

# Yuexuan Wu

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## EDUCATION

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<b>Ph.D. in Statistics</b> <i>Florida State University</i> <ul style="list-style-type: none"><li>• Advisor: Prof. Anuj Srivastava</li></ul>	July 2022 <i>Tallahassee, FL</i>
<b>Master of Science in Applied Statistics</b> <i>Florida State University</i> <ul style="list-style-type: none"><li>• GPA: 3.96</li></ul>	May 2019 <i>Tallahassee, FL</i>
<b>Bachelor of Engineering in Packaging Engineering</b> <i>Wuhan University</i> <ul style="list-style-type: none"><li>• GPA: 3.6</li><li>• Double degree: Bachelor of Commerce in Economics</li></ul>	June 2017 <i>Wuhan, China</i>

## EXPERIENCE

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<b>Postdoctoral Scholar Fellow</b> <i>University of Washington</i> <ul style="list-style-type: none"><li>• Postdoctoral Scholar-Fellow with the National Alzheimer's Coordinating Center, under the supervision of Dr. K.C. Gary Chan.</li></ul>	Sept 2022 – Present <i>Seattle, WA</i>
<b>Graduate Research Assistant</b> <i>Florida State University</i> <ul style="list-style-type: none"><li>• Leading and participating in multiple projects of the Statistical Shape Analysis &amp; Modeling Group.</li></ul>	May 2022 – July 2022 <i>Tallahassee, FL</i>
<b>Graduate Instructor</b> <i>Florida State University</i> <ul style="list-style-type: none"><li>• Introduction to Applied Statistics (STA 2122)</li></ul>	Jan 2022 – May 2022 <i>Tallahassee, FL</i>
<b>Graduate Research Assistant</b> <i>Florida State University</i> <ul style="list-style-type: none"><li>• Leading and participating in multiple projects of the Statistical Shape Analysis &amp; Modeling Group.</li></ul>	May 2020 – Jan 2022 <i>Tallahassee, FL</i>

## AWARDS

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<b>Yongyuan and Anna Li Award</b> <i>Department of Statistics, Florida State University</i> <ul style="list-style-type: none"><li>• For best graduate student presentations</li></ul>	2022
<b>Best Student Presentation Award</b> <i>2022 Annual Florida ASA Chapter Meeting</i> <ul style="list-style-type: none"><li>• Longitudinal Elastic Shape Analysis of Brain Subcortical Structures</li></ul>	2022
<b>Best Student Poster Award (Top 1%)</b> <i>SIAM Conference on Computational Science and Engineering (CSE) 2021</i> <ul style="list-style-type: none"><li>• Elastic Shape Analysis of Post-Traumatic Stress Disorder on Subcortical Brain Structures</li></ul>	2021
<b>2<sup>nd</sup> Place in ACM Programming Contest</b> <i>Florida State University</i>	2018
<b>1<sup>st</sup> Class Scholarship (Top 1%)</b> <i>Wuhan University</i>	2016

## PROJECTS

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- Elastic Shape Analysis of Brain Structures for Predictive Modeling of PTSD** Feb 2020 - Aug 2022
- In collaboration with Dr. Suprateek Kundu and Dr. Jennifer Stevens from Emory University.
  - Developing a comprehensive shape analysis framework to quantify the brain substructures surfaces shape differences using an elastic shape metric.
  - Training regression models with shape coefficients and predicting PTSD outcomes.
  - Applying the method to data from the Grady Trauma Project and yielding superior predictive performance.
- LESA: Longitudinal Elastic Shape Analysis of Brain Subcortical Structures** Sept 2020 - Present
- In collaboration with Dr. Zhengwu Zhang, Di Xiong, and Dr. Hongtu Zhu from UNC Chapel Hill.
  - Integrating ideas from elastic shape analysis, PCA, and statistical modeling of sparse longitudinal data.
  - Developing an efficient framework and a unique toolbox for systematically quantifying and visualizing the development and changes of longitudinal subcortical surface shapes.
  - Applying LESA to analyze three longitudinal neuroimaging data sets with estimating continuous shape trajectories, building life-span growth patterns, and comparing shape differences among different groups.
- Solving Optimal Surface Deformation Using Deep Residual Networks** Jan 2021 - Present
- In collaboration with Dr. Boulbaba Ben Amor from Inception Institute of Artificial Intelligence.
  - Utilizing deep residual neural networks to solve the optimal shape deformation of surfaces under the square root normal field (SRNF) representation.
- Analysis and Generation of Bacteria Cellular Shapes** Mar 2021 - Oct 2021
- In collaboration with Tanjin Taher Toma, Dr. Jie Wang, and Dr. Scott Acton from University of Virginia.
  - Analyzing the shape summaries of segmented 3D bacteria cellular surfaces; generating synthetic bacteria cellular surfaces based on the distribution of true surface shapes.
- Spatial-Temporal Analysis of 3D Human Body Movements Using Video Data** Nov 2021 - Present
- In collaboration with Dr. Hamid Laga from Murdoch University.
  - Developing a framework for reproducing smooth 3D human movement videos based on sparse time samples of movement
  - Analyzing movement differences by conducting spatial-temporal surface registration.

## PUBLICATIONS

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- Y. Wu**, S. Kundu, J. S. Stevens, N. Fani, A. Srivastava. Elastic Shape Analysis of Brain Structures for Predictive Modeling of PTSD. *Frontiers in Neuroscience*, 2022
- Z. Zhang, **Y. Wu**, D. Xiong, A. Srivastava, H. Zhu. LESA: Longitudinal Elastic Shape Analysis of Brain Subcortical Structures. Published as a discussion paper in *Journal of the American Statistical Association*, 2022
- T. T. Toma, **Y. Wu**, J. Wang, A. Srivastava, A. Gahlmann, S. T. Acton. Realistic-Shape Bacterial Biofilm Simulator for Deep Learning-Based 3D Single-Cell Segmentation. *2022 IEEE 19th International Symposium on Biomedical Imaging (ISBI)*, 2022
- Y. Wu**, H. Laga, A. Srivastava. Spatial-Temporal Analysis of 3D Human Body Movements Using Video Data. In preparation, 2022+

## PRESENTATIONS

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- (03/2021) *Elastic Shape Analysis of Post-Traumatic Stress Disorder on Subcortical Brain Structures*, SIAM Conference on Computational Science and Engineering (Poster), online
- (05/2021) *Elastic Shape Analysis of Brain Structures for Predictive Modeling of PTSD*, The Statistical Methods in Imaging Conference (Poster), online
- (04/2022) *Longitudinal Elastic Shape Analysis of Brain Subcortical Structures*, 2022 Annual Florida ASA Chapter Meeting, online
- (06/2022) *Longitudinal Elastic Shape Analysis of Brain Subcortical Structures*, 2022 Treatment and Analysis of the Information Methods and Applications (TAIMA), online

## PROFESSIONAL MEMBERSHIPS

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The American Statistical Association

The Institute of Electrical and Electronics Engineers

Society for Industrial and Applied Mathematics

International Chinese Statistical Association