





Xianghao Zhan

Ph.D. Candidate

 Department of Bioengineering,
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Education

B.Eng. Automation, College of Control Science and Engineering | Zhejiang University | 15-19 | GPA:3.98/4, 93.29/100 | 1/131

B.Eng. Honors Degree | Chu Kochen Honors College | 15-19 | 1/151

B.A., English Language and Literature | School of International Study | 15-19

M.S., Bioengineering | Stanford University | 19-21 | GPA:3.920/4

Ph.D., Bioengineering | Stanford University | 19- | GPA:3.920/4

Skills

Programming: MATLAB, C, Python, R
Domains: Statistical Learning, Deep Learning, Data Mining, Diagnostic Device, Signal and System, Linear Dynamical System, NLP, Cybernetics
Others: Tennis, Badminton, Volleyball

Extra-Curricular

Program Leader @ Stanford SSRP | 21

Student Member @ IET | 21-
Champion @ Stanford IMLeague
Tennis Intramural D2 | 20,21

Captain @ Stanford IMLeague
Volleyball Intramural D1 Champion
Team: Lightning Storm | 20

Founder & Leader @ ZML Lab Science
Propagation Platform | 19-

Founder @ Look A Head English
Workshop | 20-

Captain @ Chu Kochen Honors
College Volleyball Team | 16-18

TA @ Wisconsin/Washington China
Summer Lab | 18

Host @ AIESEC International
Volunteer Project | 16

Volunteer @ Stanford Brain Day 20
Leader @ Chu Kochen International
and Translation Workshop | 15-19

Research Interests

Biomedical Data Analysis

Deep Learning in Multi-omics, Multi-modalities, Sensor Health Data, Statistical Learning in Sensors Signals

Biomechanics in Sport Injury

Computational Simulation, Pattern Recognition and Early Warning System of Sport-related Injury based on Wearable Sensors

Publications and Presentations

- May'21 Journal, First Author Published; Present at IRCOBI 2021
Predictive Factors of Kinematics in Traumatic Brain Injury from Head Impacts Based on Statistical Interpretation. ABME.
- May'21 Journal, First Author Published
Structuring clinical text with AI: old vs. new natural language processing techniques evaluated on eight common cardiovascular diseases. Cell Patterns.
- Apr'21 Journal, First Author Published; Presented at SB3C 2020, NHTSA 2020
Rapid Estimation of Entire Brain Strain Using Deep Learning Models. IEEE TBME.
- Apr'21 Journal, Co-first Author Published
AI-based analysis of CT images for Rapid Triage of COVID-19 Patients. NPJ Dig. Med.
- Apr'21 Journal, First Author Published; Present at SB3C 2021
The Relationship between brain injury criteria and brain strain across different types of head impacts can be different. Royal Interface.
- Jul'21 Journal, Co-first Author Accepted
Boost AI Power: Data Augmentation Strategies with unlabelled Data and Conformal Prediction, a Case in Alternative Herbal Medicine Discrimination with Electronic Nose. IEEE Sensors Journal
- Apr'21 Journal, First Author Under Review
Classification of head impacts based on the spectral density of measurable kinematics. J. Biomech.
- Apr'21 Journal, Co-first Author Under Major Revision
Theoretical and numerical analysis for angular acceleration being determinant of brain strain in mTBI. PRL.
- Feb'20 Journal, First Author Published
An electronic nose-based assistive diagnostic prototype for lung cancer detection with conformal prediction. Measurement.
- May'19 Conference, First Author Oral Presentation
Fast T1, T2 evaluation with machine learning for quantitative cardiac MRI. ISMRM 2019.
- Mar'19 Conference, First Author Published; The Only Session Best Presenter
Feature engineering in discrimination of herbal medicines from different geographical origins with electronic nose. IEEE ICBCB 2019.
- Sep'18 Journal, First Author Published
Discrimination between alternative herbal medicines from different categories with the electronic nose. Sensors.
- 18-21 More Publications
Please refer to my Google Scholar: Xianghao Zhan

Research and Project

Sep'20-	Optimizing modeling and interpretation of traumatic brain injury biomechanics with machine learning Deep learning head model for real-time entire brain strain calculation & statistical interpretation of predictive kinematic factors of brain strain & mTBI injury risk evaluation with brain injury criteria across impact subtypes & kinematics classification and clustering	PI: David B. Camarillo
Mar'20-	Structuring clinical notes with machine learning Structure free-text notes & word vectorization & diagnostic code prediction	PI: Olivier Gevaert
Dec-Jun'19	Particle trapping with modulated acoustic waves. Platform construction & trapping in microfluidic channel, 2D acoustic chamber & control of trapping profiles with driving signal	PI: Adrian C. Stevensesen
Apr'17-	Discrimination of alternative herbal medicine of different categories and origins with electronic nose. Electronic nose, 16 MOS sensors reacted with VOC from herbal medicine of 12 different categories and from 19 geographical origins & Feature extracted in voltage signals & Conformal Prediction & On-line Learning & Feature Engineering	PI: Guang Li
Jul-Sep'18	Fast quantitative parameters evaluation with machine learning for cardiac MRI. Data generation based on Bloch equation simulation & Simultaneous T1 and T2 mapping sequence & XGBoost and Deep Neural Network & Validation on simulation, phantom and in vivo study	PI: Peng Hu
Sep-May'18	An electronic nose-based assistive diagnostic method for lung cancer detection with conformal prediction. Lung cancer diagnosis w. breath air and electronic nose & conformal prediction reliability information in addition to predictions	PI: Guang Li

Achievements & Honors

Sep'20	The James Clark Graduate Fellowship, Stanford University	
Dec'17	Ten Most Preeminent Students, Zhejiang University The only junior undergraduate awarded in 2017 & Summa Cum Laude in Zhejiang University	10/36,000
Dec'18	Chu Kochen Scholarship, Zhejiang University The highest-level scholarship in Zhejiang University	12/23,000
Dec'16	Chinese National Scholarship, Ministry of Education of PRC	Top 0.2%
Jan'19	First-level Fellowship of CICS Chinese Instrument and Control Society Scholarship	Top 12 national awardees
Dec'18	Chu Kochen Honors College Preeminence Scholarship Highest honor in Chu Kochen Honors College, Zhejiang University	2/1,800
Feb'19	Cambridge Trust International Scholarship	Top 80 international awardees
Dec'19	2019 IET Cyber-systems and Robotics Research Article Contest. Second Prize.	Top 5 International Awardees
Jul'19	Excellent Graduate of Zhejiang Province, China	Top 2%
Jun'19	Winner of IET Present Around The World National Final Represented China to Participate in Asian Pacific Final, 2019	No. 1 in PRC

Mentors

Prof. David B. Camarillo	dcamarillo@stanford.edu
Department of Bioengineering, Stanford University	
Prof. Olivier Gevaert	olivier.gevaert@stanford.edu
Center of Biomedical Informatics Research, Stanford University	