

BRUNO LEME, Ph.D.

Gainesville - FL, USA

+1 352-871-8171 | ✉ leme.bcc@gmail.com |  www.linkedin.com/in/brleme

Research/Robotics engineer with practical skills in embedded systems, machine learning, robotics simulation, and hardware design. Experienced in prototyping robotics devices from design requirements to tests and validation. Congruous academic and applied engineering experience with 8 + years of working experience in research institutions and industries.

Professional Experience

- | | |
|--|--|
| Mar2023 - Current
Gainesville, USA | Researcher (Blueberry Breeding Program)
University of Florida - Horticultural Sciences Department |
| Sep2021 - Nov2022
Tokyo, Japan | Researcher (Industrial Cyber-Physical Systems Research Center)
National Institute of Advanced Industrial Science and Technology (AIST) <ul style="list-style-type: none">• Research on end-to-end imitation learning approaches for robot manipulation using machine learning and computer vision.• Use of Virtual Reality (VR) for generating synthetic data and robot simulation. |
| Apr2016 - Sep2021
Tsukuba, Japan | Researcher (Artificial Intelligence Laboratory)
University of Tsukuba - Systems and Information Engineering School <ul style="list-style-type: none">• Development of an interactive device to interact and project cues to facilitate social signaling for children with Autism Spectrum Disorder.• Study/development of assistive devices aiming to facilitate personalized gait therapy on people with lower limbs disabilities. |
| Jun2012 - Mar2016
São Paulo, Brazil | Commissioning Engineer
DÜRR Systems <ul style="list-style-type: none">• Commissioning of painting processes and conveyors in the automotive industry.• Provide training, technical documentation, and handover of the new installation to maintenance and process teams.• Co-site management for installation and commissioning at the Jaguar Land Rover plant in Brazil.• Participation in expansion projects in diverse plants such as Volkswagen, Ford, Volvo, MAN Latin America, Fiat, Toyota, Jaguar Land Rover, GM. |
| Jun2011 – Dec2011
Minaçu, Brazil | Programming Instructor
Crisotila Professional Education Center <ul style="list-style-type: none">• Programming introduction in the professional courses of Industrial Informatics and Electrotechnical. |
| Apr2011 - Jun2012
Minaçu, Brazil | Maintenance Engineer
SAMA Associate Mining <ul style="list-style-type: none">• Maintenance plan and improvements to increase equipment's availability.• Adaptation of the existent machinery, developing improvement onsite. |

Education

- | | |
|-------------------------------|---|
| 2017 - 2020
Tsukuba, Japan | Ph.D. Program in Intelligence Interaction Technologies (Ph.D. Eng.)
Graduate School of Systems and Information Engineering
University of Tsukuba |
| 2016 - 2017
Tsukuba, Japan | Research Student
Artificial Intelligence Laboratory |

University of Tsukuba

2014 - 2016
Taubate, Brazil

Master's Degree in Mechanical Engineering
Department of Mechanical Engineering
University of Taubate

2005 - 2010
Anápolis, Brazil

Bachelor's Degree in Mechanical Engineering
Department of Mechanical Engineering
Anhanguera Faculty of Anápolis

Skills

Machine Learning and Robotics	Toolkits (Pytorch, TensorFlow, NumPy, Pandas, Matplotlib), Robot simulation (Pybullet, URDFs, Xacros), OpenCV
Programming	Experienced: C/C++ (Qt), Python, Pascal Basic: OpenGL, FPGA (VHDL)
Embedded	Assembly, embedded C, PIC, ARM (STM32), Nvidia Jetson TX1/2, Raspberry PI, protocols (CAN-BUS, TCP-IP, I2C, SPI), Sensors (Force-Sensors, LiDAR, IMU)
CAD	Mechanics: SolidWorks, Catia PCB: Eagle
Research	End-to-end robot control, Assistive Robotics, Hardware design, Human-Robot Interaction, Image Processing
Languages	English (Advanced), Portuguese (Native), Japanese (intermediate), Spanish (Intermediate)

Publications

Journals

2021 Y. Chen, D. F. Paez Granados, **B. Leme** and K. Suzuki, "Virtual Landmark Based Control of Docking Support for Assistive Mobility Devices," in IEEE/ASME Transactions on Mechatronics, doi: 10.1109/TMECH.2021.3081426.

2019 **B. Leme**, H. Kadone, M. Hirokawa, K. Suzuki, "A Socially Assistive Mobile Platform for Weight-Support in Gait Training," in International Journal of Social Robotics, 2019. doi:10.1007/s12369-019-00550-x

Peer-reviewed conferences

2023 Floris Erich, **Bruno Leme**, Noriaki Ando, Ryo Hanai and Yukiyasu Domae. Learning Depth Completion of Transparent Objects using Augmented Unpaired Data. IEEE International Conference on Robotics and Automation (ICRA).

2021 **B. Leme**, M. Oki, K. Suzuki, "A Portable Interactive Projection Device to Provide Visual Support for Children with Special Needs" In: 47th Annual Conference of the IEEE Industrial Electronics Society (IES)

2021 **B. Leme**, C.K. Tan, E. Nunez, M. Hirokawa, K. Suzuki, H. Kadone, "A Sensorized

Overground Body Weight Support System for Assessing Gait Parameters During Walking Rehabilitation” In: 43rd Annual International Conference of the IEEE Engineering in Medicine and Biology Society

2021 C.K. Tan, **B. Leme**, E. Nunez, H. Kadone, K. Suzuki, M. Hirokawa, “Estimating Range of Lower Body Joint Angles with a Sensorized Overground Body-Weight Support System” In: 43rd Annual International Conference of the IEEE Engineering in Medicine and Biology Society

2021 E. Nunez, **B. Leme**, C. K. Tan, H. Kadone, K. Suzuki, M. Hirokawa, “Relationship between Locomotion Synchrony and Gait Performance while Walking with Overground Body Weight Support System” In: 43rd Annual International Conference of the IEEE Engineering in Medicine and Biology Society

2017 **B. Leme**, C. Piezzo, M. Hirokawa, K. Suzuki, “Design of a Cloud-Based Robotic Platform for Accompanying and Interacting with Humans” In: International Conference on Social Robotics. ICSR 2017. Lecture Notes in Computer Science, vol 10652. Springer, Cham

2017 C. Piezzo, **B. Leme**, M. Hirokawa, K. Suzuki, “Gait measurement by a mobile humanoid robot as a walking trainer” In: 26th IEEE International Symposium on Robot and Human Interactive Communication (RO-MAN), 2017, pp. 1084-1089, doi:10.1109/ROMAN.2017.8172438

2017 C. Piezzo, **B. Leme**, M. Hirokawa, K. Suzuki, “Robot Compliant Behaviour with Mixed-Initiative Interaction in an Obstacle Avoidance Scenario” In: International Conference on Social Robotics. ICSR 2017. Lecture Notes in Computer Science, vol 10652. Springer, Cham

2017 **B. Leme**, L. Almeida, J. Bizarria, F. Bizarria, A. Soares, M. Ramos, “Development of a low-cost tool for semi-automatic classification and counting of particles in industrial oils,” in: IEEE International Conference on Industrial Engineering and Engineering Management (IEEM), Singapore, 2017, pp. 1925-1929. doi: 10.1109/IEEM.2017.8290227 September 23, 2021

2017 M. Ramos, **B. Leme**, L. Almeida, F. Bizarria, J. Bizarria, “Clustering wear particle using computer vision and self-organizing maps,” in: 17th International Conference on Control, Automation and Systems (ICCAS), Jeju, 2017, pp. 4-8. doi: 10.23919/ICCAS.2017.8204414

Domestic Conferences (Japan)

2019 **B. Leme**, M. Hirokawa, H. Kadone, K. Suzuki, “Development of a Robotic Body-Weight Supported Platform for Patients’ Autonomous Gait Rehabilitation” in: 37th Annual Conference of the Robotics Society of Japan (RSJ), 2019.

2019 **B. Leme**, M. Hirokawa, H. Kadone, K. Suzuki, “The Effects of a Socially Assistive Robot Interacting with Individuals in Gait Exercise” in: 37th Annual Conference of the Robotics Society of Japan (RSJ), 2019.

Prizes and Accomplishments

2016 - 2020

Monbukagakusho Scholarship

- Scholarship offered based on embassy recommendation by the Japanese Ministry of Education, Culture, Sports, Science and Technology (MEXT)

2015

DÜRR Outstanding Employee Prize

- Prize received during the coordination and commissioning of company's equipment in the Jaguar Land Rover plant in Brazil