Education

- **Ph.D.**, Robotics (current academic status: Candidate).
  Lab: Michigan Autonomous Vehicles Research Intergroup Collaboration (MAVRIC)
  Expected Graduation: Aug/2021.

Aug/2018–Currently

University of Michigan – Ann Arbor, MI.

Thesis: (Preliminary Title) Methods for Processing Trust Between Drivers and Automated Vehicles for Improved Collaboration

Advisors: Dawn Tilbury and Lionel Robert.
Main Research Area: Human-Robot Interaction, Shared Control in Autonomous Vehicles.
GPA: 4.0/4.0

- **Master of Science,** Mechanical Engineering.

Mar/2014–Feb/2016

Pontifical Catholic University of Rio de Janeiro (Pontifícia Universidade Católica do Rio de Janeiro) – PUC-Rio, Rio de Janeiro, Brazil.

Thesis: Development and Simulation of an Artificial Intelligence-Based Semiautonomous Controller for Military Vehicles – Applications for the GUARANI Armored Vehicles.

Advisor: Marco Antonio Meggiolaro.
Main Research Area: Mechatronics, Robotics and Control.
GPA: 9.1/10.0

- **Bachelor of Science,** Electronics Engineering.

Jan/2007–Dec/2011

Military Institute of Engineering (Instituto Militar de Engenharia) – IME, Rio de Janeiro, Brazil.

Thesis: Indoor Free Space Optics (IFSO) communications system link Project.
"Projeto de Enlace de um Sistema de Comunicações IFSO."

Advisors: Luciene Demenicis and Mauro Cordeiro.
GPA: 8.24/10.0

Professional Experience

- **Brazilian Army – Exército Brasileiro / IVECO Latin America - Defense Vehicles Division, Sete Lagoas – MG – Brazil.**

Dec/2011–Aug/2018

Military & Defense Engineer – Member of the Research and Development (R&D) Team of the GUARANI armored vehicles family.

Main Responsibilities:
Test and validation of armored vehicle's electronic systems at IVECO Latin America's defense vehicles division.
Technical knowledge transfer of the GUARANI vehicles automotive embedded systems.

Volunteer Activities

- Ação-IME: non-profit preparation course, Rio de Janeiro – RJ – Brazil. ***2010–2011***

Physics Teacher
Voluntary physics teacher at *Ação-IME*, a non-commercial preparation course for universities examinations, created by IME's students.

Publications

Journal Papers

J1) **Azevedo-Sa, H.**, Jayaraman, S. K., Yang, X. J., Robert, L. P., & Tilbury, D. M. (2020). Context-Adaptive Management of Drivers' Trust in Automated Vehicles. *IEEE Robotics and Automation Letters*, 5(4), 6908-6915. https://doi.org/10.1109/LRA.2020.3025736

J2) **Azevedo-Sa, H**., Jayaraman, S. K., Esterwood, C. T., Yang, X. J., Robert, L. P., & Tilbury, D. M. (2020). Real-time estimation of drivers' trust in automated driving systems. *International Journal of Social Robotics*, 1-17. https://doi.org/10.1007/s12369-020-00694-1

J3) **Azevedo-Sa, H.**, Zhao, H., Esterwood, C., Yang, X. J., Robert, L., & Tilbury, D. (2020) How internal and external risks affect the relationships between trust and driver behavior in automated driving systems. In Transportation Part C: Emerging Technologies (2020).

J4) **Azevedo-Sa, H.**, Yang, X. J., Robert, L. P., & Tilbury, D. M. (2020). A Unified Bi-Directional Model for Natural and Artificial Trust in Human-Robot Collaboration. Submitted to *IEEE Robotics and Automation Letters* (under review).

Conference Papers

C1) **Azevedo-Sa, H.**, Jayaraman, S. K., Esterwood, C. T., Yang, X. J., Robert Jr, L. P., & Tilbury, D. M. (2020). Comparing the Effects of False Alarms and Misses on Humans' Trust in (Semi) Autonomous Vehicles. In *Companion of the 2020 ACM/IEEE International Conference on Human-Robot Interaction* (pp. 113-115). https://doi.org/10.1145/3371382.3378371

C2) Zhao, H., **Azevedo-Sa, H.**, Esterwood, C., Yang, X.J., Robert, L., and Tilbury, D. (2019). Error Type, Risk, Performance, and Trust: Investigating the Different Impacts of false alarms and misses on Trust and Performance. In 11th Annual Ground Vehicles and Systems Engineering & Technology Symposium (GVSETS). Novi, MI.August 2019.

C3) **Sá, H.A.**, Ferreira, A.M., Speranza Neto, M., & Meggiolaro, M.A. (2015). Using Fuzzy Inference Systems for blending humans' and automatic control on combat ground vehicles. 23rd ABCM International Congress of Mechanical Engineering. http://doi.org/10.20906/CPS/COB-2015-1164

C4) **Sá, H.A.**, Ferreira, A.M., Speranza Neto, M., & Meggiolaro, M.A. (2015). Fuzzy Shared Semi-Autonomous Control System For Military Vehicles. 24th SAE Brasil International Congress and Display. http://doi.org/10.4271/2015-36-0270

C5) **Sá, H.A.**, Speranza Neto, M., & Meggiolaro, M.A. (2015). Artificial Intelligence based semi-autonomous control system for military vehicle. 5º Colloquium SAE Brasil de Eletroeletrônica Embarcada e Mostra de Engenharia.

C6) **Sá, H. A.**, & Ferreira, A. M. (2013). Utilização de dados veiculares e de navegação para apoio à Atividade Militar de Comando e Controle e à Logística Militar Terrestre. 4º Colloquium SAE Brasil de Eletroeletrônica Embarcada e Mostra de Engenharia.

C7) Dias, M. H., Melo, M. A., Farias, P. A., **Sá, H. A.**, Marques, A. A., & Moreira, L. H. (2012). A field assessment of HF/VHF wire antenna impedance changes in rain forests. In 2012 6th European Conference on Antennas and Propagation (EUCAP) (pp. 934-938). IEEE. http://doi.org/10.1109/EuCAP.2012.6206011

Theses

T1) **SÁ, H.A.** (2016). Development and Simulation of an Artificial Intelligence-Based Semiautonomous Controller for Military Vehicles – Applications for the GUARANI Armored Vehicles. M.S. Thesis - Pontifical Catholic University of Rio de Janeiro *(Pontifícia Universidade Católica do Rio de Janeiro) – PUC-Rio, Rio de Janeiro.*

Scholarships and Awards

- Full Tuition Funding for the Ph.D. studies in Robotics – Brazilian Army's Department of Science and Technology.

- Full Tuition Funding for the Master of Science studies in Mechanical Engineering - Program of Academic Excellence (Programa de Excelência Acadêmica - PROEX) – Brazilian Government's Coordination for the Improvement of Higher Education Personnel (CAPES).

- Master's Thesis Approved **with honors** by the examining board.

- Honorable Mention, 24th SAE Brasil International Congress - Best Paper on "Safety": *Fuzzy Shared Semi-Autonomous Control System for Military Vehicles*, São Paulo, SP, 2015.