sparse Coding

Xi'an Jiaotong University, 2014

- o Extracted high dimensional Haar-like features from targets in video sequences
- o Reduced feature dimension with sparse coding algorithm, and combined with color moments feature
- o Trained an online Bayesian classifier, and scored the detections in the following frame for concise tracking

Multi-Target Tracking in Video Sequences

Xi'an Jiaotong University, 2013

- o Formulated the multi-target tracking task with a Markov Random Field model
- o Implemented the Clear Mot evaluation tool
- o Visualized the tracking results and tracking errors
- o Applied post-treatment such as Kalman filter to trajectory models

Selected Awards

Outstanding Graduate Award:	<i>top 10% awarded</i>	<i>2014</i>
National Encouragement Scholarship:	<i>top 5% awarded</i>	<i>2013, 2012, 2011</i>
Outstanding Student Award:	<i>top 15% awarded</i>	<i>2013, 2012</i>
Outstanding Student Cadre Award:	<i>top 5 % awarded</i>	<i>2011</i>