Carlos Montalvo

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Associate Professor, Mechanical Engineering

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Education

Ph.D.

C.

Biography

Carlos Montalvo is an Associate Professor in the Mechanical Engineering Department at the University of South Alabama

[8] Carlos Montalvo, Matthew Simmons, and Sytske Kimball. \Wind Tunnel Tests of a Pitot-Static Tube Array to Estimate Wind Velocity". In: arXIV (Jan. 2019). doi: arXiv:1901.10600[physics.flu-dyn].

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Conference Proceedings

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Technical Reports

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Online Segments

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Books

[88] Carlos Montalvo. Aerospace Mechanics and Controls. Github https://github.com/cmontalvo251/LaTeX/blob/master/Aerospace_Mechanics/aerospace_mechanics.pdf, 2022.

[89] Carlos Montalvo. Numerical Methods. Github https://github.com/cmontalvo251/LaTeX/blob/master/Numerical_Methods_Montalvo/Numerical_Methods.pdf, 2020.

[90] Carlos Montalvo. Project Based Engineering Instrumentation with CircuitPython. Github https://github.com/cmontalvo251/LaTeX/blob/master/PBL_CircuitPython_Instrumentation/main.pdf, 2023.

Contracts/Proposals/Budgets/Grants

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C. Montalvo

5. Alabama Space Grant Consortium $10,000 Grant for Alabama Burst Energtics Exploration Satellite Year 2 - Awarded 3/31/2021 - Start Date 8/14/2021 - End date 7/31/2022
6. Montalvo C., Richardson J., Kendall B., Patterson V., Box T., Davis C., Franklin C., Godfrey A., Patrick T., Alabama Space Grant for

25. C. Montalvo, E. Spencer, S. Lateef, S. Russ NASA Undergraduate Student Instrumentation Project , Contract Awarded March 2016, $100,000for equipment
26. C. Montalvo, Atmospheric and Geophysical Sensing using Autonomous Aerial Vehicles , The Facility for Aerial Systemsand Technology, Internal USA Federal Development Council. Contract Awarded May 2016, $5,000
27. Experimental Analysis of Atmospheric Data using Autonomous Sensing Quadcopters - Summer UCUR Proposal - Marina Swanopoel- $2,000(Student) - $500 (equipment) - 3/20/2016
28. C. Montalvo, USALS Hazard Detection and Wind Turbine - Submitted to ASGC { 11/6/2015 - Contract awarded $5,000{ 12/3/2015
29. Brandi Depineul - Summer UCUR Proposal{ Coordinated Flight of Blimps - 3/13/2015 - Accepted 4/15/2015 - $2,000(Student) - $500 (equipment)
30. Alicia Ratcli e - Summer UCUR Proposal { Orbital Mechanics of a 1U CubeSat - 3/13/2015 - Accepted 4/15/2015 - $2,000(Student) - $500 (equipment)
31. C. Montalvo, Towed Magnetic Anomaly Detection with a Light-Weight Projectile, Subcontractor for AREA-I, Prime: O ce of Naval Research,$24,000,2/28/2015
32. C. Montalvo, Robotic Landing Gear Blender Animations, Subcontractor for Georgia Tech, Prime: DARPA, $25,000
33. N. Alley, B. Efstathios, D. Khueme, C. Montalvo, Multi-Agent Management System , NASA SBIR, Nov 2012 - Topic S3.05 Proposal No. S3.05-9503Contract #: NNX13CL44P, SBIR (50% Contribution), Contract Awarded April 2013 - $120,000
34. M. Costello, C. Montalvo, Smart Projectile, AerospaceEngineering, U.S. Army ResearchLaboratory, $313,000Sept 2012-2015,Created detailed funding plan { (10% Contribution)
35. M. Costello, M. Ruzzene, C. Montalvo, Rotorcraft Robotic Landing Gear, Aero and Hydrodynamics System, DARPA, $551,000Sept 2012-2015,Created detailed funding plan { (10% Contribution)

Rejected Proposals

1. Lohar B., Russ S., Spencer E., Montalvo C., NASA EPSCoR FY 2024 - ISS Flight Opportunity Announcement Number: NNH24ZHA004C $150,000 - Submitted to ASGC 2/6/2024 - Rejected - 2/20/2024
2. Walker S., Montalvo C., Lohar B., Kimball S., Cleary J., BeebeD., Ferguson S., NSF: MRI Track 2 - Wind Tunnel - Submitted 11/15/2023 - $2,090,571
3. Inness J., and Montalvo C., Unfurling the Electric Sail - NASA ECI STEP 1 Quad Charts , Proposal Submitted 4/17/2023
4. Montalvo C., Reveles N., Rapid Optimization and Trade Space Framework for Adapting Aerostructures - ATA Engineering Inc. - Submitted 6/18/2022 $44,990- Rejected 8/16/2022
5. Montalvo C., Inness J., Lunar Hopper GNC System - Submitted to NASA STMD $110,000- 7/1/2022 - Rejected 8/15/2022
6. Latif S., Montalvo C., Subcontract from UAH - Alabama Burst Energetics eXplorer (ABEX) Mission AstroPhysics Researchand Analysis (APRA)-Submitted:#NNH21ZDA001N-APRA-12/17/2021, Rejected 8/15/2022
7. Dale Thomas and many other Alabama Experiment for Galactic-ray In-situ Shielding , Submitted to CubeSat Launch Initiative, NNH19ZCQ001O, 11/4/2019, No budget requested - NASA Removed SecondaryPayloads
8. U Nair, University of Alabama in Huntsville, RII Track-2 FEC: Bridging Critical Gaps in Environment Prediction through Harnessing of Data Revolution - NSF EPSCOR - Subcontract award to University of South Alabama - Kimball, Terwey, Montalvo, Gong, Shaban - $775,460- Submitted Jan 24th, 2020 - Rejected September 2020
9. University of Auburn in Partnership with many school including the University of South Alabama. Chakraborty, Imon - PI - Carlos Montalvo - Co-I, Advancing Design Paradigm for Revolutionary Vertical Lift Flight Vehicles, NASA Announcement NNH19ZEA001N-ULI: D.4 University Leadership Initiatie (ULI) - Step A Proposal. No Budget Requested- Submitted 6/30/2020 - Rejected August 28th, 2020

10. Buckner, Collin and Montalvo, Carlos

26. Montalvo C., Electric Sail Dynamic Modeling and CubeSat Tether Deployment Demonstration Mission From ISS - Heliophyiscs Early Career Investigator Program - NASA - Submitted March 20th, 2018 - Step 1 Proposal - No budget requested - Rejected July 18th, 2018
27. Montalvo C., Fault Tolerant Control Architecture of a Multi-Tilt-Rotor Air Taxi - Sloan Scholar Mentoring Network SeedGrant, March 5th, 2018 - $4,980 - Rejected 7/6/2018
28. Montalvo, Carlos; Wiegmann, Bruce; Zank, Gary; Spencer, Edmund; Bryan, Thomas; Electric Sail Dynamics/Electan/T1_1 1 Tf ( )Tj /T1_0 1 Tf 2.151 031d [(Edm)2CubatatdEeSa /T1_1 1 Tf ( )Tj /T1_2 1 Tf 4.702 0 95 [(T)96 (a

career. Theory is the foundation of engineeringbut engineersalso

UCUR - Undergraduate Curriculum for Undergraduate Research
SURF - Summer Undergraduate Research Fellowship

4. \Development of New SpaceSystemsArchitecture in SysML Using Model-BasedPattern Language" - Bhushan R. Lohar - July 2022
5. \Energy Dynamics of Geomagnetic Storms and Substorms Using the WINDMI Model" - Pavithra Srinivas - December2019
6. \Zika Virus Transmission Using Two Overlapping Seir Models" - Audrey McGee - Spring 2018
7. \A Time Domain Impedance Probe Using Adaptive Filtering to Model IonospherePlasma" - David Clark - Fall 2017
8. \Dynamic Cone Penetrometer Testing of Two Mississippi Barrier Beaches:Cat and West Ship Island" - JacquelineWittmann - Summer 2016
9. \Characterization of a Three Dimensional Wind eld Using a Boundary Discretization Numerical Technique" - JoshuaMarshall - Spring 2016

Undergraduate Research Advisor

1. Hamza Ali - FASTPilot - (Fall 2023 - Present)
2. Garrison Woods - Navy CUI - (Fall 2023 - Present)
3. Zach Miller - FASTPilot - (Fall 2022 - Spring 2023)
4. Julia Nelson - FASTsim - (Fall 2021 - Spring 2022)
5. Aaron Godfrey - ABEX - (Fall 2021 - Spring 2022)
6. Caroline Franklin - ABEX - (Fall 2021 - Spring 2022)
7. Wei Min Patrick - ABEX - (Fall 2021 - Spring 2022)
8. Drew Russ - JagSAT - (Fall 2019 - Spring 2021)
9. Darcey D'Amato - AEGIS - (Spring 2020 - Spring 2021)
10. JosephGeuho - NOAA - (Fall 2019 - Fall 2020)
11. Ruthie Hill - AEGIS - (Fall 2019 - Spring 2021)
12. Will Sherman - NOAA, AEGIS - (Fall 2019 - Spring 2021)
13. Maxwell Cobar - AEGIS/Meta/UAM - (Summer 2019 - Spring 2021)
14. Kenneth Tucker - UAM (Fall 2018 - Spring 2019)
15. Collin Carithers - MMMASS, Meta, UAM (Summer 2017 - Spring 2019)
16. Rockwell Garrido - USLI - (Fall 2016 - Spring 2017)
17. Matthew Wojociewksi - FASTPilot, USLI - (Fall 2016 - Spring 2017)
18. Marina Swanepoel- FASTPilot - (Fall 2016 - Spring 2017)
19. Bill Brown - USLI - (Fall 2016 - Spring 2017)
20. Michael Wiesneth - USLI - (Fall 2016 - Spring 2017)
21. BeecherFaust - USLI - (Fall 2016 - Spring 2017)
22. Matthew Monkell - JagSAT - Summer 2017
23. Kent Lino - USLI - (Fall 2014 - Spring 2016)
24. Nghia Huynh - USLI, TOMAD - (Fall 2014 - Spring 2016)
25. Andrew Tindell - USLI - (Fall 2014 - Spring 2016)
26. Lisa Schibelius - SAE - (Fall 2014 - Spring 2016)
27. Alicia Ratcli e - CubeSAT, TOMAD - (Fall 2014 - Spring 2016)
28. Jake Magnin - Meta - (Fall 2015 - Spring 2017)
29. Brandi Depineuil - Blimpage - (Spring 2015 - Spring 2016)

Student Organization Faculty Advisor

- Rock Climbing Club - 2021-Spring2023
- Disc Golf Club - 2020-Spring2023
- American Institute of Aeronautics and Astronautics - 2015-Present
- University Student Launch Initiative - 2016-2019
- Design, Build, Fly - 2014-2019

Senior Capstone Design Faculty Advisor

- Design, Build, Fly, 2014-Present
- University Student Launch Initiative, 2015-Present
- Urban Air Taxi - 2018-2020
- Low SpeedWindtunnel Design - 2019-2020

- Official Chapter Kickoff - November 2015
- Region II Student ConferenceAttendance - 5 Students 2015, 5 Student Presentations - April 2016, 5 Student Presentation April 2017 - Third Place Masters Division and Third Place Team Division, 20+ students April 2018, 1 student April 2019, 5 students April 2020
- Region II Student ConferenceHost School April 5-6th 2018
- Volunteer Activities: Paper Airplanes E-Week Open House 2016-2019,JROTC Summer Event 2017
- Design, Build, Fly Faculty Advisor - 2015-Present
- South Alabama Launch Society (Formerly - University Student Launch Society) Faculty Advisor - 2015-Present
- CubeSat Faculty

- University and College Computing Committee - Member - (2020 - Present)
- College of Engineering Faculty Affairs Committee -

Citations

Journals [1] [2] [3] [4] [5] [6] [7] [8] [9] [10] [11] [12] [13] [14] [15] [16] [17] [18] [19]

Conferences [20] [21] [22] [23] [24] [25] [26] [27] [28] [29] [30] [31] [32] [33] [34] [35] [36] [37] [38] [39] [40] [41] [42] [43] [44] [45] [46] [47] [48] [49] [50] [51] [52] [53] [54] [55] [56] [57] [58] [59] [60] [61] [62] [63] [64]

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Books [88] [89] [90]