Javier Salazar Cavazos

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EDUCATION

UNIVERSITY OF MICHIGAN ANN ARBOR
Ph.D. Electrical Engineering
Present | Ann Arbor, Michigan
Status:
Ph.D. Candidate (Summer 2023)
Cum. GPA: 3.92 / 4.0
Research Advisors:
 Laura Balzano, Jeffrey Fessler

UNIVERSITY OF MICHIGAN ANN ARBOR
M.S. Electrical Engineering
Spring 2023 | Ann Arbor, Michigan
Cum. GPA: 3.92 / 4.0
Concentration:
Data Processing & Machine Learning
Notable Works:
Vision Transformers w/ Pose Estimation
Matrix Factorization Lit. Review
Metropolis-Hastings Sampling Method
Zeroth-Order Optimization Methods
Deep Learning Projects

UNIVERSITY OF TEXAS ARLINGTON
B.S. Electrical Engineering
B.S. Mathematics
Spring 2020 | Arlington, Texas
Cum. GPA: 4.0 / 4.0
Capstone Project:
Wheelchair Dynamometer

Notable Works:
Machine Learning Algorithms
Stochastic Models & Simulations
Numerical Analysis Algorithms
Image/Video Compression
WiFi Antenna Optimization

SKILLS

CERTIFICATIONS
F.E. Electrical & Computer
SolidWorks Associate
AutoCAD Professional
CompTIA A+

LANGUAGES
Traditional Languages:
English (Native) | Spanish (Native)
Programming Languages:
Julia | Python | LaTeX | Linux CLI

INDUSTRY EXPERIENCE

OLSSON | Assistant Electrical Engineer
Fall 2020 – Fall 2021 | Fort Worth, Texas

Designed electrical power distribution systems for data center clients and analyzed systems for short circuit analysis, arc flash mitigation, and breaker setting coordination. (Example projects)

RESEARCH EXPERIENCE

GRADUATE WORK | University of Michigan
Fall 2021 - Present | Ann Arbor, Michigan

Research Interests:
Signal/Image Processing • Machine Learning • Optimization • Applied Math
Research Topics:
• Heteroscedastic (noisy) data in ML algorithms such as dimensionality reduction (subspaces & manifolds) and clustering (unsupervised learning)
• Optimization techniques for inverse problems in low-rank settings for applications such as dynamic MRI
Preprints:
• ALPCAHUS: Sample-wise Heteroscedastic PCA and Subspace Clustering
• Optimization algorithms for low-rank and locally low rank regularizers

MRI MESH & SLING SEGMENTATION
UT Southwestern Medical Center & UT Arlington | Researcher
Fall 2018 – Summer 2019 | Dallas, Texas

Researched machine learning methods of identification and segmentation of meshes & slings, along with common pelvic floor features, in MR images for radiologist assistance in 3D visualization-guided surgery planning.

Presented "Automatic Segmentation & 3D Visualization of MR Images of Pelvic Floor" at the Modern Challenges in Imaging conference located at Tufts University, Medford, Massachusetts.

UNDERGRAD RESEARCH PROGRAMS (UROP)

MATHEMATICS OF MISINFORMATION
Dartmouth College | Research Intern
Summer 2018 | Hanover, New Hampshire

Researched the mathematics of Bayesian inference methods for iceberg prediction tracking by modeling ordinary differential equations, simulated the model using Markov chain Monte Carlo sampling techniques, and predicted drag coefficients for iceberg prediction. (Project link)

MATHEMATICS OF MEDICAL IMAGING
University of Texas at Arlington | Research Intern
Fall 2016 – Summer 2017 | Arlington, Texas

Researched and implemented the mathematics of computerized tomography such as Radon transform and filtered backprojection for image reconstruction of artificial phantoms. (Project link)

PUBLICATIONS

[1] J. A. S. Cavazos, J. A. Fessler, and L. Balzano. Sample-wise heteroscedastic PCA with tail singular value regularization. In *Fourteenth International Conference on Sampling Theory and Applications*, 2023.