

## Curriculum Vitae

### Personal information

Name / Surname

Address

Telephone

Personal Email

Nationality

Date of birth

**Vargas, Alessandro do Nascimento**

Universidade Tecnológica Federal do Paraná, Brazil

+55 43 3133 3888 ([www.anvargas.com](http://www.anvargas.com))

[avargas@utfpr.edu.br](mailto:avargas@utfpr.edu.br)

Brazilian

January 18, 1978



### Work experience

Employer

Occupation

Main activities

Type of business or sector

Dates

Head of laboratory

Universidade Tecnológica Federal do Paraná (UTFPR), Brazil.

Full Professor.

Teaching and research.

Education.

Working at UTFPR since February, 2007.

Scientific Director of LabControl ([www.labcontrol.xyz](http://www.labcontrol.xyz))

### Education and training

Organization providing education and training

Title of qualification awarded

Main topic

Supervisor

Dates

University of California, Berkeley (UC Berkeley), CA, USA.

One month as a Visiting fellow in the Department of Chemical and Biomolecular Engineering, UC Berkeley.

Research on the topic "Electronic circuits for atmospheric pressure plasma jets".

Prof. Ali Mesbah [[www.mesbahlab.com](http://www.mesbahlab.com)].

February, 2023.

Organization providing education and training

Title of qualification awarded

Main topic

Supervisor

Dates

Arizona State University (ASU), Tempe, USA.

One month as a Visiting fellow in the Department of Mechanical and Aerospace Engineering, ASU.

Research on the topic "Stability of stochastic systems with delay".

Prof. Matthew Peet [[Control.asu.edu](mailto:Control.asu.edu)].

January-February, 2020.

Organization providing education and training

Title of qualification awarded

Main topic

Supervisor

Dates

Politecnico di Milano, Dipartimento di Meccanica (Polimi), Italy.

One month as a Visiting fellow.

Research on the topic "Model predictive control of Markov jump linear systems".

Prof. Hamid Reza Karimi.

September, 2019.

Organization providing education and training

Title of qualification awarded

Main topic

Supervisor

Universitat Politècnica de Catalunya - BarcelonaTech (UPC), Spain.

Postdoctoral research.

Research on "Stochastic control and engineering applications".

Prof. Jose Rodellar and Prof. Leonardo Acho.

<p>Dates</p> <p>Organization providing education and training</p> <p>Title of qualification awarded</p> <p>Main topic</p> <p>Supervisor</p> <p>Dates</p>	<p>Postdoctoral research: from June 2, 2014 until June 01, 2015. Three additional short periods as a visiting researcher: January 5 to February 16, 2013, July 2013, and April 2018.</p> <p>Basque Center for Applied Mathematics (BCAM), Spain.</p> <p>Two short periods as a Visiting fellow.</p> <p>Research on the topic “Switching control systems”.</p> <p>Prof. Enrique Iriondo Zuazua.</p> <p>(a) January 1 to February 28, 2011; (b) June 29 to July 27, 2012.</p>
<p>Organization providing education and training</p> <p>Title of qualification awarded</p> <p>Main topic</p> <p>Supervisor</p> <p>Dates</p>	<p>Universidade Estadual de Campinas (UNICAMP), Brazil.</p> <p>PhD in Electrical Engineering.</p> <p>Research on Markov jump linear systems.</p> <p>Prof. João Bosco Ribeiro do Val.</p> <p>Years (2004-2009)</p>
<p>Organization providing education and training</p> <p>Title of qualification awarded</p> <p>Main topic</p> <p>Supervisor</p> <p>Dates</p>	<p>Universidade Estadual de Campinas (UNICAMP), Brazil.</p> <p>Master’s in Electrical Engineering.</p> <p>Research on Markov jump linear systems.</p> <p>Prof. João Bosco Ribeiro do Val.</p> <p>Years (2002-2004)</p>
<p>Organization providing education and training</p> <p>Title of qualification awarded</p> <p>Dates</p>	<p>Universidade Federal do Espírito Santo (UFES), Brazil.</p> <p>Bachelor’s in Computer Engineering.</p> <p>Years (1997-2002)</p>

## Grants and funding

### Projects

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| <p>5</p> <p>4</p> <p>3</p> <p>2</p> <p>1</p> | <p><b>Financial support</b></p> <p>Funding agency: “CNPq, Brazil”. Special scholarship for talented researcher with outstanding research productivity (from 2015 up to now). Amount: 11.314€. (value awarded for every three years).</p> <p>Funding agency: “CAPES, Brazil”. Research project: “Sistemas estocásticos com aplicações em engenharia automotiva [Programa Pesquisador Visitante Especial - PVE s (2013-2015). Processo CAPES 88881.030423/2013-01]”. Amount: 43.540€.</p> <p>Funding agencies: “BCAM, Bilbao, Spain and Funtef-UTFPR, Brazil”. Bilateral research project BCAM-UTFPR: “Control of systems subject to switching parameters (2013-2015)”. Amount: 4,500€..</p> <p>Funding agency: “Fundación Carolina, Madrid, Spain”. Research project: “Sistemas de control híbridos (2011)”. Amount: 3,200€.</p> <p>Funding agency: “CNPq, Brazil”. Research project: “Estabilidade e Controle em Sistemas Estocásticos (2009-2011)”. Amount: 3,560€.</p> |
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## Technology

### Projects

### Engineering applications

- 4 **Mechanical ventilator for Covid-19 patients:** This project aims to construct low-cost, open-source mechanical ventilators to help patients with Covid-19 in need of artificial air ventilation. Project under development and hosted at Universitat Politècnica de Catalunya, UPC, Barcelona, Spain. Team: Leonardo Acho (UPC), Gisela Pujol (UPC), and Alessandro N. Vargas.
- 4 **Automotive:** Modelling, identification, control, and mechatronics of an automotive electronic throttle body. This research is under development in cooperation with the CoDALab Laboratory at Universitat Politècnica de Catalunya, UPC, Barcelona, Spain. Team: José Rodellar (UPC), Leonardo Acho (UPC), Gisela Pujol (UPC), and Alessandro N. Vargas.
- 3 **Mechatronics:** Development of mechatronic devices that integrated mechanical engineering, electronic engineering, and instrumentation. Intelligent computer control and microprocessors are commonly used. Example: construction of a small-scale shaking table connected to a magnetorheological damper to study vibrations in structures.
- 2 **Agriculture:** Construction of a grain silo prototype with automatic control of temperature. The team used this device to investigate the mortality of *Rhyzopertha Dominica* (F.) (Coleoptera, Bostrichidae), a common pest of stored wheat in Brazil. Team: Irineu Lorini (Embrapa, Brasil), Denis W. F. De Souza (PID Brasil), and Alessandro N. Vargas.
- 1 **Electrical engineering:** Development of analog and digital control strategies to be implemented in equipment, such as the ones for DC motor devices, level process tanks, electronic circuits, small-size robots, DC-DC converters, processing energy from photovoltaic panels, and so forth.

## Awards

Award

The Brazilian government has an agency called CNPq ([www.cnpq.br](http://www.cnpq.br)), the most prestigious agency in Brazil supporting science and technology. CNPq has a program called “Scholarship for productivity”, a prize given to Brazil’s most talented, productive researchers. Any Brazilian researcher with a strong research background can apply. It is highly competitive—there exist only 7697 scholarships for all researchers in all areas of knowledge working at the junior and mid-career level in Brazil; I’ve been awarded one as a “*Productive scholar—mid-career level*” and it has been active since 2015.

## Educational activities

Tasks

### Roles and Responsibilities

- 3 Full professor at UTFPR, Brazil.
- 2 Supervisor of students in Electrical Engineering, Control, and Automation. Supervisor of graduate students pursuing Master’s and PhD degrees.
- 1 Experience on teaching courses in Control systems, Nonlinear control, Optimal control, System identification, Stochastic processes, Stochastic control.

## Editorial board

Associate Editor: IEEE/ASME Transactions on Mechatronics. From Aug 2020 up to now.

Associate Editor: International Journal of Systems Science (Taylor & Francis). From Feb 2021 up to now.

Associate Editor: Journal of the Franklin Institute (Elsevier). From Dec 2017 to June 2022).

Associate Editor: IET Signal Processing (Wiley). From Apr 2020 up to to June 2022.

## Publications

### Books

1. **Vargas, Alessandro N.**; Costa, Eduardo F. ; João Bosco Ribeiro do Val . Advances in the Control of Markov Jump Linear Systems with No Mode Observation [SpringerBriefs in Control, Automation and Robotics]. 42. ed. New York: Springer, 2016. v. 1. 50p .

### Journal papers

47. **Vargas, Alessandro N.**; AGULHARI, C. M. ; OLIVEIRA, R. C. L. F. ; PRECIADO, V. M. . Robust stability analysis of linear parameter-varying systems with Markov jumps. IEEE Transactions on Automatic Control, 2021. 10.1109/TAC.2021.3132231
46. **Vargas, Alessandro N.**; ACHO, LEONARDO . Optimal control of variable-speed wind turbines modeled as Markov jump systems. JOURNAL OF THE FRANKLIN INSTITUTE-ENGINEERING AND APPLIED MATHEMATICS, v. 359, p. 4661-4677, 2022.
45. LEVANO, E. ; **Vargas, Alessandro N.**; João Bosco Ribeiro do Val . Assessing non-convex value functions for the optimal control of stochastic differential equations. Results in Control and Optimization, v. 6, p. 100093, 2022.
44. **Vargas, Alessandro N.**; RAMINELLI, JOÃO G. ; MONTEZUMA, MARCIO A. F. ; CAVALINI JUNIOR, ALDEMIR APARECIDO ; BREGANON, RICARDO ; CARUNTU, CONSTANTIN F. . Shaking Table Attached to Magnetorheological Damper: Simulation and Experiments for Structural Engineering. SENSORS, v. 22, p. 3644, 2022.
43. FLORIANO, BRUNO R.O. ; **Vargas, Alessandro N.**; ISHIHARA, JOÃO Y. ; FERREIRA, HENRIQUE C. . Neural-network-based model predictive control for consensus of nonlinear systems. ENGINEERING APPLICATIONS OF ARTIFICIAL INTELLIGENCE, v. 116, p. 105327, 2022.
42. BOULAASAIR, LAHCEN ; BOUZAHIR, HASSANE ; **Vargas, Alessandro N.**; DIOP, MAMADOU ABDOUL. Existence and uniqueness of solutions for stochastic urban-population growth model. Frontiers In Applied Mathematics And Statistics, v. 8, p. 1-13, 2022.
41. HAMD, I. E. ; **Vargas, Alessandro N.**; BOUZAHIR, H. ; OLIVEIRA, R. C. L. F. ; ACHO, LEONARDO. Robust stability of stochastic systems with varying delays: Application to RLC circuit with intermittent closed-loop. APPLIED MATHEMATICS AND COMPUTATION, v. 411, p. 126541, 2021.
40. **Vargas, Alessandro N.**; MAIER, A. ; VALLIM, M. B. R. ; BANDA, J. M. ; PRECIADO, V. M. . Negative Perception of the COVID-19 Pandemic Is Dropping: Evidence From Twitter Posts. Frontiers in Psychology, v. 12, p. 737882, 2021.
39. ZOUINE, A. ; BOUZAHIR, H. ; **Vargas, Alessandro N.**. Stability for stochastic neutral integro-differential equations with infinite delay and Poisson jumps. RMS: Research in Mathematics & Statistics, v. 8, p. 1979733, 2021.
38. **Vargas, Alessandro N.**; CARUNTU, C. F. ; ISHIHARA, JOAO Y. ; BOUZAHIR, H. . Stochastic stability of switching linear systems with application to an automotive powertrain model. MATHEMATICS AND COMPUTERS IN SIMULATION, v. 191, p. 278-287, 2021.
37. M. Aatabe ; GUEZAR, F. E. ; BOUZAHIR, H. ; **Vargas, Alessandro N.**. A novel stochastic maximum power point tracking control for off-grid standalone photovoltaic systems with unpredictable load demand. ENERGY, 2021.
36. LIU, XINGHUA ; BAI, D. ; WU, Y. ; GE, M. ; **Vargas, Alessandro N.**. Event triggered load frequency control of smart grids under deception attacks. IET CONTROL THEORY & APPLICATIONS (ONLINE), 2021.
35. LOPES, R. O. ; MENDES, EDUARDO M. A. M. ; TORRES, L. A. B. ; **Vargas, Alessandro N.** ; PALHARES, R. M. . Finite-horizon suboptimal control of Markov jump linear parameter-varying systems. INTERNATIONAL JOURNAL OF CONTROL. DOI:10.1080/00207179.2020.1728387
34. M. Aatabe ; GUEZAR, F. E. ; BOUZAHIR, H. ; **Vargas, Alessandro N.**. Constrained stochastic control of positive Takagi-Sugeno fuzzy systems with Markov jumps and its application to a DC-DC boost converter. TRANSACTIONS OF THE INSTITUTE OF MEASUREMENT AND CONTROL, 2020.
33. PUJOL, G. ; **Vargas, Alessandro N.** ; MOBAYEN, S. ; ACHO, LEONARDO . Semi-Active Magnetic Levitation System for Education. Applied Sciences-Basel, v. 11, p. 5330, 2021. DOI:10.3390/app11125330

32. **Vargas, Alessandro N.**; FILHO, SÉRGIO M. ; AGULHARI, CRISTIANO M. ; MONTEZUMA, MARCIO A. F. ; Costa, Eduardo F. . Stabilizing nonlinear Markov jump systems with orthogonality between control and nonlinear terms. *INTERNATIONAL JOURNAL OF ROBUST AND NONLINEAR CONTROL*, v. 30, p. 5122-5133, 2020.
31. ACHO, LEONARDO ; **Vargas, Alessandro N.** ; PUJOL, GISELA . Low-cost, open-source mechanical ventilator with pulmonary monitoring for COVID-19 patients. *ACTUATORS*, v. 9, p. 1-14, 2020. DOI:10.3390/act9030084
30. **Vargas, Alessandro N.** ; MONTEZUMA, MARCIO A. F. ; LIU, XINGHUA ; XU, LONG ; YU, XINGHUO . Sliding-Mode Control for Stabilizing High-Order Stochastic Systems: Application to One-Degree-of-Freedom Aerial Device. *IEEE Transactions on Systems Man Cybernetics-Systems*, v. 50, p. 4318-4325, 2020.
29. **Vargas, Alessandro N.** ; MONTEZUMA, MARCIO A. F. ; X. Liu ; OLIVEIRA, R. C. L. F. . Robust stability of Markov jump linear systems through randomized evaluations. *APPLIED MATHEMATICS AND COMPUTATION*, v. 346, p. 287-294, 2019.
28. **Vargas, Alessandro N.** ; CARUNTU, C. F. ; ISHIHARA, JOAO Y. . Stability of switching linear systems with switching signals driven by stochastic processes. *JOURNAL OF THE FRANKLIN INSTITUTE-ENGINEERING AND APPLIED MATHEMATICS*, v. 356, p. 31-41, 2019.
27. **Vargas, Alessandro N.** ; Costa, Eduardo F. ; ACHO, L. ; João Bosco Ribeiro do Val. Switching stochastic nonlinear systems with application to an automotive throttle. *IEEE TRANSACTIONS ON AUTOMATIC CONTROL*, v. 63, p. 3098-3104, 2018.
26. BAHLOUL, M. ; CHRIFI-ALAOUI, L. ; **Vargas, Alessandro N.** ; CHAABANE, M. ; DRID, S. . Online robust estimation of flux and load torque in induction motors. *INTERNATIONAL JOURNAL OF ADVANCED MANUFACTURING TECHNOLOGY*, v. 94, p. 2703-2713, 2018.
25. CAVALCANTI, JOÃO ; FIGUEREDO, LUIS FC ; ISHIHARA, JOÃO Y ; BERNARDES, MARIANA C ; SANTANA, PEDRO HRQA ; **Vargas, Alessandro N.** ; BORGES, GEOVANY A . A real-time web-based networked control system education platform. *INTERNATIONAL JOURNAL OF ELECTRICAL ENGINEERING EDUCATION*, v. 1, p. 1-12, 2018.
24. CARUNTU, C. F. ; **Vargas, Alessandro N.** ; ACHO, LEONARDO ; PUJOL, GISELA . Adaptive-Smith Predictor for Controlling an Automotive Electronic Throttle over Network. *International Journal of Computers Communications & Control*, v. 13, p. 151-161, 2018.
23. TIZGUI, I. ; EL GUEZAR, F. ; BOUZAHIR, H. ; **Vargas, Alessandro N.** . Estimation and Analysis of Wind Electricity Production Cost in Morocco. *INTERNATIONAL JOURNAL OF ENERGY ECONOMICS AND POLICY*, v. 8, p. 58-66, 2018.
22. CARUNTU, C. F. ; VELANDIA-CARDENAS, C. C. ; LIU, XINGHUA ; **Vargas, Alessandro N.** . Model Predictive Control of Stochastic Linear Systems with Probability Constraints. *International Journal of Computers Communications & Control*, v. 13, p. 927-937, 2018.
21. SAMPAIO, L. P. ; SILVA, S. A. O. ; **Vargas, Alessandro N.**. Development Of A Graphic Computational Platform Dedicated To Teaching Of Photovoltaic Systems Using An Electronic Emulator. *ELETRÔNICA DE POTÊNCIA (IMPRESSO)*, v. 22, p. 91-101, 2017.
20. YANG, T. ; ZHANG, L. ; SREERAM, V. ; **Vargas, Alessandro N.** ; HAYAT, T. ; AHMAD, B. . Time-varying filter design for semi-Markov jump linear systems with intermittent transmission. *INTERNATIONAL JOURNAL OF ROBUST AND NONLINEAR CONTROL*, v. 27, p. 4035-4049, 2017.
19. **Vargas, Alessandro N.**; PUJOL, GISELA ; ACHO, LEONARDO . Stability of Markov jump systems with quadratic terms and its application to RLC circuits. *JOURNAL OF THE FRANKLIN INSTITUTE-ENGINEERING AND APPLIED MATHEMATICS*, v. 354, p. 332-344, 2017.
18. LIU, XINGHUA ; **Vargas, Alessandro N.**; YU, XINGHUO ; XU, LONG . Stabilizing two-dimensional stochastic systems through sliding mode control. *JOURNAL OF THE FRANKLIN INSTITUTE-ENGINEERING AND APPLIED MATHEMATICS*, v. 354, p. 5813-5824, 2017.
17. **Vargas, Alessandro N.**; SAMPAIO, LEONARDO P. ; ACHO, LEONARDO ; ZHANG, LIXIAN ; DO VAL, JOAO B. R. . Optimal Control of DC-DC Buck Converter via Linear Systems With Inaccessible Markovian Jumping Modes. *IEEE TRANSACTIONS ON CONTROL SYSTEMS TECHNOLOGY*, v. 24, p. 1820-1827, 2016.
16. **Vargas, Alessandro N.**; ACHO, L. ; BONIFACIO, E. ; ARENS, W. ; João B. R. do Val. Stochastic stability for a model representing the intake manifold pressure of an automotive engine. *Cogent Engineering*, v. 3, p. 1-10, 2016.
15. **Vargas, Alessandro N.**; MENEGAZ, HENRIQUE M. T. ; ISHIHARA, JOAO Y. ; ACHO, LEONARDO . Unscented Kalman Filters for Estimating the Position of an Automotive Electronic Throttle Valve. *IEEE Trans. on Vehicular Technology*, v. 65, p. 4627-4632, 2016.
14. **Vargas, Alessandro N.**; Denis W. F. De Souza, ; FREITAS, A. M. ; LORINI, I. ; João Bosco Ribeiro do Val . A silo for suppressing the population of *Rhyzopertha dominica* (F.) (Coleoptera, Bostrichidae) in stored wheat. *Cogent Food & Agriculture*, v. 2, p. 1-9, 2016.
13. PODIVOLOVA, E. ; **Vargas, Alessandro N.** ; ACHO, L. . Set-valued estimation of switching linear system: an application to an automotive throttle valve. *International Journal of Numerical Modelling* , v. 29, p. 755-762, 2016.
12. PUJOL, G. ; VIDAL, Y. ; ACHO, L. ; **Vargas, Alessandro N.**. Asymmetric Modelling and Control of an Electronic Throttle. *International Journal of Numerical Modelling: Electronic Networks, Devices and Fields*, Volume 29, Issue 2, p. 192–204. 2016

11. **Vargas, Alessandro N.** ; ACHO, L. ; PUJOL, G. ; COSTA, E. F. ; ISHIHARA, JOÃO Y. ; João Bosco Ribeiro do Val . Output feedback of Markov jump linear systems with no mode observation: an automotive throttle application. *International Journal of Robust and Nonlinear Control*. Volume 26, Issue 9, p. 1980–1993. 2016.
10. **Vargas, Alessandro N.** ; BORTOLIN, D. C. ; Costa, Eduardo F. ; João Bosco Ribeiro do Val . Gradient-based optimization techniques for the design of static controllers for Markov jump linear systems with unobservable modes. *International Journal of Numerical Modelling: Electronic Networks, Devices and Fields*, 2015. Volume 28, Issue 3, pages 239–253.
9. MENEGAZ, H. M. ; Ishihara, J. Y. ; BORGES, G. A. ; **Vargas, Alessandro N.** . Systematization of the Unscented Kalman Filter Theory. *IEEE Transactions on Automatic Control*, 2015. Volume:60 Issue:10, 2583–2598.
8. OLIVEIRA, RICARDO C. L. F. ; **Vargas, Alessandro N.** ; DO VAL, JOAO B. R. ; PERES, PEDRO L. D. . Mode-Independent  $H_2$ -Control of a DC Motor Modeled as a Markov Jump Linear System. *IEEE Transactions on Control Systems Technology*. 2014. Volume:22 , Issue: 5, 1915–1919.
7. **Vargas, Alessandro N.** ; João Bosco Ribeiro do Val Almost Periodic Parameters for the Second Moment Stability of Linear Stochastic Systems. *IEEE Transactions on Automatic Control*, v. 59, p. 1072-1077, 2014
6. **Vargas, Alessandro N.** ; João Bosco Ribeiro do Val ; Ishihara, J. Y. Stationary policies for lower bounds on the minimum average cost of discrete-time nonlinear control systems. *International Journal of Robust and Nonlinear Control*, 2014, Volume 24, Issue 17, pages 2943–2957.
5. **Vargas, Alessandro N.** ; Costa, Eduardo F. ; João Bosco Ribeiro do Val. On the control of Markov jump linear systems with no mode observation: application to a DC Motor device. *International Journal of Robust and Nonlinear Control*, Volume 23, Issue 10, pages 1136-1150, 2013
4. **Vargas, Alessandro N.** ; FURLONI, Walter ; Val, João B.R. . Second moment constraints and the control problem of Markov jump linear systems. *Numerical Linear Algebra with Applications*, Volume 20, Issue 2, pages 357-368, March 2013
3. Costa, Eduardo F. ; **Vargas, Alessandro N.** ; Val, João B. R. . Quadratic costs and second moments of jump linear systems with general Markov chain. *MCSS. Mathematics of Control, Signals and Systems*, v. 23, p. 141-157, 2011.
2. **Vargas, Alessandro N.** ; do Val, João B. R. ; Average Cost and Stability of Time-Varying Linear Systems. *IEEE Transactions on Automatic Control* , v. 55, p. 714-720, 2010.
1. OLIVEIRA, R. C. L. F. ; **Vargas, Alessandro N.** ; do Val, J.B.R. ; PERES, P. L. D. . Robust stability,  $H_2$  analysis and stabilisation of discrete-time Markov jump linear systems with uncertain probability matrix. *International Journal of Control*, v. 82, p. 470-481, 2009.

#### Conference papers

#### Conference papers

32. LEVANO, E. ; OLIVEIRA, R. C. L. F. ; **Vargas, Alessandro N.** . Gain-Scheduled Hinf Controller Synthesis for LPV Systems Subject to Multiplicative Noise. In: 21st IFAC World Congress, 2020, Berlin. *Proc. IFAC World Congress*, 2020. v. 1. p. 1-6.
31. BAHLOUL, M. ; **Vargas, Alessandro N.** ; CHRIFI-ALAOUI, L. ; DRID, S. ; CHAABANE, M. . Modified Robust Model Reference Adaptive System Scheme for a Speed Sensorless Vector Control of Induction Motor. In: *Proc. 19th international conference on Sciences and Techniques of Automatic control & computer engineering (STA)*, Sousse, Tunis, 2019. v. 1. p. 473-478.
30. CARUNTU, C. F. ; LAZAR, C. ; **Vargas, Alessandro N.** . Chance-constrained model predictive control for vehicle drivetrains in a cyber-physical framework. In: *Engineering, Technology and Innovation (ICE/ITMC)*, 2017 International Conference on, Ilha da Madeira Portugal, 2017, v. 1. p. 1137-1144.
29. **Vargas, Alessandro N.** ; PUJOL, G. ; ACHO, L. ; João Bosco Ribeiro do Val . On the stability in probability of Markov jump systems with quadratic terms. In: *European Control Conference ECC*, 2015, Linz, Austria. *Proc. European Control Conference*, v. 1. p. 770-775, 2015.
28. **Vargas, Alessandro N.** ; ACHO, L. ; PUJOL, G. ; OLIVEIRA, R. C. L. F. ; Val, João B. R. ; PERES, P. L. D. . Robust  $H_2$  static output feedback to control an automotive throttle valve. In: *2014 American Control Conference*, 2014, Portland, Oregon, USA. *Proc. 2014 American Control Conference*, 2014.
27. LEVANO, E. ; **Vargas, Alessandro N.** . Control of a hysteresis model subject to random failures. In: *11th Portuguese Conference on Automatic Control*, 2014, Porto, Portugal. *Springer Lecture Notes in Electrical Engineering - Proc. 11th Portuguese Conf. Automatic Control*. New York: Springer, 2014. v. 321. p. 1-10.
26. FREIRE JUNIOR, V. A. ; **Vargas, Alessandro N.** ; AGULHARI, C. M. . ON THE DESIGN OF A QUANTIZED STATE-FEEDBACK CONTROL. In: *XX Congresso Brasileiro de Automática*, 2014, Belo Horizonte. *XX Congresso Brasileiro de Automática*, 2014. p. 1150-1157.
25. PELZ, G. M. ; BRONIERA JUNIOR, P. ; **Vargas, Alessandro N.** . Implementação de um sistema de controle de nível de dois tanques acoplados. In: *XX Congresso Brasileiro de Automática*, 2014, Belo Horizonte. *XX Congresso Brasileiro de Automática*, 2014. p. 1419-1425.
24. De Souza D. W. F., **Vargas, Alessandro N.**, Do Val J. B. R., Freitas A. M., I. Lorini, Control of Temperature to Suppress the Population of *Rhyzopertha Dominica* (F.) (Coleoptera, Bostrichidae) in a Grain Silo Prototype, *Proc. European Control Conference 2013*, Zurich. 2013. p. 4089-4093
23. **Vargas, Alessandro N.** ; do VAL, J. B. R., Ishihara, J. Y. . On the Numerical Solution of the Control Problem of Switched Linear Systems, *Proc. European Control Conference 2013*, Zurich. 2013. p. 2175-2179.

22. **Vargas, Alessandro N.** ; do VAL, J. B. R. . Asymptotic stability of linear stochastic systems with delay driven by a Bernoulli process. In: 10th Portuguese Conference on Automatic Control CONTROLO 12, 2012, Funchal, Ilha da Madeira. Lisboa: Associação Portuguesa de Controlo Automatico (APCA), 2012. p. 157-161.
21. **Vargas, Alessandro N.** ; João Bosco Ribeiro do Val. SISTEMAS LINEARES ESTOCASTICOS COM ATRASO GOVERNADO POR PROCESSO DE BERNOULLI. In: Congresso Brasileiro de Automática - CBA 2012, 2012, Campina Grande, Paraíba. p. 5088-5093.
20. **Vargas, Alessandro N.** ; VAL, J. B. R. . Finite approximation of the optimal average cost for a class of stochastic control systems. In: 18th IFAC World Congress, 2011, Milan, Italy. Proc. 18th IFAC World Congress, 2011. p. 12427-12431.
19. **Vargas, Alessandro N.** ; do VAL, J. B. R. . Stationary policies for the second moment stability in a class of stochastic systems. In: 50th IEEE Conference on Decision and Control and European Control Conference, 2011, Orlando, Florida, USA. Proc. 50th IEEE Conference on Decision and Control and European Control Conference, 2011. p. 1264-1268.
18. **Vargas, Alessandro N.** ; João Bosco Ribeiro do Val . Minimum second moment state for the existence of average optimal stationary policies in linear stochastic systems. In: 2010 American Control Conference, 2010, Baltimore, Mariland, USA. Proc. 2010 American Control Conference, 2010. p. 373-377.
17. Furloni, W. ; João Bosco Ribeiro do Val ; **Vargas, Alessandro N.** . Controle sujeito a restrições de sistemas lineares com saltos markovianos e ruído multiplicativo. In: XVIII Congresso Brasileiro de Automática, 2010, Bonito, MS. Proc. XVIII Congresso Brasileiro de Automática, 2010. p. 2910-2917.
16. **Vargas, Alessandro N.** ; Ishihara, J. Y. ; João Bosco Ribeiro do Val . Linear quadratic regulator for a class of Markovian jump systems with control in jumps. In: 49th IEEE Conference on Decision and Control, 2010, Atlanta, USA. Proc. 49th IEEE Conference on Decision and Control, 2010. p. 2282-2285.
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### **Research interests**

Stochastic systems - stability and control; Stochastic differential equations; Markov systems, Markov decision processes; Hybrid systems - control and stability of systems subject to jumps; Robust and optimal control; Identification of nonlinear systems; Filtering and estimation; Machine learning; Deep learning; Data analysis; Mathematical methods; Mechatronics; Actuators and sensors in Mechatronics; Smart sensors; Automotive systems; Renewable energy; Electronics; Integration of mechanisms and electronics in smart devices. ([www.anvargas.com](http://www.anvargas.com))