Antonio Alessandro **Deleo**

AEROSPACE ENGINEER · STRUCTURAL ENGINEER · SOFTWARE ENGINEER

Structural Analysis Engineer @ ES3, San Diego, CA, USA
Department of Aeronautics & Astronautics @ University of Washington, Seattle, WA, USA

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"Be the change that you want to see in the world."

Work Experience

Engineering and Software System Solutions, Inc. (ES3)
San Diego, CA

STRUCTURAL ANALYSIS ENGINEER — *Aug. 2023 – Present*

- Subject Matter Expert (SME) in Composite Modeling
- Developer of MARS Finite Element Research Code
- Supervisor: Dr. Daniele Pelessone, Chief Scientist

Education

University of Washington Seattle
Seattle, US

DOCTOR OF PHILOSOPHY (PH.D.) IN AEROSPACE ENGINEERING — *Sep. 2016 – Sep. 2023*

- Thesis title: **FastDM4C: A Fast and Efficient Discrete Model for Composites**
- Supervisor: Prof. Marco SALVIATO, Professor in Aeronautics & Astronautics
- GPA: 3.95

BACHELOR OF SCIENCE (B.S.) IN AEROSPACE ENGINEERING — *Sep. 2014 – Jun. 2016*

- Aeronautical Capstone Project
- Technical Electives in Aerostructures and Modeling

Cascadia College
Bothell, US

BACHELOR OF SCIENCE (B.S. TRANSFER) IN CIVIL AERONAUTICAL — *Sep. 2012 – Jun. 2014*

- GPA: 3.97

National Conservatory of Music "G.Rossini"
Pesaro, Italy

MASTER (M.MUS) IN MUSIC - FLUTE PERFORMANCE — *Oct. 2008 – Jun. 2010*

BACHELOR (B.MUS) IN MUSIC - FLUTE PERFORMANCE — *Oct. 2005 – Jun. 2008*

- GPA: 4.0 cum Laude

Academic Experience

University of Washington
Seattle, US

RESEARCH ASSISTANT AT MULTISCALE ANALYSIS OF MATERIALS & STRUCTURES (MAMS) LAB — *Sep. 2016 - Sep. 2023*

- Modeled fracture onset and crack propagation in composites using discrete modeling
- Investigated bio-inspired materials for enhanced durability and performance
- Conducted multi-axial fatigue studies on composite materials
- Explored applications of composite origami in structural design
- Developed and maintained computational codes for structural analysis

TEACHING ASSISTANT IN THE AERONAUTICS & ASTRONAUTICS DEPARTMENT — *Sep. 2016 - Sep. 2020*

- Taught introductory and advanced Finite Element Method classes
- Instructed on mechanics of composites, covering both introductory and advanced topics
- Supported courses in solid mechanics
- Assisted with aircraft design projects for graduating undergraduates

Conservatory of Music "G.Rossini"
Pesaro, Italy

TEACHING ASSISTANT IN FLUTE PERFORMANCE PROGRAM — *Sep. 2010 - Jun. 2012*

- Provided individualized instruction to enhance students' technical and expressive abilities
- Assisted in preparing students for performances and recitals
- Supported faculty in flute pedagogy and curriculum development

Specialized Courses

Sep. 2018	**Nanofabrication**, Washington Nanofabrication Facility (WNF)	*Seattle, WA, USA*
Jun. 2017	**Fatigue and Damage Tolerant Design**, FAA	*Seattle, WA, USA*
Jun. 2015	**GEA Aviation Summer Program**, ENAC - ISAE-SUPAERO	*Toulouse, France*

Honors & Awards

May 2015	**Robert Reynolds Scholarship**, University of Washington Seattle	*Seattle, WA, USA*
Aug. 2015	**Valedictorian GEA Aviation Program**, ENAC - ISAE/Supaero	*Toulouse, France*
2012 – 2014	**President Honors**, Cascadia College	*Bothell, WA, USA*

Seminars & Conference Talks

2024	**American Society for Composites 39th Technical Conference (ASC)**	*San Diego, CA, USA*
	San Diego State University (SDSU)	*San Diego, CA, USA*
	ASME Aerospace Structures, Structural Dynamics, and Materials Conference (SSDM)	*Seattle, WA, USA*
2023	**Society of Advanced Materials and Processing Engineering (SAMPE)**	*Seattle, WA, USA*
2022	**American Society for Composites 37th Technical Conference (ASC)**	*U. of Arizona, Tucson, AZ, USA*
	University of Washington, Finite Element Class (AA540)	*Virtual Conference*
2021	**Engineering Mechanics Institute Conference (EMI)**	*Virtual Conference*
	University of Washington, Finite Element Class (AA540)	*Seattle, WA, USA*
	University of Washington, Advanced Composite Class (AA535)	*Seattle, WA, USA*
2020	**University of Washington, Finite Element Class (AA540)**	*Seattle, WA, USA*
	University of Washington, Solid Mechanics Class (AE540)	*Seattle, WA, USA*
2019	**Engineering Mechanics Institute Conference (EMI)**	*Caltech, Pasadena, CA, USA*
	University of Washington, Finite Element Class (AA540)	*Seattle, WA, USA*
	The Joint Center for Aerospace Technology Innovation (JCATI)	*Seattle, WA, USA*
2018	**American Society for Composites 33rd Technical Conference (ASC)**	*Seattle, WA, USA*
	Fatigue and Damage Tolerance Design (FDT)	*Kirkland, WA, USA*
	Society of Advanced Materials and Processing Engineering (SAMPE)	*Long Beach, CA, USA*
	University of Washington, Finite Element Class (AA540)	*Seattle, WA, USA*

Publications

Journals: *equally contributing authors

J5	FASTDM4C: A FAST AND EFFICIENT DISCRETE MODEL FOR COMPOSITES **Deleo A.A.**, Pelessone D., Salviato M.	*2026 - in prep.* *JMPS*
J4	A NOVEL DISCRETE, MESOSCALE MODELING FRAMEWORK FOR THE SIMULATION OF THE DAMAGING AND FRACTURING BEHAVIOR OF COMPOSITES **Deleo A.A.***, Phenisee E.S*., Pelessone D., Flores M., Salviato M.	*2026 - in prep.* *JMPS*
J3	ORIGAMI-BASED DEPLOYABLE STRUCTURES MADE OF CARBON FIBER REINFORCED POLYMER COMPOSITES **Deleo A.A.**, O'Neil J., Yasuda H., Salviato M.,Yang J.	*2020* *Composites Science and Technology*
J2	AEROGAMI: COMPOSITE ORIGAMI STRUCTURES AS ACTIVE AERODYNAMIC CONTROL Cozmei M., Hasseler T., Kinyon E., Wallace R., **Deleo A. A.**, Salviato M.	*2020* *Composites Part B*
J1	A STUDY ON THE MULTI-AXIAL FATIGUE FAILURE BEHAVIOR OF NOTCHED COMPOSITE LAMINATES Qiao Y., **Deleo A. A.**, Salviato M.	*2019* *Composites Part A*

Peer-Reviewed Articles in Conference Proceedings:

C19   A Multiscale Framework for Simulating Structural Assemblies Using a Discrete Mesoscale Model for Composites (DM4C) Approach   *2026*

Flores M., Phenisee E.S., **Deleo A.A.**, *Pelessone D., Salviato M.*   *ASC/Nature - in print*

C18   Advancing Additively Manufactured Composite Structural Joints Testing with Discrete Computational Modeling and Digital Twins   *2026*

Deleo A.A., *Phenisee E.S., Derek S., Flores M., Pelessone D., Flores M., Salviato M.*   *Spring Nature*

C17   To the Mesoscale and Beyond! Capturing Complex Damage Mechanisms in Composites via Simple, Physics-Based, Discrete Mathematical Models of Fibers and Matrix   *2023*

Salviato M., Phenisee E.S.*, **Deleo A.A.***, *Pelessone D., Flores M.,*   *ASC*

C16   FastDM4C: A Fast and Efficient Discrete Model for Composites   *2023*

Deleo A.A., *Phenisee E.S., Pelessone D., Flores M., Salviato M.*   *ASC*

C15   Discrete, Meso-Scale Modeling of Fiber-Reinforced Composites (DM4C): Application to the Additive Manufacturing of Continuous Fibers   *2023*

Salviato M., Phenisee E.S.*, **Deleo A.A.***, *Pelessone D., Flores M*   *IMECE*

C14   Investigation of the Effect of In-Plane Waviness on the Mechanical Behavior of Additive Manufactured Composite Laminates   *2023*

Phenisee S., **Deleo A. A.**, *Pelessone D., Huff S., Shelley D., Flores M., Salviato M.*   *SAMPE*

C13   Analysis of Additive Manufactured Structural Joints using Discrete Model for Composites (DM4C)   *2023*

Deleo A. A., *Phenisee S., Pelessone D., Furmanski J., Flores M., Salviato M.*   *SAMPE*

C12   A Novel Discrete, Mesoscale Modeling Framework for the Simulation of the Damaging and Fracturing Behavior of Composites   *2022*

Salviato M., Phenisee S.*, **Deleo A. A.***, *Pelessone D., Flores M.*   *IMECE*

C11   Discrete Modeling and Machine Learning Assisted Calibration of 3D Printed Carbon Fiber Reinforced Plastics (CFRP) Structural Joints   *2022*

Deleo A. A., *Phenisee S., Pelessone D., Furmanski J., Flores M., Salviato M.*   *ASC*

C10   Discrete, Meso-Scale Modeling of Fiber-Reinforced Composites (DM4C): Application to Additive Manufacturing of Continuous Fiber Composites   *2022*

Phenisee S., **Deleo A. A.**, *Pelessone D., Flores M., Salviato M.*   *ASC*

C9   A Novel Discrete, Mesoscale Modeling Framework for the Simulation of the Damaging and Fracturing Behavior of Composites   *2022*

Salviato M., Phenisee S.*, **Deleo A. A.***, *Pelessone D., Flores M.*   *ASC*

C8   A Novel Discrete, Mesoscale Modeling Framework for the Simulation of the Damaging and Fracturing Behavior of Composites   *2022*

Salviato M., Phenisee S.*, **Deleo A. A.***, *Pelessone D., Flores M.*   *SES*

C7   Active Aerodynamic Control Surfaces Based on Origami Composites   *2019*

Cozmei M., Hasseler T., Kinion E., Wallace R., **Deleo A.A.**, *Salviato M.*   *AIAA Region VI Student Conference*

C6   Multi-axial Fatigue Behavior of Notched Composite Structures   *2018*

Qiao Y., **Deleo A.A.**, *Liao K., Salviato M.*   *ASC*

C5   Computational Study for Size Effect in Composites and Nanocomposites   *2018*

Deleo A.A., *Salviato M.*   *ASC*

C4   Deployable Structures Constructed from Composite Origami   *2018*

O'Neil J., **Deleo A.A.**, *Yasuda H., Salviato M., J. Yang*   *ASC*

C3	COHESIVE MODELING OF FRACTURE IN COMPOSITES: NUMERICAL INVESTIGATION OF THE EFFECTS OF THE COHESIVE LAW ON SIZE EFFECT	*2018*
	Das A., **Deleo A. A.**, *Salviato M.*	*ASC*
C2	MULTI-AXIAL FATIGUE FAILURE BEHAVIOR OF NOTCHED GFRP LAMINATES	*2018*
	Qiao Y., **Deleo A.A.**, *Liao K., Salviato M.*	*SAMPE*
C1	COMPOSITE ORIGAMI: FOLDABLE STRUCTURES BASED ON TACHI-MIURA-POLYHEDRON (TMP) ORIGAMI ARCHITECTURE	*2018*
	Deleo A.A., *O'Neil J., Yasuda H., Salviato M., J. Yang*	*SAMPE*

Peer-Reviewed Abstracts

A11	EVALUATING CMC ASSEMBLIES USING A DISCRETE MODEL FOR COMPOSITE (DM4C) APPROACH	*2026*
	Flores M., **Deleo A.A.**, *Phenisee E.S., Pelessone D., Salviato M.,*	*HTCMC*
A10	COMPUTATIONAL INVESTIGATION OF MICROSTRUCTURAL INSTABILITIES USING DISCRETE MODEL FOR COMPOSITES (DM4C)	*2025*
	Flores M., **Deleo A.A.**, *Phenisee E.S., Pelessone D., Salviato M.,*	*ICCM*
A9	SIMULATING ADDITIVELY MANUFACTURED COMPOSITE STRUCTURAL JOINTS USING FASTDM4C	*2025*
	Deleo A.A., *Phenisee E.S., Shelley D., Flores M., Pelessone D., Salviato M.,*	*ICCM*
A8	A FAST AND EFFICIENT DISCRETE MODEL FOR COMPOSITES	*2024*
	Deleo A.A., *Phenisee E.S., Pelessone D., Flores M., Salviato M.,*	*SSDM*
A7	A NOVEL DISCRETE, MESOSCALE MODELING FRAMEWORK FOR THE SIMULATION OF THE DAMAGING AND FRACTURING BEHAVIOR OF COMPOSITES	*2023*
	Salviato M., **Deleo A.A.***, *Phenisee E.S.*, Pelessone D., Flores M.*	*EMI*
A6	DISCRETE, MESO-SCALE MODELING OF FIBER-REINFORCED COMPOSITES (DM4C): APPLICATION TO THE ADDITIVE MANUFACTURING OF CONTINUOUS FIBERS	*2023*
	Salviato M., **Deleo A.A.***, *Phenisee E.S.*, Pelessone D., Flores M.*	*SES*
A5	A NOVEL DISCRETE, MESOSCALE MODELING FRAMEWORK FOR THE SIMULATION OF THE DAMAGING AND FRACTURING BEHAVIOR OF COMPOSITES	*2022*
	Salviato M., **Deleo A.A.***, *Phenisee E.S.*, Pelessone D., Flores M.*	*SES*
A4	A NOVEL DISCRETE, MESOSCALE MODELING FRAMEWORK FOR THE SIMULATION OF THE DAMAGING AND FRACTURING BEHAVIOR OF COMPOSITES	*2022*
	Salviato M., **Deleo A.A.***, *Phenisee E.S.*, Pelessone D., Flores M.*	*ICONSOM*
A3	A NOVEL DISCRETE, MESOSCALE MODELING FRAMEWORK FOR THE SIMULATION OF THE DAMAGING AND FRACTURING BEHAVIOR OF COMPOSITES	*2022*
	Salviato M., **Deleo A.A.***, *Phenisee E.S.*, Pelessone D., Flores M.*	*EMI*
A2	A THREE-DIMENSIONAL DISCRETE MODEL FOR DAMAGE AND FRACTURE IN PARTS MADE VIA FUSED DEPOSITION MODELING (FDM)	*2021*
	Deleo A.A., *Salviato M.*	*EMI*
A1	DISCRETE COMPUTATIONAL MODEL FOR THIN FOLDABLE COMPOSITE ORIGAMI STRUCTURES	*2019*
	Deleo A.A., *Salviato M.*	*EMI*

Certifications

5	GOOGLE TENSORFLOW DEVELOPER CERTIFICATE	*2024*
	Google Tensorflow	
4	NATURAL LANGUAGE PROCESSING IN TENSORFLOW	*2023*
	DeepLearning.AI	
3	CONVOLUTIONAL NEURAL NETWORKS IN TENSORFLOW	*2023*
	DeepLearning.AI	
2	INTRODUCTION TO TENSORFLOW FOR ARTIFICIAL INTELLIGENCE, MACHINE LEARNING, AND DEEP LEARNING	*2023*
	DeepLearning.AI	
1	FUNDAMENTALS OF ACCELERATED COMPUTING WITH CUDA C/C++	*2022*
	Nvidia	

Professional Memberships

AIAA	American Institute of Aeronautics and Astronautics
ASC	American Society of Composites
ASME	American Society of Mechanical Engineers
ASCE	American Society of Civil Engineers
SAMPE	Society for the Advancement of Material and Process Engineering

Skills

Major Programming	Matlab, C++, Python, CUDA, TEX
Minor Programming	Bash, Fortran
FEM	Abaqus, Femap, LS-Dyna, Nasgro, Afgrow, Hyperworks, Ansys
Composite Manufacturing	Hand Layup, Autoclave, VARTM, Molding, Hot-press, 3D Printing
Database	SQLite, MySQL, PostGreSQL
Management	Git, GitKraken, Docker, Singularity, Apptainer
Photography	Photoshop, Illustrator, Inkscape
Virtual Reality	Unity, Unreal Engine

Activities

Climbing	Sport, Bouldering, and Trad Multipitches. Ex-Climbing Officer @ UW Climbing Club
Music	Flute and Piccolo Player in UW CPO, Bainbridge Island Symphonic Orchestra (BSO) and Puget Sound Symphonic Orchestra (PSSO)
Sports	Mountaineering, Hiking, Trekking, Skiing, Climbing
Culinary	Italian food enthusiast

Other

Citizenship	Italian
Birth year	1993 (32 years old)
Languages	Italian (native), English, Romanian
Driving	California State/European license