

Joseph Anderson

Salisbury University
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Personal

Full name: Joseph Timothy Anderson

Born: 23 February 1990

Citizenship: I am a United States Citizen

Education

Ph.D., Computer Science and Engineering May 2017

The Ohio State University

Thesis: *Geometric Methods for Robust Data Analysis in High Dimension*

Thesis Advisor: Dr. Luis Rademacher (UC, Davis)

Academic Advisor: Anastasios Sidiropoulos

M.S. Computer Science and Engineering December 2015

The Ohio State University

Thesis: *Geometric Methods for Robust Data Analysis in High Dimension*

Advisor: Dr. Luis Rademacher

B.S. Mathematics, Saint Vincent College May 2012

B.S. Computing & Information Science, Saint Vincent College May 2012

Research Interests

Theoretical computer science, machine learning, convex geometry, data science, statistics, optimization, probability theory.

Experience

Salisbury University 2017–Current

Assistant Professor of Computer Science

The Ohio State University 2012–2017

Instructor: “Foundations I: Discrete Structures”

Graduate Research Assistant	
Teaching Assistant	
Research Fellow	
Saint Vincent College	2008–2012
Computing & Information Science Department Server Administrator	
Computing & Information Science Department Tutor	
Information Services Desktop Analyst	
University of New Orleans	Summer 2011
Undergraduate Research Fellow	
Ethix Systems, LLC	2010 - 2011
Programming Intern	

Publications

Peer-Reviewed Conference Proceedings

- J. Anderson, L. Rademacher “Efficiency of the floating body as a robust measure of dispersion”, ACM-SIAM Symposium on Discrete Algorithms, 2020.
- J. Anderson, N. Goyal, A. Nandi, L. Rademacher “Heavy-Tailed Analogues of the Covariance Matrix for ICA”, *Association for the Advancement of Artificial Intelligence*, 2017
- J. Anderson, N. Goyal, A. Nandi, L. Rademacher “Heavy-Tailed Independent Component Analysis”, *Foundations of Computer Science*, 2015
- J. Anderson, M. Belkin, N. Goyal, L. Rademacher, J. Voss “The more, the merrier: the blessing of dimensionality for learning large Gaussian mixtures”, *Conference on Learning Theory*, 2014
- J. Anderson, N. Goyal, L. Rademacher “Efficient Learning of Simplices”, *Conference on Learning Theory*, 2013
- J. Anderson, M. Gundam, A. Joginipelly, D. Charalampidis “FPGA Implementation of Graph Cut Based Image Thresholding” *IEEE Southeastern Symposium on System Theory*, 2012

Presentations

- J. Anderson, “Robust Signal Processing with the Convex Floating Body”, Joint American Mathematical Society and Mathematical Association of America National Meetings. Baltimore, MD. 2019
- J. Anderson, “Convex Geometry in Algorithms for Heavy-Tailed Statistics”, Mathematics Association of America MD/DC/VA Section Meeting. Lexington, VA. Spring 2018

Other

- J. Anderson, J. Austin, Y. Jing, L. Schneider, R. Shifler, and S. Wesolowski. (2018). “Faculty Writing Groups for Mathematicians” . *MAA Focus*, 38 (5).

Supervised Research

- Thaigota, Sai. “Filtering Multivariate Data Through Convex Floating Bodies”. REU, Summer 2019.
- Arausa, Christopher. “A Study on Parallel Machine Learning, Supervised Learning, and Reinforcement Learning”. REU, Summer 2019.
- Bones, Lela. “Interpreting EEG Signals with OpenBCI Hardware”. National Conference of Undergraduate Research. 2019.
- Kane, Cameron. “Developing New Accessibility Features Using Deep Learning and Data Generation”. National Conference of Undergraduate Research. 2019.
- Lipiec, Andre. “Using Perlin Noise for Random Walk”. Salisbury University Student Research Conference. 2019.
- Barnes, Samuel. “Software For Mapping Social Identities”. Salisbury University Student Research Conference. 2019.
- Nigro, Vincent and Borden, James. “Financial Analytic Distribution: Quantifying Market Sentiment”. Salisbury University Student Undergraduate Research Conference. 2019.
- Nguyen, Hieu and Schwartz, Ian. “Developing an AI Framework to Play Games Without Knowing the Rules”. REU, Summer 2018.
- Ogunmolasyi, Ayobami. “Parallelization of Machine Learning Algorithms”. REU, Summer 2018.
- Yousif, Mahmoud and Bones, Lela. “Using Machine Learning to Read Your Mind”. Salisbury University Student Research Conference. 2018.

Teaching

Salisbury University

COSC 117 - Fundamentals of Programming	Fa17
COSC 120 - Computer Science I	Fa18
COSC 220 - Computer Science II	Fa17, Sp18, Sp19, Sp20
COSC 320 - Advanced Data Structures and Algorithm Analysis	Sp18, Fa18, Sp19, Sp20
COSC 362 - Theory of Computation	Fa17, Fa18, Sp19
COSC 420 - High-Performance Computing	Fa19
COSC/MATH 490 - Special Topics: Computational Topology	Fa18
COSC 490/MATH 501 - Methods of Teaching Computer Science	Sp20

The Ohio State University

Lecturer, Foundations I: Discrete Structures	Sp16, Au16
Teaching Assistant, Computability and Complexity	Sp14
Teaching Assistant, Foundations II: Data Structures and Algorithms	Au13

Activities and Service

Peer-Review

IEEE Transactions on Pattern Analysis and Machine Intelligence
 Elsevier Signal Processing
 Foundations of Computer Science (FOCS), 2019
 Conference on Learning Theory (COLT), 2019, 2018
 Conference of the Association for the Advancement of Artificial Intelligence (AAAI), 2017
 NSF Algorithmic Foundations Review Panel

Salisbury University

Chair, Salisbury University Faculty Financial Affairs Committee	Fall 2018-2021
Faculty Member, Upsilon Pi Epsilon International Honor Society for the Computing and Information Disciplines (ACM)	Spring 2018-Present
Instructor, STEM Saturdays	Fall 2018
Senior Personnel, REU Site: Exercise - Explore Emerging Computing in Science and Engineering	2018-2020
Member, Salisbury High School Mathematics Competition Committee	Fall 2018
Member, Henson School of Science STEM Outreach Committee	Fall 2018-Present
Member, City of Salisbury Parks and Recreation Committee	Summer 2018-2021
Member, Henson Scholarship Committee	Spring 2018
Member, Salisbury University Honors Faculty Fellows	Fall 2017
Judge, Joint Mathematics Meetings Undergraduate Poster Session	2018, 2019
Coordinator, Computer Science Academic Program Review	2018-2021

Ohio State University and St. Vincent University

Ohio State University Community Orchestra	Fall 2012-2014
President and Founder of Saint Vincent College Computer Science Colloquium Club	Fall 2011-2012
Saint Vincent College Marching Band	Fall 2009-2012
Saint Vincent College Camerata and Gregorian Schola	Fall 2008-2012
Alpha Lambda Delta Honor Society	Spring 2011-2012

Awards

INSPIRE-CS Fellowship

Salisbury Foundation Faculty Research Grant, 2018

Henson Faculty Travel Grant, 2018

Google Travel Grant - Conference on Learning Theory.

Ohio State University Research Fellowship Award.

A. J. Palumbo Student Research Grant, Saint Vincent College. PI: Joseph Anderson, Advisor: Br. David Carlson.

Saint Vincent College Computing & Information Science Academic Excellence Award, for top student in CIS department.

Saint Vincent College Computing & Information Science Scholarship Exam Winner, full tuition awarded.

Eagle Scout Award, BSA

Coursework and Skills

Statistical modeling/Bayesian analysis

Machine learning (kernel methods, PCA, neural networks)

Probability Theory

Randomized Algorithms

Convex geometry

Real Analysis, Topology

Matlab (optimization toolkit, signal processing toolkit, Gurobi plugin)

Mathematica

Python (with numerical analysis packages)

C, Objective-C, C++

MySQL, PostgreSQL, MongoDB

Javascript, PHP

References

Available upon request.