

Bassel Saleh

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Education

Doctor of Philosophy Computational Science, Engineering, and Mathematics (CSEM) The University of Texas at Austin, Oden Institute	December 2023 (Expected)
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Master of Science Computational Science, Engineering, and Mathematics (CSEM) The University of Texas at Austin, Oden Institute	December 2020
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Bachelor of Science, Physics The University of Texas at Austin, College of Natural Sciences	May 2018
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Bachelor of Science, Computer Science The University of Texas at Austin, College of Natural Sciences	May 2018
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Research Experience

Graduate Research Assistant, The University of Texas at Austin Oden Institute for Computational Engineering and Sciences Center for Computational Geosciences and Optimization <i>Advisor: Omar Ghattas, Ph.D.</i>	August 2018 - Present
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Undergraduate Research Assistant, Cornell University Laboratory for Accelerator-based Sciences and Education (CLASSE) NSR Research Experience for Undergraduates <i>Advisor: Gennady Shvets, Ph.D.</i>	June 2017 – August 2017
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Undergraduate Research Assistant, The University of Texas at Austin Oden Institute for Computational Engineering and Sciences Moncrief Summer Internship, Extended <i>Advisor: Omar Ghattas, Ph.D.</i>	June 2016 – May 2018
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Undergraduate Research Assistant, The University of Texas at Austin. Department of Computer Science <i>Advisor: Etienne Vouga, Ph.D.</i>	January 2015 – April 2016
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Teaching Experience

Instructor, Activateen Workshop on Machine Learning Basics for Teens	March 2019 – May 2019
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Instructor, Activateen Workshop on Introduction to Python and Programming Basics	June 2018 – July 2018
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Publications and Technical Reports

Preprint

B. Saleh, T. O’Leary-Roseberry, B. Keith, O. Ghattas. “DeepGW: A Goal-Oriented Parametric Surrogate Model for Gravitational Waves using Neural Networks.” (2023)

Preprint

B. Saleh, A. Zimmerman, P. Chen, O. Ghattas. “Multifidelity Importance Sampling Using Tempered Posteriors for Gravitational Wave Inference.” (2022)

Technical Report for Turing Honors Thesis

B. Saleh, O. Ghattas. “Scientific Machine Learning: A Neural Network-based Estimator for Forward Uncertainty Quantification.” UTCS Technical Reports. (2018) [Link to report](#)

Technical Report for the CLASSE REU Summer Internship

B. Saleh, G. Shvets, V. Khudik, T. Wang. “Modeling Bubble Formation in Plasma-Based Particle Accelerators.” Cornell CLASSE REU Final Reports. (2017) [Link to report](#)

Presentations and Posters

Oral Presentation

April 2022

SIAM Conference on Uncertainty Quantification

Mini-symposium on Physics-Informed and Data-Driven Predictive Models with Quantified Uncertainty

B. Saleh, T. O’Leary-Roseberry, B. Keith, O. Ghattas. “Parametric Machine Learning Surrogates for Gravitational Wave Signals.”

Poster

November 2021

IPAM Workshop on Source Inference and Parameter Estimation in Gravitational Wave Astronomy

B. Saleh, A. Zimmerman, P. Chen, O. Ghattas. “Multifidelity Importance Sampling for Gravitational Wave Inference.”

Oral Presentation

March 2021

SIAM Conference on Computational Science and Engineering

Mini-symposium on Computational Strategies for High Dimensional Stochastic Problems

B. Saleh, A. Zimmerman, P. Chen, O. Ghattas. “Multifidelity Importance Sampling for Gravitational Wave Inference.”

Oral Presentation

March 2020

SIAM Conference on Uncertainty Quantification*

Mini-symposium on Reduced Order Methods for Uncertainty Quantification in CFD Parametric Problems

B. Saleh, T. O’Leary-Roseberry, O. Ghattas. “Neural Networks as Control Variates for UQ in Ice Sheet Flow.”

**Cancelled due to Covid-19 pandemic*

Poster

March 2017

SIAM Conference on Computational Science and Engineering

B. Saleh, U. Villa, O. Ghattas. “Neural Networks as Reduced Models for Physical Systems and Inverse Problems.”

Oral Presentation

August 2017

CLASSE REU

B. Saleh, G. Shvets, V. Khudik, T. Wang. "Modeling Bubble Formation in Plasma-based Particle Accelerators."

Poster

August 2016

UT Summer Research Scholars Poster Session

B. Saleh, U. Villa, O. Ghattas. "A Neural Network Approach to Modeling Inverse Problems."

Awards and Honors

CSEM Graduate Student Fellowship 2018-2022

Turing Honors Scholar 2014-2018

Dean's Honors Scholar 2014-2018

Recipient, College of Natural Sciences Scholarship 2014

Recipient, Siemens Foundation Scholarship 2014

University Honors 2014-2018

College of Natural Sciences Honors 2015-2018

Regional Finalist at Siemens Competition in Math, Science, and Technology 2013

Professional Societies and Campus Organizations

Society for Industrial and Applied Mathematics (SIAM)

American Physical Society (APS)

Graduate Student Assembly (GSA) – *Department representative*: Fall 2022, Spring 2023

SIAM Applied Math Mentorship Program: Spring 2021, Fall 2021, Spring 2022

Community Involvement and Volunteering

Community First! Village

2022

Austin ECHO – Point in Time Count

2023