

**Associate Professor of Quantitative Forest Science
Forest Biometrics, Remote Sensing, and Artificial Intelligence (SilvaLab)**

<https://carlos-alberto-silva.github.io/silvalab/home.html>

School of Forest, Fisheries, and Geomatics Sciences – SFFGS

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BIOGRAPHY

Carlos Alberto Silva is an Associate Professor of Quantitative Forest Science in the School of Forest, Fisheries, and Geomatics Sciences (SFFGS) at the University of Florida (UF), where he directs the Forest Biometrics and Remote Sensing Lab (SilvaLab). His research focuses on understanding how forest ecosystems change over time due to natural and anthropogenic disturbances. Previously, Dr. Silva worked as a research scientist at the University of Maryland, NASA's Jet Propulsion Laboratory, and the NASA Goddard Space Flight Center. His core research involves developing statistical frameworks and cutting-edge open-source tools, such as SilvaLiDAR Air, SilvaLab Explorer, CMS4D, EMS4D, ICESat4D, RapidFEM4D, rGEDI, ICESat2VegR, rFDS, FuelDeep3D, and rTLsDeep, for remote sensing data processing and forest resource monitoring. He is particularly interested in utilizing LiDAR (Light Detection and Ranging) data from airborne (ALS), terrestrial (TLS), and satellite platforms (e.g., GEDI, ICESat-2), in combination with optical and SAR imagery, and AI, to address ecological questions related to forest ecosystem structure, function, and composition dynamics at various spatial scales. Dr. Silva has authored over 140 research articles and has led or collaborated on projects funded by NASA, NSF, the USDA Forest Service, and the Joint Fire Science Program. Since joining UF in 2021, he has secured over \$14 million in research funding. He is also a member of NASA's Carbon Monitoring System (CMS) and the ICESat-2 Science Teams.

EDUCATION

University of Idaho - College of Natural Resources - Department of Natural Resources and Society	2014-2018
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Ph.D., Natural Resources

Advisor: Lee A. Vierling, Ph.D.; Andrew T. Hudak, Ph.D.

Dissertation: "Advanced methods for 3D forest characterization and mapping from lidar remote sensing data"

University of São Paulo – “Luiz de Queiroz” college of Agriculture –ESALQ	2012 - 2013
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MSc., Forest Resources with emphasis on silviculture and forest management

Advisor: Luiz Carlos Estraviz Rodriguez, Ph.D.

Thesis: "Aboveground carbon in Eucalyptus spp. plantations - at tree level by destructive sampling and for whole stands after adjusting LiDAR metrics"

University of São Paulo – “Luiz de Queiroz” college of Agriculture –ESALQ	2007- 2011
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BS, Forest Engineering

Federal Institute of Santa Catarina- Brazil	2004- 2007
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Agricultural Technician

ACADEMIC EXPERIENCE & EMPLOYMENT

Associate Professor of Quantitative Forest Science	August 2025 – present
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UF IFAS School of Forest, Fisheries, and Geomatics Sciences SFFGS

University of Florida - UF

Assistant Professor of Quantitative Forest Science	April 2021 – August 2025
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UF IFAS School of Forest, Fisheries, and Geomatics Sciences SFFGS

University of Florida - UF

Courtesy Assistant Professor of Quantitative Forest Science School of Forest, Fisheries and Geomatics Sciences - SFFGS University of Florida - UF	Jan. 2020 – April 2021
University of Maryland/NASA Goddard Space Flight Center Postdoctoral Research Fellow Projects: i) NASA-CMS: Future Mission Fusion for High Biomass Forest Carbon Accounting ii) Mapping boreal forest biomass density for the ABoVE domain circa 2020 with ICESat-2	May 2018 – April 2021
USDA Forest Service - Rocky Mountain Research Station (RMRS) Research group of Dr. Andrew T. Hudak. Project: RxCADRE - Data set for fuels, fire behavior, smoke, and fire effects model development and evaluation	Aug. 2017 – April 2018
University of Idaho (UI) Research group of Dr. Jan Heitel and Dr. Lee Vierling. Project: NASA-ABOVE- LiDAR, passive spectral, and ecophysiological approaches to link Forest Tundra Ecotone structure and function	Aug. 2017 – April 2018
NASA - Jet Propulsion Laboratory (JPL) Research group of Dr. Sassan Saatchi. Project: Year-Round Internship Program and AfriSAR	Aug. 2016 – July. 2017
NASA - Jet Propulsion Laboratory (JPL) Research group of Dr. Sassan Saatchi. Project: AfriSAR	Feb. 2016 – April. 2016
USDA Forest Service - Rocky Mountain Research Station (RMRS) Research group of Dr. Andrew T. Hudak. Project: RxCADRE - Data set for fuels, fire behavior, smoke, and fire effects model development and evaluation	Aug. 2013 – Feb 2016
USDA Forest Service - Rocky Mountain Research Station (RMRS) Research group of Dr. Andrew T. Hudak. Project: RxCADRE - Data set for fuels, fire behavior, smoke, and fire effects model development and evaluation	Aug. 2012 – Dec. 2012
Institute of Research and Forest Studies (IPEF) Thematic Program of Silviculture and Management (PTSM)	Aug. 2010 – Dec. 2012

FUNDED RESEARCH PROJECTS – 2018–present (>US\$14M)

	Role	Years
1. Collaborative Research: Frameworks: OpenForest4D - A web-based cyberinfrastructure platform for next generation 4D forest mapping and monitoring. National Science Foundation (NSF). US\$3.28 million total; University of Florida subaward: US\$1,356,788. Collaborative award with three institutional PIs, including Dr. Carlos Alberto Silva at UF.	PI	Sept. 2024–2028
2. ICESat-4D: Monitoring Forest Resistance and Post-Hurricane Recovery Dynamics in Southern Forests by the Synergism of ICESat-2, SAR, and Optical Data and an Ecosystem Demography Model. NASA Studies with ICESat-2. US\$492,214.82. PI Dr. Silva – University of Florida	PI	2023–2028
3. CMS4D: A Multi-Scale Data-Fusion Prototype System for the Next Generation of Carbon Dynamics Monitoring From Space: A Case Study in the Brazilian Cerrado – Fire and Fuel in a Biodiversity Hotspot. NASA Carbon Monitoring System (CMS). US\$638,498.57. PI Dr. Silva – University of Florida	PI	2023–2028

4. HurricaneSat4D: Exploring the use of PlanetScope and GEDI Data for Assessing Post-Hurricane Damage Severity and Forest Recovery in Southern Forests. NASA Commercial SmallSat Data Analysis. US\$323,473. PI Carlos Alberto Silva, University of Florida.	PI	2023–2027
5. Evaluating prescribed burning efficacy in mitigating carbon loss from subsequent wildfires. Joint Fire Science Program (JFSP). US\$499,512.50.	Co-PI	2024–2027
6. RapidFEM4D: A web-based mapping platform for rapidly assessing the impacts and near-term recovery of Hurricane Ian on forest ecosystems in Florida. USDA - The National Institute of Food and Agriculture (NIFA). US\$ 300k	PI	2023–2024
7. FuelsCraft: An innovative wildland fuel mapping tool for prescribed fire decision support on Department of Defense military installations. Environmental Security Technology Certification Program (ESTCP). US\$1,736,859. PI – Dr. Susan Prichard – University of Washington	Co-I	2023–2026
8. A Phase 3 CMS that disaggregates forest biomass estimates in response to stakeholder needs: Seeing the forest for the trees. NASA Carbon Monitoring System (CMS). US\$998,656.98. PI Dr. Andrew Hudak – US Forest Service – Rocky Mountain Research Station.	Co-PI	2023–2026
9. EMS4D: multi-scale fuel mapping and decision support system for next generation of fire management. Joint Fire Science Program (JFSP). US\$492,115	PI	2022–2025
10. Forest-Level Examination of Silviculture Effects on Ecosystem Services (ForESEES) through the integration of Remote Sensing with Field Experiments. University of Florida's Institute of Food and Agricultural Sciences (UF/IFAS). \$57,690. PI- Jason Vogel - University of Florida.	Co-I	2022–2022
11. An integrated bioeconomic model for wildfire risk, surrounding forest management and tradeoffs of ecosystem services in the Deluca Preserve. University of Florida's Institute of Food and Agricultural Sciences (UF/IFAS). \$78,247. PI- Andres Susaeta – Oregon State University (OSU)	Co-I	2022–2022
12. Tree crown mapping from point cloud data for 3D fuel characterization. USDA Forest Service - US\$ 100k	PI	2021–2023
13. Resolving the multi-scale drivers of tree mortality from field and remote sensing data on co-located ForestGEO-NEON. National Science Foundation (NSF). \$1.0M. PI- Daniel J. Johnson - University of Florida.	Co-I	2021–2026
14. Advanced Remote Sensing for Forest Restoration: Quantifying biodiversity, productivity, and resilience under a changing environment. USDA Forest Service. US\$211k. PIs - Qinfeng Guo (SRS, EFETAC) and Jeff W. Atkins (SRS, Savannah River).	Co-I	2021–2023
15. AMAZECO: Covering the Amazon with an Ecosystem Structure EBV product combining satellite and airborne lidar. Microsoft/GEO BON. €100k. PI Dr. Valbuena - Swedish University of Agricultural Sciences.	Co-I	2021–2021
16. 3D fuel characterization for evaluating physics-based fire behavior, fire effects, and smoke models on US Department of Defense military lands. Strategic Environmental Research and Development Program (SERDP). US\$ 2.6M. PI – Dr. Roger Ottmar - US Forest Service, Pacific Northwest Research Station	Co-I	2020–2024
17. Object-based aggregation of fuel structures, physics-based fire behavior and self-organizing smoke plumes for improved fuel, fire, and smoke management on military lands. Strategic Environmental Research and Development Program (SERDP). US\$ 2.4M - PI Dr. Andrew Hudak – US Forest Service – Rocky Mountain Research Station.	Co-I	2020–2024
18. Mapping boreal forest biomass density for the ABoVE domain circa 2020 with ICESat-2. NASA- Above. PI- Dr. Laura Duncanson- University of Maryland, USA.	Postdoc Fellow/ Collaborator	2020–2021
19. Mapping fuel load and simulation of fire behavior and spread in the Cerrado biome using modeling and remote sensing technologies. Brazilian National Council for Scientific and Technological Development (CNPq). US\$ 45K. PI- Dr. Carine Klauberger - Federal University of Sao Joao Del-Rei, Brazil	Co-I	2019–2021

20. Future Mission Fusion for High Biomass Forest Carbon Accounting (Dr. Silva was a postdoc fellow). NASA Carbon Monitoring System (CMS). PIs- Laura Duncanson- University of Maryland, USA. and Lola E. Fatoyinbo Agueh - Biosciences Laboratory, NASA Goddard Space Flight Center, Greenbelt, MD 20707, USA;	Postdoc Fellow	2018- 2020
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RESEARCH PROPOSAL — PENDING AS OF JANUARY 18, 2026

	Role	Years
Regional mechanisms that drive ecosystem transformations of southeastern fire-dependent pine ecosystems. U.S. Department of Energy (DOE). Requested: US\$1,503,324; UF allocation requested: US\$502,813. Pending as of January 18, 2026, according to the tenure packet.	Co-PI	2026– 2029

PEER REVIEWED PUBLICATIONS (>108)

2026

1. Sánchez-López, N., Hudak, A. T., Xia, J., Robertson, K., Bright, B. C., Prichard, S., Nemens, D. G., Hawley, C., Loudermilk, E. L., Keane, R., Woodall, C. W., Mauro, F., Boschetti, L., Silva, C. A., & Cabo, C. (2026). Modeling tree crown-mediated accumulation of downed woody debris in fire-maintained longleaf pine forests of the southeastern US from laser scanning data. *Fire Ecology*. <https://doi.org/10.1186/s42408-026-00548-7>
2. Fareed, N., Silva, C. A., Gaskins, A. J., Prichard, S. J., Hudak, A. T., Xia, J., & Alvites Diaz, C. I. (2026). From Wood–Foliar Semantics to 3D Fuel Characterization: Transferable Deep Learning for Terrestrial LiDAR Across Global Forest Ecosystems. *Remote Sensing*, 18(18), 3158. <https://doi.org/10.3390/rs18183158>
3. Hudak, A. T., Bakken, J. L., Lister, A., Mauro, F., Gregory, M. J., Riley, K., Wilson, B. T., Santoro, M., Healey, S. P., Ma, L., Yu, Y., Bright, B. C., Byrne, J. C., Mita, R., Houtman, R., Shaw, J. D., Fekety, P. A., Domke, G. M., Walters, B. F., Bell, D. M., Weiskittel, A., Atkins, J. W., Duncanson, L., Hunka, N., Kennedy, R., Babcock, C., Saatchi, S., Raczka, B., Silva, C., Tang, H., & Hurtt, G. (2026). A quantitative evaluation of forest aboveground biomass density map products in Oregon, USA. *Environmental Research Letters*, 21, 143007. <https://doi.org/10.1088/1748-9326/ae8b04>
4. Corado, L., Godinho, S., Silva, C. A., Pascual, A., Guerra-Hernández, J., Valerio, F., Gonçalves, T., & Salgueiro, P. (2026). GEDICorrect: A scalable Python tool for orbit-, beam-, and footprint-level GEDI geolocation correction. *Science of Remote Sensing*, 14, 100469. <https://doi.org/10.1016/j.srs.2026.100469>
5. Prichard, S. J., Nemens, D. G., Rowell, E., Batchelor, J. L., Bester, M. S., Bright, B. C., Cova, G. R., Cronan, J. B., Drye, B., Hudak, A. T., Eagle, P. C., Kennedy, M. C., Loudermilk, E. L., Redford, H. E., Parsons, R. A., Silva, C. A., Skowronski, N. S., & Thoreson, J. (2026). Hierarchically scaled remote sensing and field datasets for three-dimensional wildland fuel characterization. *Fire Ecology*. <https://doi.org/10.1186/s42408-026-00507-2>
6. Duncanson, L., Montesano, P. M., Neuenschwander, A., Zarringhalam, A., Thomas, N., Minor, D. M., Wulder, M. A., White, J. C., Guenther, E., Feng, T., Leitold, V., Hancock, S., Armston, J., Puliti, S., Mandel, A. I., Shah, S., Silva, C., Purslow, M., Bruening, J., Breidenbach, J., Næsset, E., Saarela, S., Hunka, N., Kellner, J. R., Healey, S. P., Schepaschenko, D., Wallerman, J., Neigh, C. S. R., Carvalhais, N., & Dubayah, R. (2026). Global and boreal estimates of woody aboveground biomass for 2020: Filling GEDI's northern data gap with ICESat-2 and Harmonized Landsat

- Sentinel-2. Remote Sensing of Environment, 340, 115406. <https://doi.org/10.1016/j.rse.2026.115406>
7. Zheng, C., Magee, L., Cayetano, D., Rocha, K. D., Lu, Y., Bohlman, S., et al. (2026). Discriminating temporal decline and death of a savanna oak using multi-year imaging spectroscopy. Remote Sensing Applications: Society and Environment, 43, 102117. <https://doi.org/10.1016/j.rsase.2026.102117>
 8. Mitra, A., Harris, N., Gamarra, J. G. P., Bastian, M. L., Crowther, T. W., Picard, N., Herold, M., Hui, C., de-Miguel, S., Powell, W. G., Beane, N. R., Shallock, J. R., van der Plas, F., Lawes, M. J., Zhou, M., Jahanshahi, M., Tchebakova, N. M., Parfenova, E. I., Reich, P., et al., including Silva, C. A., et al. (2026). The global forest diameter spectrum using a machine learning approach. Earth System Science Data Discussions. <https://doi.org/10.5194/essd-2026-226>
 9. Gaskins, A. J., Xia, J., Bueno, I. T., & Silva, C. A. (2026). Advancing terrestrial laser scanning for 3D classification of Spanish moss (*Tillandsia usneoides* L.) using unsupervised, machine learning, and deep learning methods. Scientific Reports, 16, 18295. <https://doi.org/10.1038/s41598-026-49230-7>
 10. Cardil, A., Rodrigues, M., Ascoli, D., Ortega, M., Quiñones, T., Erdozain, M., Oliveras Menor, I., Spadoni, G. L., Ramírez, J., Molina, J. R., Mouillot, F., Silva, C. A., Mohan, M., Martínez-Bentué, C., & de-Miguel, S. (2026). Protected areas influence fire regimes globally. Journal of Environmental Management, 398, 128285. <https://doi.org/10.1016/j.jenvman.2025.128285>

2025

11. Haneda, L. E., Brancalion, P. H. S., Valle, D., Silva, C. A., Gorgens, E. B., Prata, G. A., Kamimura, R. A., Gomes, S. H. M., Sanchez, A. K., Almeida, D. R. A. Edge effect impacts on forest structure and carbon stocks in REDD+ projects: An assessment in the Amazon using UAV-LiDAR. Forest Ecology and Management, 585, 122646 (2025). <https://doi.org/10.1016/j.foreco.2025.122646>
12. Santoro, G. B., Molin, P. G., Viveiros, J. M. S. M., Ferreira, G. de A., Costa, V. M., Haneda, L. E., Sinegalia, M. K. S. D., Cullen Jr, L., Brancalion, P. H. S., Silva, C. A., Almeida, D. R. A. de Monitoring the structure of restored forests and assessing aboveground carbon density through canopy metrics derived from digital aerial photogrammetry and LiDAR. Restoration Ecology. <https://doi.org/10.1111/rec.70077>
13. Jiang, F., Pu, X., Schmid, B., Reich, P. B., Liang, J., Abbasi, A. O., *et al.* Mycorrhizal symbioses and tree diversity in global forest communities. Science Advances, 11, eadt5743 (2025). <https://doi.org/10.1126/sciadv.adt5743>
14. Xia, J., Martin, T. A., Peter, G. F., Brock, K. M., Atkins, J. W., Gitzendanner, M. A., Bueno, I., Calders, K., Dalla Corte, A. P., Hudak, A. T., Schlickmann, M. B., Andreu, M. G., Hamamura, C., Klauber, C., Silva, C. A. Combined impact of semantic segmentation and quantitative structure modelling of Southern pine trees using terrestrial laser scanning. Scientific Reports, 15, 24427 (2025). <https://doi.org/10.1038/s41598-025-09681-w>
15. Karasinski, M. A., Leite, R. d. S., Guaraná, E. C., Figueiredo, E. O., Broadbent, E. N., Silva, C. A., Santos, E. K. M., Sanquetta, C. R., Dalla Corte, A. P. Automated Detection of *Araucaria angustifolia* (Bertol.) Kuntze in Urban Areas Using Google Earth Images and YOLOv7x. Remote Sensing, 17, 809 (2025). <https://doi.org/10.3390/rs17050809>
16. Bueno, I. T., Silva, C. A., Hamamura, C., Donovan, V. M., Sharma, A., Qiu, J., Xia, J., Brock, K. M., Schlickmann, M. B., Atkins, J. W., Valle, D. R., Vogel, J., Susaeta, A., Karasinski, M. A., Klauber, C. Aboveground biomass density maps for post-hurricane Ian forest monitoring in Florida. Scientific Data, 12, 1189 (2025). <https://doi.org/10.1038/s41597-025-05464-0>

17. Bueno, I. T., Silva, C. A., Schlickmann, M. B., Donovan, V. M., Atkins, J. W., Brock, K. M., Xia, J., Valle, D. R., Qiu, J., Vogel, J., White, K. L., Xu, L. M., Young, M. N., Zeng, O. P. Upscaling Frameworks Drive Prediction Accuracy and Uncertainty When Mapping Aboveground Biomass Density from the Synergism of Spaceborne LiDAR, SAR, and Passive Optical Data. *Remote Sensing*, 17, 2340 (2025). <https://doi.org/10.3390/rs17142340>
18. Vedovato, L. B., Aragão, L. E. O. C., Almeida, D. R. A., Bartholomew, D. C., Assis, M., Dalagnol, R., Gorgens, E. B., Silva-Junior, C. H. L., Ometto, J. P., Pontes-Lopes, A., Silva, C. A., Valbuena, R., Feldpausch, T. R. Impacts of fire on canopy structure and its resilience depend on successional stage in Amazonian secondary forests. *Remote Sensing in Ecology and Conservation*. <https://doi.org/10.1002/rse2.431>
19. Duncanson, L., Hunka, N., Jucker, T., Armston, J., Harris, N., Fatoyinbo, L., Williams, C. A., Atkins, J. W., Raczká, B., Serbin, S., Keller, M., Dubayah, R., Babcock, C., Cochrane, M. A., Hudak, A., Hurtt, G. C., Montesano, P. M., Moskal, L. M., Park, T., Saatchi, S., Silva, C. A., Tang, H., Vargas, R., Weiskittel, A., Wessels, K., & Goetz, S. J. (2025). Spatial resolution for forest carbon maps. *Science*, 387(6732), 371. <https://doi.org/10.1126/science.adv6429>
20. Schlickmann, M.B.; Bueno, I.T.; Valle, D.; Hammond, W.M.; Prichard, S.J.; Hudak, A.T.; Klauber, C.; Karasinski, M.A.; Brock, K.M.; Rocha, K.D.; Silva, C.. Statewide Forest Canopy Cover Mapping of Florida Using Synergistic Integration of Spaceborne LiDAR, SAR, and Optical Imagery. *Remote Sens.* 2025, 17, 320. <https://doi.org/10.3390/rs17020320>
21. Almeida, D. R. A. de, Vedovato, L. B., Fuza, M., Molin, P., Cassol, H., Resende, A. F., Krainovic, P. M., de Almeida, C. T., Amaral, C., Haneda, L., Albuquerque, R. W., Gorgens, E., Romanelli, J., Ferreira, M., Salk, C., Espinoza, N., Silva, C., Broadbent, E., & Brancalion, P. H. S. (2024). Remote sensing approaches to monitor tropical forest restoration: Current methods and future possibilities. *Journal of Applied Ecology*. <https://doi.org/10.1111/1365-2664.14830>
22. Bueno, I.T.; Silva, C.A.; Anderson-Teixeira, K.; Magee, L.; Zheng, C.; Broadbent, E.N.; Zambrano, A.M.A.; Johnson, D.J. Aboveground Biomass and Tree Mortality Revealed Through Multi-Scale LiDAR Analysis. *Remote Sens.* 2025, 17, 796. <https://doi.org/10.3390/rs17050796>
23. Forkel, M., Wessollek, C., Andela, N., de Laat, J., Huijnen, V., Kinalczyk, D., Marrs, C., van Wees, D., Bastos, A., Ciais, P., Fawcett, D., Kaiser, J. W., Kutschart, E., Klauber, C., Leite, R. V., Li, W., Silva, C., Sitch, S., Gonçalves De Souza, J., & Plummer, S. (2024). Burning of woody debris dominates fire emissions in the Amazon and Cerrado. *Nat. Geosci.* 18, 140–147 (2025). <https://doi.org/10.1038/s41561-024-01637-5>
24. Rex, F.E.; Silva, C.A.; Broadbent, E.N.; Dalla Corte, A.P.; Leite, R.; Hudak, A.; Hamamura, C.; Latifi, H.; Xiao, J.; Atkins, J. Spatial Characterization of Woody Species Diversity in Tropical Savannas Using GEDI and Optical Data. *Sensors* 2025, 25, 308. <https://doi.org/10.3390/s25020308>

2024

25. Leite^p, R.V., Amaral, C., Neigh, C.S.R., Cosenza, D.N., Klauber, C., Hudak, A.T., Aragão, L., Morton, D.C., Coffield, S., McCabe, T. and **Silva, C.A.** (2024), Leveraging the next generation of spaceborne Earth observations for fuel monitoring and wildland fire management. **Remote Sens Ecol Conserv.** <https://doi.org/10.1002/rse2.416>
26. Montagnoli, A., Hudak, A. T., Raunonen, P., Lasserre, B., Terzaghi, M., **Silva, C. A.**, Bright, B. C., Vierling, L. A., Vasconcellos, B. N. de, Chiatante, D., & Dumroese, R. K. (2024). Terrestrial laser scanning and low magnetic field digitization yield similar architectural coarse root traits for 32-year-old *Pinus ponderosa* trees. **Plant Methods**, 20, 102. <https://doi.org/10.1186/s13007-024-01229-9>
27. Viedma, O., **Silva, C. A.**, Moreno, J. M., & Hudak, A. T. (2024). LadderFuelsR: A new automated tool for vertical fuel continuity analysis and crown base height detection using light detection and

ranging. *Methods in Ecology and Evolution*, August 2024, <https://doi.org/10.1111/2041-210X.14427>

28. Cardil, A., Rodrigues, M., Barbero, R., Ramirez, J., Stoof, C., **Silva, C.**, Mohan, M. Reply to: Satellite artifacts modulate FireCCILT11 global burned area. *Nature Communication* 15, 2080 (2024). <https://doi.org/10.1038/s41467-024-46169-z>
29. Blanton, A., Mohang, M., Galgamuwa, G.A.P., Watt, M.S., Montenegro, J.F., Mills, F., Carlsen, S.C.H., Valasquez-Camacho, L., Bomfim, B., Pons, J., Broadbent, E.N., Kaur, A., Direk, S., de-Miguel, S., Ortega, M., Abdullah, M., Rondon, M., Wan Mohd Jaafar, W.S., **Silva, C.A.**, Cardil, A., Doaemo, W., Ewane, B.E. (2024). The status of forest carbon markets in Latin America. *Journal of Environmental Management*, 352, 119921. <https://doi.org/10.1016/j.jenvman.2023.119921>

2023

30. Merrick, T.; Bennartz, R.; Jorge, M.L.S.P.; Merrick, C.; Bohlman, S.A.; **Silva, C.A.**; Pau, S. (2023). Comparing Phenology of a Temperate Deciduous Forest Captured by Solar-Induced Fluorescence and Vegetation Indices. *Remote Sens.* 2023, 15, 5101. <https://doi.org/10.3390/rs15215101>
31. Hooman, L., Valbuena, R., **Silva, C.A.** (2023). Towards Complex Applications of Active Remote Sensing for Ecology and Conservation. *Methods in Ecology and Evolution*. v. 14; p1578–1586. <https://doi.org/10.1111/2041-210X.14154>
32. Abbasi, A., Tang, X., Harris, N.L., Goldman, E.D., Gamarra, J.G.P., Herold, M., Kim, H.S., Luo, W., **Silva, C.A.**, Tchebakova, N.M., Mitra, A., Finegold, Y., Jahanshahi, M.R., Alvarez, C.I., Kim, T. K., Ryu, D., Liang, J. (2023). Artificial-intelligence augmented spatial database of planted trees (A-SDPT) in East Asia. *Scientific Data*. 10(1):480. <https://doi.org/10.1038/s41597-023-02383-w>
33. Pinagép, E., Longo, M., Csillik, O., Huete, A., David, **Silva, C.**, Keller, M. (2023). Surface energy dynamics and canopy structural properties in intact and disturbed forests in the Southern Amazon. *Journal of Geophysical Research*. 128(9): 96-114. <https://doi.org/10.1029/2023JG007465>
34. Cardil, A., Monedereo, S., Selegue, P., De Miguel, S., Marshall, g., Chavez, T., **Silva, C.A.**, Ramirez, J. (2023). Performance of operational fire spread models in California. *International Journal of Wildland Fire*. 32(11), 1492–1502 . <https://doi.org/10.1071/WF22128>
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25. **Silva, C.A.**; Liesenberg, V.; Klauberg, C.; Hudak, A.; Liebermann, R.; Rodriguez, L.C.E. Variações de MDTs gerados a partir de dados LiDAR: Estudo comparativo entre diferentes classificadores. In: XVI SBSR Simpósio Brasileiro de Sensoriamento Remoto - SBSR, Foz do Iguaçu. p.6113 – 6120. 2013
26. Berri, P.V.; Silva, J.O.; Souza, K.; **Silva, C.A.**; Klauberg, C. Análise da estrutura de uma espécie arbórea em um fragmento de Floresta Ombrófila Mista, Pánel, SC. In: II Simpósio Internacional de Ciência, Saúde e Território, Lages, SC. v.2. p.119 – 120. 2013
27. Gorgens, E.; Rodriguez, L. E.; Silva, A. G. P.; Coops, N.; **Silva, C.A.** Influence of LiDAR data projection in DTM generation. In: Silvilaser, 2012, Vancouver. Silvilaser, 2012.
28. **Silva, C.A.**; Sixel, R. M. M.; Arthur Junior, J. C.; Pulito, A.P.; Goncalves, J. L. M. . Estoque de serapilheira em plantações de *Eucalyptus grandis* sob os diferentes sistemas de cultivo. In: II Encontro Brasileiro de Silvicultura, 2011, Campinas -SP. II Encontro Brasileiro de Silvicultura, 2011. v. 2.
29. **Silva, C.A.**; Sixel, R. M. M.; Arthur Junior, J. C.; Pulito, A.P.; Goncalves, J. L. M. Influência dos resíduos florestais e da adubação na produção volumétrica aos cinco anos de idade em plantações de *Eucalyptus grandis*. In: II Encontro Brasileiro de Silvicultura, 2011, Campinas -SP. II Encontro Brasileiro de Silvicultura, 2011. v. 2.
30. Sixel, R. M. M.; **Silva, C.A.**; Arthur Junior, J. C.; Pulito, A.P.; Goncalves, J. L. M. Inferência da nutrição florestal na uniformidade e produtividade em plantios de *Eucalyptus grandis*. In: II Encontro Brasileiro de

- Silvicultura, 2011, Campinas -SP. II Encontro Brasileiro de Silvicultura, 2011. v. 2.
31. Sixel, R. M. M. ; **Silva, C.A** ; Arthur Junior, J. C. ; Pulito, A.P ; Goncalves, J. L. M. Efeito da omissão de macronutrientes na produção de biomassa de *Eucalyptus grandis*. In: II Encontro Brasileiro de Silvicultura, 2011, Campinas -SP. II Encontro Brasileiro de Silvicultura, 2011. v. 2.
 32. **Silva, C.A**; Klauberg, C. ; Berri, P. V. ; Vidal. E. J. Ecologia da espécie *Drimys brasiliensis* Miers. (Winteraceae) em um remanescente de Floresta Ombrófila Mista, Serra da Farofa, Painei, SC, Brasil.. In: X Congresso de Ecologia do Brasil, 2011, São Lourenço. X Congresso de Ecologia do Brasil, 2011.
 33. **Silva, C.A**; Klauberg, C. ; Berri, P. V. ; Vidal. E. J. Estrutura populacional de *Myrcia glabra* (O.Berg) D. Legrand. (Myrtaceae) em um trecho em um remanescente de Floresta Ombrófila Mista, no interior do estado de Santa Catarina, Brasil. In: X Congresso de Ecologia do Brasil, 2011, São Lourenço - MG. X Congresso de Ecologia do Brasil, 2011.
 34. Klauberg, C. ; Vidal. E. J ; Ducatti, M. ; **Silva, C.A**. Produção de óleo de copaíba (*Copaifera* sp.) em Floresta Amazônica ? Paragominas, PA.. In: X Congresso de Ecologia do Brasil, 2011, São Lourenço - MG. X Congresso de Ecologia do Brasil, 2011.
 35. Klauberg, C. ; Vidal. E. J ; R, C. ; **Silva, C.A** ; Lentini, M. Amostragem de um produto florestal não madeireiro: cipó-titica (*Heteropsis* sp.), na região Amazônica. In: X Congresso de Ecologia do Brasil, 2011, São Lourenço - MG. X Congresso de Ecologia do Brasil, 2011.
 36. Grasmann, G. S. ; **Silva, C.A** ; Klauberg, C. ; Berri, P. V. ; Vidal. E. J. Composição e diversidade de avifauna em remanescente de Floresta Ombrófila Densa Montana em um trecho da rodovia Rodoanel Mário Covas, em Itapeverica da Serra, SP, Brasil.. In: X Congresso de Ecologia do Brasil, 2011, São Lourenço - MG. X Congresso de Ecologia do Brasil, 2011.
 37. **Silva, C.A**; Klauberg, C. ; Berri, P. V. ; Vidal. E. J. Ecologia da espécie *Weinmannia paulliniifolia* Pohl ex Ser. (Cunoniaceae) em um remanescente de Floresta Ombrófila Mista, Serra da Farofa, Painei, SC, Brasil.. In: X Congresso de Ecologia do Brasil, 2011, São Lourenço - MG. X Congresso de Ecologia do Brasil, 2011.
 38. **Silva, C.A**; Goncalves, J. L. M. ; Pizzi, M. ; Arthur Junior, J. C. Volatilização da amônia em plantios de eucalipto fertilizados com uréia. In: SIICUSP - Simpósio Internacional de Iniciação Científica da USP, 2010, Piracicaba-SP. SIICUSP - Simpósio Internacional de Iniciação Científica da USP, 2010.
 39. Klauberg, C. ; **Silva, C.A** ; Higuchi, P. ; Silva, A.C. Fitossociologia de um remanescente de Floresta Ombrófila Mista Alto-Montana na Serra da Farofa, município de Painei SC.. , In: IX Congresso de Ecologia do Brasil, 2009, São Lourenço, MG., 2009, São Lourenço, MG. Fitossociologia de um remanescente de Floresta Ombrófila Mista Alto-Montana na Serra da Farofa, município de Painei SC.. In: IX Congresso de Ecologia do Brasil, 2009, São Lourenço, MG. IX Congresso de Ecologia do Brasil, 2009., 2009.
 40. Klauberg, C. ; **Silva, C.A**. Ecologia da espécie *Araucaria angustifolia* (Bertol.) Kuntze (Araucariaceae) em um remanescente de Floresta Ombrófila Mista Alto-Montana, Serra da Farofa, Painei, SC, Brasil. In: IX Congresso de Ecologia do Brasil, 2009, São Lourenço, MG, 2009, São Lourenço -MG. IX Congresso de Ecologia do Brasil - Ecologia e o Futuro da Biosfera, 2009., 2009.
 41. **Silva, C.A**; Klauberg, C. ; Costa, N.C.F ; Silva, A.C. ; Higuchi, P. Ecologia da espécie *Allophylus edulis* (St.-Hil.) Radlk. (Sapindaceae) em um remanescente de Floresta Ombrófila Mista Montana, Campos Novos, SC, Brasil. In: IX Congresso de Ecologia do Brasil - Ecologia e o Futuro da Biosfera, 2009., 2009, São Lourenço -MG. Ecologia da espécie *Allophylus edulis* (St.-Hil.) Radlk. (Sapindaceae) em um remanescente de Floresta Ombrófila Mista Montana, Campos Novos, SC, Brasil, 2009.

PUBLISHED CONFERENCE ABSTRACTS

42. Stoddart, J.; de Almeida, D.R.A.; **Silva, C.A.**; Görgens, E.B.; Keller, M.; Valbuena, R. A. 2022. Detecting small-scale forest disturbance with LiDAR derived ecosystem morphological traits. Ecological Society of America. (accepted)
43. Mohan et al. 2021. Leatherback turtle conservation and monitoring efforts at the crossroads: A remote sensing perspective. 2021 7th International Conference on Space Science and Communication (IconSpace). <https://doi.org/10.1109/IconSpace53224.2021.9768727>
44. Duncanson, L.; Neuenschwander, A. **Silva, C. A.**; Montesano, P.; Guenther, E.; Thomas, N.; Hancock, S.; Minor, D.; White, J.; Wulder, M.; Armston, J. Forest Aboveground Biomass Estimation with GEDI and ICESat-2 in boreal forests. IGARSS 2021 - 2021 IEEE International Geoscience and Remote Sensing Symposium.

45. Russell, M.; Eitel, J.U.H.; Link, T.E.; Silva, C.A. 2021. Important airborne lidar metrics of canopy structure for estimating snow interception. AGU Fall meeting 2021.
46. Leite, R. V.; **Silva, C. A.** et al. Advanced methods for large scale multi-layer fuel load characterization in forest and savanna ecosystems using NASA's GEDI spaceborne lidar system (2021). 9th International Fire Ecology and Management Congress. Nov 30 – Dec 03, 2021
47. Almeida, D., Zambrano, A., Wilkinson, B., **Silva, C. A.**, Papa, D., Broadbent, E., Gorgens, E., Ferreira, M., Meli, P., Brancalion, P., Chazdon, R., Valbuena, R., Stark, S. Monitoring the structure of forest restoration plantations with a drone-lidar system. Monitoring forest restoration plantations with a drone-lidar system. XXV IUFRO Congress 2019.
48. **Silva, C.A.**, Duncanson, L., Hancock, S., Neuenschwander, A., Thomas, N., Hofton, M., Fatoyinbo, L., Simard, M., Armston, J., Dubayah, R. Fusing GEDI, ICESat-2 and NISAR data for aboveground biomass mapping in Sonoma County, California, USA. AGU Fall meeting 2018.
49. **Silva, C. A.**; Hudak, A.; Vierling, L. A.; Klauber, C.; Kato, A. ; Cardil, A.; Weiskittel, A. Estimating individual tree aboveground carbon in a fast-growing Eucalyptus spp. forest plantation from airborne lidar data using a mixed-effects model. Silvilaser, Blacksburg, Virginia, USA. 2017.
50. Kato, A.; Osawa, A.; Hudak, A.; **Silva, C. A.**; Moskal, L. Monika. Fractal Dimension of Trees using Terrestrial Laser Scanner. Silvilaser, Blacksburg, Virginia, USA. 2017.
51. Hudak, A.; Bright, B.; Pokswinski, S.; Loudermilk, E. L.; O'Brien, J.; Klauber, C.; **Silva, C.A.** Longleaf pine overstory structure constraints fine-scale dynamics in fuels, fire, and plant species diversity. In: Ecological Society of America - ESA - Annual Meeting (Portland, USA). 2017.
52. **Silva, C.A.**; Hudak, A.; Rowell, E.; Seielstad, C.; Klauber, C.; Bright, B.; Loudermilk, E. L. ; O'Brien, J. J. Comparison of terrestrial and airborne LiDAR derived crown metrics for describing forest structure at Eglin Air Force Base, Florida, USA. In: Ecological Society of America - ESA - Annual Meeting (Portland, USA). 2017.
53. **Silva, C. A.**; Hudak, A.; Vierling, L. A. ; Klauber, C. ; Ferraz, A. ; Alonso, M. G. ; Keller, M. ; Saatchi, S. Influence of the airborne lidar pulse density on biomass change prediction in tropical forest. 2016 AGU Fall Meeting, 2016.
54. **Silva, C. A.**; Hudak, A.; Vierling, L. A. ; Klauber, C. ; Ferraz, A. ; Alonso, M. G. ; Keller, M. ; Saatchi, S. Modeling aboveground biomass from individual tree LiDAR-derived metrics in tropical forest. In: ForestSAT, 2016, Santiago. ForestSAT 2016, 2016.
55. **Silva, C. A.**; Hudak, A.; Vierling, L. A.; Klauber, C. ; Ferraz, A. ; Alonso, M. G. ; Keller, M. ; Saatchi, S. Impacts of Airborne Lidar Pulse Density on Estimating Biomass Stocks and Changes in Tropical Forests. In: ForestSAT, 2016, Santiago. ForestSAT 2016, 2016
56. **Silva, C.A.**; Hudak, A.; Vierling, L. A. ; Loudermilk, E. L. ; O'Brien, J. J. ; Poznanovic, A. ; Falkowski, M. ; Gonzalez-Benecke, C. A. ; Jack, S. ; Lee, H. Individual tree detection from LiDAR-derived canopy height models (CHM) in longleaf pine forest. In: 36 Canadian Symposium on Remote Sensing, 2015, St. John's, Newfoundland and L. Abstracts: 36 Canadian Symposium on Remote Sensing, 2015. v. 1. p. 88.
57. Hudak, A.; Bright, B. C. ; Loudermilk, E. L. ; O'Brien, J. J. ; **Silva, C.A.** ; Vierling, L. A. Upscaling tree density measures from environmental monitoring plots across Eglin Air Force Base using low density lidar. In: 36 Canadian Symposium on Remote Sensing, 2015, St. John's, Newfoundland and L. Abstracts: 36 Canadian Symposium on Remote Sensing, 2015. v. 1. p. 110.
58. **Silva, C.A.**; Hudak, A. ; Vierling, L. A. ; Loudermilk, E. L. ; O'Brien, J. J. Web-based applications for LiDAR data processing and visualizing trees at the plot level. In: 36 Canadian Symposium on Remote Sensing, 2015, St. John's, Newfoundland and L. Abstracts: 36 Canadian Symposium on Remote Sensing, 2015. v. 1. p. 172.
59. Hudak, A. ; **Silva, C.A.** ; Bright, B. C. ; Loudermilk, E. L. ; Kato, A. ; O'Brien, J. J. ; Vierling, L. A. Lidar tools and techniques for 3D vegetation structure characterization at multiple scales. In: 23rd Center for Environmental Remote Sensing International Symposium, 2015, Matsudo. 23rd Center for Environmental Remote Sensing International Symposium, 2015.
60. **Silva, C.A.**; Hudak, A. ; Vierling, L. A. ; Keller, M. ; Klauber, C. Aboveground Biomass Modeling from Field and LiDAR Data in Brazilian Amazon Tropical Rain Forest. In: 2015 AGU Fall Meeting, 2015, San Francisco. 2015 AGU Fall Meeting, 2015.
61. Falkowski, M.; Fekety, P. ; **Silva, C.A.** ; Hudak, A. Increasing the Efficiency of LiDAR Based Forest Inventories: A Novel Approach for Integrating Variable Radius Inventory Plots with LiDAR Data. In: 2015

- AGU Fall Meeting, 2015, San Francisco. 2015 AGU Fall Meeting, 2015.
62. Carvalho, S. P. C. ; Lima, M. P. ; **Silva, C.A** ; Sena, A. L. M. . Individual Tree Detection In Monoclonal Eucalyptus Plantations In Brazil. In: WFC 2015 XIV World Forestry Congress, 2015, Durban. Technical posters, 2015.
 63. **Silva, C.A.**; Klauberg, C.; Hudak, A.; Almeida, D.R.A. Extração de árvores individuais em dados LiDAR usando o aplicativo de inventário florestal WEB-LiDAR 3D ClusterTree. In: III simpósio nacional de inventário florestal. Anais do III simpósio nacional de inventário florestal. Manaus, v.1. p.125 – 125. 2014.
 64. **Silva, C.A.**; Klauberg, C.; Hudak, A.; Almeida, D.R.A. Individual tree detection using Web-LiDAR treetop forest inventory application. In: In: III simpósio nacional de inventário florestal. Anais do III simpósio nacional de inventário florestal. Manaus. v.1. p.124 – 125. 2014.

TALKS AND PRESENTATIONS (2015 – present)

- | | |
|--|-------------|
| 1. Mapping fuel load and simulation of fire behaviour and spread in the Cerrado biome using modeling and remote sensing technologies. PrevFogo – IBAMA - Brazil | 2022 |
| 2. Seeing the forest in 3D with lasers. Florida Forestry Association Annual Meeting | 2022 |
| 3. Overview of UF Forest Biometrics and Remote Sensing Lab. Rayonier | 2022 |
| 4. Forest structure monitoring using lidar data. Guest speaker for FOR 3153C Forest Ecology – UF/IFAS | 2022 |
| 5. Large scale fuel load characterization in tropical savanna using multi-source remote sensing data. Northern Arizona University, School of Forestry. | 2022 |
| 6. Seeing the forest with lasers. Jones Center at Ichauway | 2022 |
| 7. Advanced methods for 3-D forest characterization and mapping from lidar remote sensing data. Forest Biology Research Cooperative (FBRC) annual meeting | 2021 |
| 8. Large scale multi-layer fuel load characterization in tropical savanna using GEDI spaceborne lidar data. 2021 7 th International Conference on Space Science and Communication | 2021 |
| 9. Caracterização e modelagem do material combustível no bioma Cerrado utilizando dados GEDI e UAV-Lidar. GISForest Conference. Brazil. | 2021 |
| 10. Lidar phenotyping. Cooperative Forest Genetics Research Program (CFGRP) annual meeting | 2021 |
| 11. Large scale multi-layer fuel load characterization in tropical savanna using GEDI spaceborne lidar data. UFMT – Brazil. | 2021 |
| 12. Applying Mixed-Effects Model For Estimating Individual Tree Attributes in <i>Eucalyptus</i> spp. Forest Plantations From Field And Airborne Lidar Data - XVII Brazilian Symposium on Remote Sensing | 2019 |
| 13. Estimating Forest Attributes In Industrial <i>Pinus taeda</i> L. Forest Plantations in Brazil Using Simulated Nasa's Gedi Spaceborne Lidar Data - XVII Brazilian Symposium on Remote Sensing | 2019 |
| 14. Introdução a tecnologia LiDAR aplicada a Engenharia Florestal- Federal University of São João del-Rei | 2019 |
| 15. Predição do volume total e de sortimentos de fustes em plantações de <i>Pinus taeda</i> L. utilizando dados LiDAR e Random Forest - Federal University of São João del-Rei | 2019 |
| 16. Mensuração e inventário florestal em áreas urbanas com geotecnologias - Federal University of São João del-Rei | 2019 |
| 17. Impacto da densidade de pulso do LiDAR aerotransportado na estimativa de estoque e mudança da biomassa em uma floresta tropical de corte seletivo - Federal University of São João del-Rei | 2019 |
| 18. Combinando métricas de copa derivadas do LiDAR aerotransportado e terrestre para descrição da estrutura florestal - Federal University of São João del-Rei | 2019 |
| 19. Silvilaser (Blacksburg, USA) – Silva et al. “Estimating individual tree aboveground carbon in a fast-growing <i>Eucalyptus</i> spp. forest plantation from airborne lidar data using a mixed-effects model”. (Presented by Dr. Akira Kato) | 2018 |

20. Ecological Society of America - ESA - Annual Meeting (Portland, USA) - Silva et al. **2017**
“Comparison of terrestrial and airborne LiDAR derived crown metrics for describing forest structure at Eglin Air Force Base, Florida, USA”
21. ForestSAT 2016 (Santiago, Chile) Silva, C. A. et al. “Modeling aboveground Biomass from individual tree LiDAR-derived metrics in tropical forest”. **2016**
22. American Geophysical Union, Fall General Assembly – AGU 2016 (San Francisco, USA) – Silva et al. “Influence of the airborne lidar pulse density on biomass change prediction in tropical forest” **2016**
23. LiDAR Remote Sensing for Forestry applications - Federal University of Mato Grosso **2016**
24. Geospatial Technologies in Precision Agriculture - Federal University of Mato Grosso **2016**
25. 36th Canadian Symposium on Remote Sensing (Newfoundland, Canada). Silva et al. **2015**
“Individual tree detection from LiDAR-derived canopy height models (CHM) in longleaf pine forest”

TEACHING EXPERIENCE

- FOR3034C – Forest Mensuration – University of Florida/ IFAS **2022**
- Mini-course: Introduction to rGEDI: An R Package for NASA’s Global Ecosystem Dynamics Investigation (GEDI) Data Visualization and Processing (GEDI) Lidar. **SBSR Interim 2021.**
- Mini-course: Introduction to Global Ecosystem Dynamics Investigation Lidar. XIX **Brazilian Symposium on Remote Sensing.** **2019**
- Adjunct lecturer: NRS 404/504 - Lidar Remote Sensing for Environmental Monitoring – University of Idaho – College of Natural Resources – Department of Natural Resources and Society **2018/Summer 2019**
(https://www.webpages.uidaho.edu/ecologyonline/documents/NRS404_504_Syllabus_180326.pdf)
- LiDAR remote sensing application in Forestry - Workshop UFSJ (https://ufsj.edu.br/noticias_ler.php?codigo_noticia=7427)
- Teacher Assistant for Dr. Lee Vierling: “REM/FOR 472 Remote Sensing of the Environment”, University of Idaho – College of Natural Resources – Department of Natural Resources and Society **2015**
- Introduction to lidar technology - Workshop. Department of Silviculture - Federal Rural University of Rio de Janeiro (UFRJ) **2016**
- Airborne lidar data processing and analysis - Workshop. Department of Forest Engineering - Federal University of Mato Grosso (UFMT) **2016**

COMMITTEES

- Sharma, A., Silva, C.. Final Examination Committee member for Ethan Baldino. Master of Science Forest Resources and Conservation. University of Florida, 2022.
- Amaral, C. H.; Silva, C. A., Almeida, T. I. R., Filho, E., I., F., Torres, F., T. R., Rodrigo Leite Ph.D. defense. Federal University of Viçosa. 2022.
- Corte, A. P. D.; Klauberg, C.; Silva, C. A. Franciel Rex PhD qualification examination. Federal University of Paraná. 2022
- Klauberg, C.; Marcatti, G., Silva, C. A. Final examination for Anne Laura da Silva – undergraduate course – forest engineering. Federal University of São João Del-Rei. 2021.
- Torres, C.; Amaral, C.; Almeida, D. R. A.; Filho, E., Silva, C. A. Aguida Vianna Ph.D. qualification examination. Federal University of Viçosa. 2022.
- Rodriguez, L. e; Ferraz, S. F. B.; Avides, C.A; **Silva, C. A. Ph.D.** defense: Gabriel Atticciati Prata. Mapeamento da probabilidade de danos e cicatrizes de danos como suporte ou manejo de florestas. 2019. - University of São Paulo – “Luiz de Queiroz” college of Agriculture –ESALQ.
- Amaral, Cibele. **Silva, C. A;** et al.. **MSc defense:** Rodrigo Vieira Leite. Estimating stem volume of Eucalyptus using LiDAR: a comparison of individual tree and área-based approaches 2019. – Federal University of Viçosa - UFV.

- Brancalion, P. H. S.; Cesar, R. G.; **Silva, C. A.**; Gorgens, E. **Ph.D. defense:** Danilo Roberti Alves de Almeida. Assessing tropical forest degradation and restoration through lidar remote sensing. 2018. - University of São Paulo – “Luiz de Queiroz” college of Agriculture –ESALQ.
- Corte, A. P. D.; **Silva, C. A.**; Behling, A.; Sanquetta, C. **Ph.D. Exam.** Bruna Nascimento de Vasconcellos. Retrieving individual Araucaria angustifolia (BERT) tree attributes from field and terrestrial laser scanning (TLS) data. 2018. Federal University of Paraná - UFPR.
- Corte, A. P. D.; **Silva, C. A.**; Behling, A.; Sanquetta, C. **MSc. Exam.** Franciel Rex. Estimativas e dinâmica de biomassa acima do solo utilizando diferentes abordagens estatísticas e dados lidar em floresta tropical. 2018. Exame de qualificação (Doutorando em Engenharia Florestal) - Federal University of Paraná - UFPR.
- Carvalho, S. P. C.; Nicoletti, M. F.; **Silva, C. A Msc. Exam.** Influência do tamanho de parcelas na estimativa de parâmetros biométricos em uma floresta tropical Amazonica no Mato Grosso. 2018. Federal University of Mato Grosso.
- Mendonça, B. F.; Silva, C.A. et al. 2015. **Undergraduate final project defense.** Uelison Mateus Ribeiro. Algoritmos para geração de modelos digitais de terreno a partir de dados LIDAR aerotransportado. Federal Rural University of Rio de Janeiro (UFRJ).

COMPLEMENTARY TRAINING

Forest management and reduced impact logging (RIL). (course load: 85h). Tropical Forest Institute – **2011**
IFT, Paragominas, Brazil.

PROFISSIONAL SERVICES AND ACTIVITIES

- **Ad hoc Reviewer for academic journals (>30)**
Remote Sensing of Environment, Forest Ecology and Management, Remote Sensing, Forests, Scientific Reports, Methods in Ecology and Evolution, Ecology and Evolution, Sensors, Land, ISPRS Journal of Photogrammetry and Remote Sensing, Computers and Electronics In Agriculture, Sustainability, International Journal of Digital Earth, Forest Ecology and Management, International Journal of Remote Sensing, Remote Sensing Letters, Science of The Total Environment, Environmental Research Letters, Foresta, ISPRS International Journal of Geo-Information, Remote Sensing Applications: Society and Environment, Environmental Research Communications, French Review of Photogrammetry and Remote Sensing, Forest Systems, New Zealand Journal of Forestry Science, Canadian Journal of Remote Sensing, Revista Floresta e Ambiente, Boletim de Ciências Geodésicas, Advances in Forestry Science, Cerne, African Journal of Environmental Science and Technology, Anais Da Academia Brasileira de Ciencias and others.
- **Reviewer for funding agencies**
2022- NASA (e.g. ECOSTRESS program and NPP)
2022- Polish National Science Center (NCN)
2021- National Science Foundation (NSF)
- **Editorship**
 1. Editorial Board: British Ecological Society - Methods in Ecology and Evolution (IF6.51):
<https://besjournals.onlinelibrary.wiley.com/journal/2041210X>, 2019 – current.
 2. Section Editor in Chief – Remote Sensing – MDPI -
<https://www.mdpi.com/journal/remotesensing/editors>, 2021 – current.
 3. Guest Editor: Special issue on " Applications of LiDAR and Photogrammetry for Forest Inventory and Management ", Forests (ISSN 1999-4907; IF: 2.116)
(https://www.mdpi.com/journal/forests/special_issues/LiDAR_Inventory), 2018-2019.
 4. Guest Editor: Special issue on "Carbon storage measurement through remote sensing", Remote Sensing (ISSN 2072-4292; IF: 4.118)

- (https://www.mdpi.com/journal/remotesensing/special_issues/carbon_storage_measurement), 2019-2020.
5. Guest Editor: Special issue on " LiDAR Remote Sensing of Forest Resources and Wildland Fires", Remote Sensing (ISSN 2072-4292; IF: 4.118) (https://www.mdpi.com/journal/remotesensing/special_issues/LiDAR_RS_Forest_Resources_Wildland_Fires); 2019-2021
 6. Guest Editor: Special issue on " Remote Sensing Data Fusion for Mapping Ecosystem Dynamics", Remote Sensing (ISSN 2072-4292; IF: 4.118); (https://www.mdpi.com/journal/remotesensing/special_issues/DFMED)
 7. 2019-2021 Guest Editor: Special issue on " Remote Sensing of Forest Disturbance and Recovery", Remote Sensing (ISSN 2072-4292; IF: 4.118); (https://www.mdpi.com/journal/forests/special_issues/RS_disturb); 2021-2022
 8. Guest Editor: Special issue on " Drones for Ecology and Conservation", Remote Sensing (ISSN 2072-4292; IF: 4.118); (https://www.mdpi.com/journal/remotesensing/special_issues/Drones_Ecology_and_Conservation); 2021-2022

Mentoring and graduate committee service

Documented in the tenure packet; expected completion dates are projections, not confirmation of graduation.

UF graduate committees: 14 named students — 3 Ph.D. chair appointments (including one student who transferred advisors), 3 master's chair appointments, 6 Ph.D. committee memberships, and 2 master's committee memberships. In addition, the packet records service as a non-thesis master's grader for Yat Chi Kwan (Spring 2026).

Ph.D. chair: Monique Bohora Schlickmann and Jinyi Xia (Spring 2026 expected); Kleydson Diego Da Rocha (transferred to a new advisor, Spring 2024).

Master's chair: Alexander Gaskins (Spring 2027 expected), Kody Brock (Spring 2026 expected), and Dallas Young (Fall 2022, non-thesis).

Ph.D. committee member: Samuel O. Aregbesola and Vicente A. Vasquez (Spring 2029 expected); Sunita Shrestha (Spring 2027 expected); Leo Eiti Haneda (Fall 2027 expected); Genhong Gao (Spring 2028 expected); Wenhao Liu (Summer 2026 expected).

Master's committee member: Jeftey Saint Fleur (Spring 2027 expected) and Basit Akinade (Summer 2024).

External Ph.D. co-chair: Franciel Rex (2019–2024), Máira Beatriz Teixeira da Costa (2018–2022), and Rodrigo Vieira Leite (2019–2022).

Research trainees documented in the recruitment roster: 12 undergraduate students (6 UF and 6 external), 6 postdoctoral associates, 1 visiting faculty member, and 1 visiting Ph.D. student. These are cumulative roster counts, not current lab membership; categories may overlap with subsequent graduate appointments.

Postdoctoral associates: Ana Paula Dalla Corte (2024); Caio Hamamura (2023–2024); Inacio Thomaz Bueno (from 2023); Eugenia Kelly (2023–2024); Azade Deljouei (2022–2023); Diogo Nepomuceno Cosenza (2022).

Visiting faculty: Allan Sulato de Andrade (2024). Visiting Ph.D. student: Gabriel Maximo da Silva (2023–2024).

UF undergraduate trainees: Alexander F. Gurney, Alexander Gaskins, Angelyn Castano Caicedo, Liam Halloran, Evan F. Quigley, and Jennifer L. Jarman (appointments documented during 2022–2025).

External undergraduate trainees: Rosy Valéria da Rocha Lopes, Giulio Brossi Santoro, Lucas Rezende Bielak, Fernando Victor Lima Gomes, Luiz Guilherme Almeida Nogueira, and Danilo Romeu Farias de Souza (appointments documented during 2022–2025).

Earlier external mentoring: Bruna Nascimento de Vasconcellos (Ph.D. co-advisor, 2014–2020); Vanessa Souza da Silva (M.Sc. co-advisor, 2017–2019); Franciel Rex (M.Sc. co-advisor, 2015–2017); Mid Mohan (M.Sc. external mentor, 2015–2017); Wan Shafrina Wan Mohd Jaafar (Ph.D. external mentor, 2015–2018); Marieli Sabrina Ruza (undergraduate co-advisor, 2015–2016).

▪ Memberships

American Geophysical Union (2015-2016)

Ecological Society of America (2017-2018)

Forest Biology Research Cooperative (FBRC) (2021-present)

ProForest- UF/IFAS

- **Consulting (Forestry)**
Klabin S/A – (2015-2018)
- **Research Groups**
Founder of the Web-LiDAR Forest inventory application group in Facebook. >3.7k members
<https://www.facebook.com/groups/1504561379790934>

AWARDS AND HONORS

UF CALS Innovation in Teaching Award	2025
UF/IFAS Large Grant Leadership Award (2024 research award cycle)	2025
Selected for UF Global Fellow Program	2025
UF Excellence Award for Assistant Professors	2024
Richard Jones Outstanding New Faculty Research Award	2024
ESALQ/USP Department of Forest Resources Outstanding Alumni of the Decade — nomination	2024
Forestry Club Teacher of the Year, UF/IFAS SFFGS	2023
Thomas Hilker Early Career Scientist Award, ForestSAT	2022
College of Natural Resources Outstanding Ph.D. Student, University of Idaho	2018
Outstanding Ph.D. Graduate, Natural Resources and Society, University of Idaho	2018
Third oral presentation prize, 36th Canadian Symposium on Remote Sensing	2015
8th Brazilian Physics Olympiad, State of Santa Catarina	2006
NASA Jet Propulsion Laboratory graduate student fellowship	2016–2017
CNPq Ph.D. Fellowship, University of Idaho (Process 249802/2013-9)	2014–2018
USDA Forest Service Rocky Mountain Research Station graduate student fellowship	2012
FAPESP M.Sc. Fellowship (Process 2010/16525-7)	2012–2013

STUDENT AND TRAINEE AWARDS AND FELLOWSHIPS

Monique Bohora Schlickmann (2022–2024). Doris and Earl Lower and Verna Lowe Scholarship (2024); CALS Graduate Scholarship (2022); LAC Scholarships (2022, 2023); Grinter Fellowship (2023); International Summer School on Radar/SAR selection (2023).

Kody Brock (2024). CALS Graduate Scholarship; NASA DEVELOP program selection at Goddard Space Flight Center.

Jinyi Xia (2022, 2024). SFFGS Outstanding Teaching Assistant Award (2024); Forest Biology Research Cooperative Ph.D. Scholarship (2022).

Diego Rocha (2022–2023). Spectral Ecology Summer School Fellowship, Michigan State University (2023); Best Poster, FRC & GEM Graduate Student Symposium (2023); LAC Scholarships (2022, 2023).

Zhou Mengli (2023). China Scholarship Council scholarship for a two-year SilvaLab internship.

Ana Paula Dalla Corte (2023). UFPR scholarship for a ten-month SilvaLab internship.

Allan Sulato de Andrade (2023). CNPq scholarship for a ten-month SilvaLab internship.

Caio Hamamura (2023). IFSP scholarship for a one-year SilvaLab internship.

Gabriel Maximo da Silva (2023). Scholarship for an eight-month SilvaLab internship.

Fernando Victor Lima Gomes (2023). Scholarship for a six-month SilvaLab internship.

Mauro Alessandro Karasinski (2022). Scholarship for a one-year SilvaLab internship.

Rodrigo Vieira Leite (2021–2022). NASA Postdoctoral Program fellowship (2022); scholarship for a one-year SilvaLab internship and USDA Forest Service conference travel grant (2021).

Luiz Guilherme Almeida Nogueira; Danilo Romeu Farias de Souza (2022). Scholarships for six-month SilvaLab internships.

COMPUTER SKILLS

R, Python, FUSION/LDV, LAStools, MCC-LiDAR, ArcGIS, QGIS, ENVI, ALDPAT, Excel and others. **2012**

SOFTWARE AND MAPPING PLATFORMS

SilvaLiDAR Air: A desktop toolkit for processing, analyzing, and visualizing airborne LiDAR projects.
<https://carlos-alberto-silva.github.io/silvalab/silvalidar-air.html>
SilvaLab Explorer: Explore SilvaLab's mapping platforms—including CMS4D, ICESat4D, EMS4D, and RapidFEM4D—from one central portal.
<https://explorer.silvalab-uf.com/index.html>
CMS4D: Explore carbon, biomass, and fuel maps for the Brazilian Cerrado.
<https://explorer.silvalab-uf.com/platforms/cms4d/cms.html>
EMS4D: Explore multi-scale fuel maps and forest management scenarios.
<https://explorer.silvalab-uf.com/platforms/ems4d/ems.html>
ICESat4D: Explore forest structure and post-hurricane recovery in southern forests.
<https://explorer.silvalab-uf.com/platforms/icesat4d/icesat.html>
RapidFEM4D: Explore Hurricane Ian impacts and forest recovery in Florida.
<https://explorer.silvalab-uf.com/platforms/rapidfem4d/rapid.html>
OpenForest4D Canopy Mapping: Create canopy maps using GEDI and complementary satellite observations.
https://of4d.sdsc.edu/GEDI_canopy_maps
GEDI Forest Structure Maps: Model forest structure and explore mapping results in Google Earth Engine.
<https://of4d-gm-501700.projects.earthengine.app/view/gediforeststructuremaps>
CHM 3D Visualizer: Explore canopy height models in an interactive 3D view.
<https://openforest4d.github.io/chm-3d-visualizer/>
ICESat2VegR: ICESat-2 data processing and visualization for land and vegetation applications.
<https://github.com/carlos-alberto-silva/ICESat2VegR>
rGEDI: GEDI data processing and visualization.
<https://github.com/carlos-alberto-silva/rGEDI>
rFDS: Source code and package documentation.
<https://github.com/carlos-alberto-silva/rFDS>
FuelDeep3D: LiDAR point-cloud processing and deep-learning inference for 3D fuel mapping.
<https://github.com/venkatasivanaga/FuelDeep3D>
rTLsDeep: Tree-level post-hurricane damage classification using TLS and deep learning.
<https://github.com/carlos-alberto-silva/rTLsDeep>
TreeTop: A Shiny application for extracting forest information from LiDAR.
<https://github.com/carlos-alberto-silva/weblidar-treetop>
leafR: Leaf area and canopy structure analysis. CRAN mirror.
<https://github.com/cran/leafR>
ForestGapR: Tropical forest gap analysis using airborne laser scanning.
<https://github.com/carlos-alberto-silva/ForestGapR>
rForest: Forest inventory, taper modeling, and tree-stem visualization.
<https://github.com/carlos-alberto-silva/rForest>
rLiDAR: LiDAR data processing and visualization.
<https://github.com/carlos-alberto-silva/rLiDAR>
LadderFuelsR: Vertical fuel continuity analysis using airborne laser scanning.
<https://cran.r-project.org/package=LadderFuelsR>

gdalBindings: GDAL C library bindings through Rcpp for raster reading and writing.
<https://github.com/cran/gdalBindings>