

Gregory I. Holste

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EDUCATION

The University of Texas at Austin, Austin, TX

M.S.E, Ph.D. in Electrical Engineering

Aug. 2021-present

- Ph.D. student in DICE track of ECE department
- Advisor: Zhangyang (Atlas) Wang

Kenyon College, Gambier, OH

B.A. in Mathematics & Statistics

Aug. 2016-May 2020

- GPA: 3.91 / 4.00 (*summa cum laude*)
- Concentration in Scientific Computing; Minor in Biology

RESEARCH EXPERIENCE

The University of Texas at Austin, Austin, TX

Visual Informatics @ UT Austin (VITA) Group

Jul. 2021-present

- Methods for expert-level analysis of echocardiogram videos
- Advisor: Zhangyang (Atlas) Wang

Michigan State University, East Lansing, MI

Medical Imaging & Data Integration Lab

Aug. 2019-Jul. 2021

- Developed and compared multimodal fusion models that learn jointly from breast MRI images and associated non-image clinical data
- Applied novel ensemble methods to pediatric rib fracture detection in radiographs
- Submitted solutions to RSNA Pulmonary Embolism Detection Challenge and MICCAI 2020 RibFrac Challenge (top 8-performing solution)
- Advisor: Adam Alessio

Michigan State University, East Lansing, MI

ACRES Research Experience for Undergraduates (REU)

Summer 2019

- Implemented methods to segment eight regions of the chest in pediatric radiographs
- Compared methods to improve anatomic segmentation with 10^5 -fold imbalance between classes, including custom pixel weight maps and loss functions [1]
- Presented work at Mid-SURE 2019 and as an oral at SPIE Medical Imaging 2020
- Advisor: Adam Alessio

Kenyon College, Gambier, OH

Kerckhoff Macroecology Lab

Jan. 2017-May 2019

- Studied distribution patterns of crop wild relatives (CWRs) in the Americas
- Compared spatial patterns of CWR diversity and range size to those of plants overall using millions of species occurrence records
- Discovered regions significantly more CWR-rich than would be expected by chance via Monte Carlo simulation in R

- PUBLICATIONS
- [1] **G. Holste**, R. Sullivan, M. Bindschadler, N. Nagy, A. Alessio. “Multi-class semantic segmentation of pediatric chest radiographs” in *Proc. SPIE Medical Imaging 2020: Image Processing*. 10 March 2020.
- [2] R. Sullivan, **G. Holste**, J. Burkow, A. Alessio. “Deep learning methods for segmentation of lines in pediatric chest radiographs” in *Proc. SPIE Medical Imaging 2020: Computer-Aided Diagnosis*. 16 March 2020.

HONORS/ AWARDS	Charles W. & Margaret A. Tolbert Endowed Scholarship	Aug.2021-present
	<i>UT Austin Cockrell School of Engineering scholarship for top incoming engineering students</i>	
	Phi Beta Kappa	May 2020-present
	<i>Elected to Kenyon College’s chapter of the national honor society</i>	
	Sigma Xi	Feb. 2020-present
	<i>Inducted into the Kenyon-Denison chapter of the national science research honor society</i>	
	Pi Mu Epsilon	Apr. 2018-present
	<i>Elected to the Ohio Pi chapter of the national mathematics society</i>	
	Wendell D. Lindstrom Memorial Prize	Apr. 2018
	<i>One of 12 students given prize for outstanding mathematics students at Kenyon College</i>	
	Kenyon College Merit List (8x)	every semester

ORAL PRESENTATIONS	Multi-class semantic segmentation of pediatric radiographs	Feb. 2020
	<i>SPIE Medical Imaging: Image Processing, Houston, TX</i>	

INVITED TALKS	Fusing imaging and clinical information for improved automatic breast cancer detection	Feb. 2021
	<i>MSU Virtual Imaging Research Symposium, East Lansing, MI</i>	
	Automatic segmentation of pediatric chest radiographs	Nov. 2019
	<i>Kenyon College Math Monday, Gambier, OH</i>	

SCIENTIFIC ABSTRACTS	Rib fracture detection in pediatric radiographs via deep convolutional neural networks	Oct. 2021
	<i>J. Burkow, G. Holste, F. Perez, J. Junewick, A. Zbojniewicz, J. Frost, E. Romberg, S. Menashe, J. Otjen, A. Alessio</i> <i>International Pediatric Radiology Congress, Milan, Italy</i>	
	Automatic segmentation of chest radiographs with deep learning	Jul. 2019
	<i>G. Holste, R. Sullivan, N. Nagy, M. Bindschadler, A. Alessio</i> <i>Mid-SURE Symposium, East Lansing, MI</i>	

Deep learning methods for automatic evaluation of lines in chest radiographs

R. Sullivan, **G. Holste**, A. Alessio

Mid-SURE Symposium, East Lansing, MI

Jul. 2019