Kamilo MELO

Contact Information

CEO-Founder KM-RoBoTa SA
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Previous Academic Positions

2014 to 2018 **Postdoctoral Associate**, *Biorobotics laboratory EPFL*, Lausanne-Switzerland
Research: Bio-informed design and control of robust amphibious salamander-like robots.
Supervisor: **Prof. Auke J. Ijspeert**.
Topics: Swimming Robots • Robotic Paleontology • Study of salamander neuro-musculoskeletal system using robots • Dynamical animal/robot scaling • Robust robot design and field validation • Locomotion controllers for unstructured (multi domain) terrains • Compliant robot design • Design and experimentation with compliant snake robots.

→ **Member of NCCR - Robotics**, *Search and Rescue Scenario*, EPFL-Switzerland
Research: Multi-modal Locomotion Robots for Search and Rescue Missions.

2013 to 2014 **Postdoctoral Researcher**, *E. Piaggio Research Center, Universitá di Pisa*, Italy
Research: Study and analysis of Multi-Articulated Robots with Variable Stiffness actuators.
Supervisor: **Prof. Antonio Bicchi**.
Topics: Variable stiffness actuator modeling and control • Hardware design and fabrication.
Side-project: Systems integration for humanoid robot (DARPA Robotics Challenge).

Education

2009 to 2013 **Ph.D. Engineering (Robotics)**, *Pontificia Universidad Javeriana*, Bogotá-Colombia, *Magna Cum Laude With Honors in Engineering*
Dissertation: A Parameterized Space Based Model for Modular Snake Robots Locomotion.
Advisors: Prof. Raja Chatila (Emeritus) (Sorbonne Université, Paris) and Dr.C.Parra (PUJ).
Committee: **Profs. Raja Chatila, Mark Yim (UPenn), Fumitoshi Matsuno (UKyoto).**
Topics: Locomotion modeling and control of Snake Robots. Multi-body dynamics.

2004–2005 **M.Sc. Mechanical Engineering**, *Universidad de los Andes*, Bogotá - Colombia, *Degree with honors in Mechanical Engineering*. Rank: 2/12, GPA: (4.44/5.00)
Thesis: Fundamentals of dragonfly flight based hovering machines.
Advisor: Prof. Jaime Lobo-Guerrero (Emeritus).
Topics: Aerodynamics, fluid mechanics, mechanism design, rigid body dynamics.

1997–2003 **B.Sc. Electronics Engineering**, *Pontificia Universidad Javeriana*, Bogotá-Colombia, *Degree with Honors in Electronics Engineering*. Rank: 1/43, GPA: (4.05/5.00)
Graduation Project: Roll control of a dragonfly robot.
Advisor: Prof. Karim Hay (Emeritus).
Topics: Robotics, motion control, embedded control, analog/digital electronic design.

CURRICULUM VITAE

Experience

Professional Experience

2011 to present **CEO/CTO/Founder**, *KM-RoBoTa*, Colombia and Switzerland, (KM-RoBoTa.com)
KM-RoBoTa is an R&D company, that designs, fabricate and maintain **advanced bio-robotic** systems for scientific research and industry. The company's main focus is the creation of **animal-like robots** and automated machines informed by real animals and other biological organisms, to be used in different fields. These include academic research, industrial inspection and intervention, disaster response, art and entertainment.

- ➞ I am **Principal Investigator** in research carried out and published by KM-RoBoTa.
- ➞ Our customers include institutions (EPFL, ETHz, Harvard, MIT, U.Bordeaux, etc), companies (Maxon, BBC), and art galleries (Sprüth Magers-London, Kunsthaus-Bregenz, P.Rosenkranz-Switzerland).

Other Research Experience

2012 **Visiting Scholar**, *ISIR (Institut de Systèmes Intelligents et de Robotique), Université Pierre et Marie Curie*, Paris - France, (www.isir.upmc.fr)
Snake Robots locomotion: Locomotion mode transitions. Motion performance metrics.

2007-2011 **Part time - Researcher**, *SIRP (Systems, Intelligence, Robotics and Perception Group), Department of Electronics Eng, Universidad Javeriana*, Bogotá-Colombia
Research on mobile robots's locomotion for humanitarian demining tasks.

2004 **Research Assistant**, *CIFI, Mechanical Eng. Dept., UniAndes*, Bogotá-Colombia
Controller design and CPU replacement for Anti-air ballistic systems for the Colombian Army.

Teaching Experience

2016 to Present **Instructor of edX-MOOC**, EPFLx, Lausanne-Switzerland
Course: A Resilient Future: Science and Technology for Disaster Risk Reduction.

2015 to 2018 **Graduate Course Lecturer**, EDRS-ENS, **EPFL**, Lausanne-Switzerland
• Graduate Course Ph.D. level: Topics in Autonomous Robotics: Snake Robots chapter.
• Graduate Course M.Sc. level (Micro-Engineering): Mobile Robots: Sensors.

2014 to 2018 **Mentoring/Supervisor**, Biorobotics Laboratory EPFL, Lausanne-Switzerland
• Four Ph.D. students mentoring • Nine M.Sc. thesis/project supervisor • Seven Research Internship Program at EPFL students supervisor (MIT, Stanford, Gatech, TokyoTech and NTU).

2004 to 2011 **Part Time Lecturer**, *Electronics Engineering Program*, Department of Electronics Engineering, Pontificia Universidad Javeriana, Bogotá-Colombia
• Graduate Course: Robot design (kinematics and dynamics) • Undergraduate Courses: Nonlinear electronics, Analog electronics design (practical), Design fundamentals (practical), Analog electronics theory, Dynamical systems, Basic circuit theory, Introduction to engineering.

2007 **Summer Course Lecturer**, *Electronics Engineering Program*, Department of Electrical and Electronics Engineering, Universidad de los Andes, Bogotá-Colombia
B.Sc. Courses: Basic Electronics.

2005 **Summer Course Lecturer**, *Mechatronic Engineering Program*, Department of Mechatronics, Universidad Militar Nueva Granada, Bogotá-Colombia
B.Sc. Courses: Control, Dynamic systems, Robotics.

2004 **Teaching Assistant**, *CBU, Department of Languages, Universidad de los Andes*, Bogotá D.C. - Colombia.

1999 to 2003 **Teaching Assistant**, *Department of Physics (1999-2001), Department of Electronics Engineering (2002-2003), Pontificia Universidad Javeriana*, Bogotá D.C. - Colombia.

Awards and Honors

2023 **Best Video Award Gallery of Fluid Motion**, *American Physical Society's Division of Fluid Dynamics (DFD)*, November 2023
Title of the work: "V0048: To swim fast or go far? Answers from 1-guilla, the robotic eel"

2019 **Jeffrey Hubbell and Melody Swartz Young Bioengineer Award (runner-up)**, *Institute of Bioengineering IBI-EPFL. EPFL Bioengineering Day*, November 2019
Title of the work: "From a Fossil to a Robot... and All the Steps in Between."

2016 **Best Robot Design Award**, *ASME*, August 2016
Soft Snake Robot at ASME Student Mechanism and Robot Design Competition, 40th ASME Mechanisms & Robotics Conference. Advised students: Aditya Kapoor and Jeremy Koh.

2015 **SSRR-2015 Best Robot Demo Award**, *IEEE-RAS*, October 2015
Robot Lola-OP™ in International Symposium on Safety, Security, and Rescue Robotics 2015.

2013 **IROS-2013 Time Capsule Item Award**, *IEEE-RAS/RSJ*, November 2013
Lola-OP™ selected as representative item of the robotic state of the art for 25 years storage.

2009 **Colciencias "Francisco José de Caldas" Doctoral Scholarship**, *The Administrative Department of Science, Technology and Innovation (Colciencias), Colombia.*

2004 **Gabriel Maldonado Award & Best Graduation Project**, *Pontificia Universidad Javeriana, Department of Electronics Engineering*, Asociación Ingenieros Javerianos.

2002 **Schlumberger Best Undergraduate Scholarship**, *Schlumberger.*

Service

2019-2022 **Keynote Speaker**, ROBIO 2023 IEEE International Conference on Robotics and Biomimetics • SWARM 5th International Symposium on Swarm Behavior and Bio-Inspired Robotics • ISBC 7th International Symposium on BioComplexity • AROB 27th Iternational Symposium on Artificial Life and Robotics • AMAM 9th International Symposium on Adaptive Motion of Animals and Machines.

2017 **Associate Editor**, IEEE/RSJ Int. Conf. on Intelligent Robots and Systems (IROS2017).

2016 **Conference Program Chair**, IEEE International Symposium on Safety, Security, and Rescue Robotics, (SSRR-2016) October 2016, EPFL Lausanne - Switzerland.

2015 to present **Program Committee**, Symposium on Swarm Behavior and Bioinspired Robotics (SWARM-15) • IEEE International Symposium on Safety, Security, and Rescue Robotics, (SSRR2015).

2015 to 2017 **ICRDRR Member**, IEEE International Committee in Robotics for Disaster Risk Reduction.

2014 **ICRA-2014 Workshop Organizer**, on Low-cost, Fast-development Modular Snake Robot Open Platforms, IEEE International Conference on Robotics and Automation, May 2014.

2012 to present **Technical Session Chair**, IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) • International Symposium on Safety, Security, and Rescue Robotics (SSRR) • IEEE International Conference on CYBER Technology in Automation, Control, and Intelligent Systems • IEEE/SICE International Symposium on System Integration (SII).

2006 to present **Scientific Reviewer**, AAAS's **Science** and **Science Robotics** magazines • Physical Review X • Int.Journal of Robotics Research IJRR • Soft Robotics (SORO) • Journal of Field Robotics • IEEE Transactions on: Robotics (TRO), Mechatronics (TMECH) and Control Systems Technology • ASME Journal of Mechanisms and Robotics • Advanced Robotics • IEEE Robotics and Automation Letters (RAL) • IEEE ICRA and IEEE/RSJ IROS.

Languages

English, Spanish	Bilingual, native	
French, Italian	Conversational	*Informal training. Speaking proficiency.*
German, Chinese	Basic	*Informal training. Basic knowledge.*

References

Former employers

Prof. Auke Jan Ijspeert, *(Email: auke.ijspeert@epfl.ch, Phone: +41-21-69-32658)*, Director, Biorobotics Lab., École Polytecnique Fédérale de Lausanne, Switzerland
Prof. Ijspeert was supervisor of my **postdoctoral research** (2014-2019).

Prof. Antonio Bicchi, *(Email: antonio.bicchi@unipi.it, Phone: +39-050-221-7060)*, Professor at E. Piaggio Research Center, Universitá di Pisa, Pisa, Italy
Prof. Bicchi was supervisor of my **postdoctoral research** (2013-2014).

Prof. Dario Floreano, *(Email: dario.floreano@epfl.ch, Phone: +41-21-69-35230)*, Director, Laboratory of Intelligent Systems, Director NCCR-Robotics, École Polytecnique Fédérale de Lausanne, Switzerland
Prof. Floreano supervised my research for the **NCCR-Robotics** (2014-2019).

Research collaborators

Prof. John A. Nyakatura, *(Email: john.nyakatura@hu-berlin.de, Phone: +49 30-2093-6726)*, Professor of morphology (Zoology), Institute of Biology Humboldt Universität zu Berlin, Germany
Prof. Nyakatura co-authored with me a **Nature** article related to **Robotic Paleobiology**.

Prof. Emily Standen, *(Email: estanden@uottawa.ca, Phone: +1-613-562-5800)*, Director, Comparative Physiology Group, University of Ottawa. Ottawa, ON, Canada
Prof. Standen is current collaborator in a HFSP project related to **animal locomotion**.

Prof. Kristin Pettersen, *(Email: kristin.y.pettersen@itk.ntnu.no, Phone: +47-7359-4346)*, Dept. of Engineering, Cybernetics. Centre for autonomous marine operations and systems, Norwegian University of Science and Technology, Trondheim, Norway
Prof. Pettersen collaborates in my scientific activities related to **snake robotics**.

Prof. Mark R. Cutkosky, *(Email: cutkosky@stanford.edu, Phone: +1-650-721-9433)*, Director, Biomimetics and Dexterous Manipulation Lab., 416 Escondido Mall, Stanford University, Stanford, California, USA
Prof. Cutkosky know in depth and follow my work in **design of field robots**.

Prof. Luca Carlone, *(Email: lcarlone@mit.edu, Phone: +1-617-253-6170)*, Director, Laboratory for Information & Decision Systems (LIDS), Department of Aeronautics and Astronautics, MIT, Cambridge, MA, USA
Prof. Carlone know in depth and follow my work in **design of field robots**.

PhD thesis committee

Prof. Raja Chatila (Emeritus), *(Email: raja.chatila@sorbonne-universite.fr, Phone: +33-144-272-876)*, Directeur de Recherche CNRS, Directeur ISIR (R) - Institut des Systèmes Intelligents et de Robotique ISIR-UPMC, Sorbonne Université, Paris, France

Prof. Mark Yim, *(Email: yim@grasp.upenn.edu, Phone: +1-215-898-5269)*, Director of ModLab, professor at GRASP Lab, Mechanical Engineering and Applied Mechanics, University of Pennsylvania, Philadelphia, USA

Prof. Fumitoshi Matsuno, *(Email: fumitoshi.matsuno@oit.ac.jp, Phone: +81-075-383-3593)*, Director, Mechatronics Laboratory, Department of Electronics and Information Systems Engineering Osaka Institute of Technology

Publications

h-index: **16**, i10-index: **27** with **1342** total citations in November, 2024

For citations and indexes please visit my Google Scholar profile

Under Revision / In Preparation

[1] L. Paez, **Kamilo Melo**, J. Herault, R. Thandiackal, E. Standen, E. Tytell, and A. J. Ijspeert, "Anguilliform swimming performance tradeoffs via passive viscoelastic modulation in a lamprey like robot." Manuscript under revision in *Science Robotics.*, 2025.

[2] A. Kapoor and **Kamilo Melo**, "A framework for actuator control that enables functional locomotor capabilities in soft robots." Manuscript to be submitted to *Science Robotics*, 2025.

Journal Articles

[1] J. Herault, L. Paez, **Melo, Kamilo**, R. Thandiackal, V. Lebastard, F. Boyer, and A. Ijspeert, "Symmetry breaking and gait transition induced by hydrodynamic sensory feedback in an anguilliform swimming robot," *Phys. Rev. E*, vol. 110, p. 055104, Nov 2024.

[2] A. Anastasiadis, A. Rossi, L. Paez, **Melo, Kamilo**, E. D. Tytell, A. J. Ijspeert, and K. Mulleners, "Eel-like robot swims more efficiently with increasing joint amplitudes compared to constant joint amplitudes," *Phys. Rev. Fluids*, vol. 9, p. 110509, Nov 2024.

[3] **Kamilo Melo**, T. Horvat, and A. J. Ijspeert, "Animal robots in the african wilderness: Lessons learned and outlook for field robotics," *Science Robotics*, vol. 8, no. 85, p. eadd8662, 2023. **Journal cover** .

[4] A. Anastasiadis, L. Paez, **Kamilo Melo**, E. D. Tytell, A. J. Ijspeert, and K. Mulleners, "Identification of the trade-off between speed and efficiency in undulatory swimming using a bio-inspired robot," *Scientific Reports*, vol. 13, no. 15032, pp. 1–12, 2023.

[5] R. Thandiackal*, **Kamilo Melo***, L. Paez, J. Herault, T. Kano, K. Akiyama, F. Boyer, D. Ryczko, A. Ishiguro, and A. J. Ijspeert, "Emergence of robust self-organized undulatory swimming based on local hydrodynamic force sensing," *Science Robotics*, vol. 6, no. 57, p. eabf6354, 2021. **Journal cover** (*Authors with equal contribution) .

[6] J. Delmerico, S. Mintchev, A. Giusti, B. Gromov, **Kamilo Melo**, T. Horvat, C. Cadena, M. Hutter, A. J. Ijspeert, D. Floreano, L. M. Gambardella, R. Siegwart, and D. Scaramuzza, "The current state and future outlook of rescue robotics," *Journal of Field Robotics*, vol. 36, no. 7, pp. 1171–1191, 2019.

[7] **Kamilo Melo** and J. A. Nyakatura, "From a fossil to a robot... and all the steps in between," *The Science Breaker*, pp. 1–2, 2019.

[8] J. A. Nyakatura*, **Kamilo Melo***, T. Horvat*, K. Karakasiliotis, V. R. Allen, A. Andikfar, E. Andrada, P. Arnold, J. Lauströer, J. R. Hutchinson, M. S. Fischer, and A. J. Ijspeert, "Reverse-engineering the locomotion of a stem amniote," *Nature*, vol. 565, no. 7739, pp. 351–355, 2019. **Journal cover** (*Authors with equal contribution) .

[9] T. Horvat, **Kamilo Melo**, and A. J. Ijspeert, "Spine controller for a sprawling posture robot," *IEEE Robotics and Automation Letters*, vol. 2, no. 2, pp. 1195–1202, 2017.

[10] K. Karakasiliotis, R. Thandiackal, **Kamilo Melo**, T. Horvat, N. K. Mahabadi, S. Tsitkov, J. M. Cabelguen, and A. J. Ijspeert, "From cineradiography to biorobots: an approach for designing robots to emulate and study animal locomotion," *Journal of The Royal Society Interface*, vol. 13, no. 119, p. 20151089, 2016. **Journal cover** .

[11] B. Bayat, J. Bermejo-Alonso, J. Carbonera, T. Facchinetti, S. Fiorini, P. Goncalves, V. A. Jorge, M. Habib, A. Khamis, **Kamilo Melo***, B. Nguyen, J. I. Olszewska, L. Paull, E. Prestes, V. Ragavan, S. Saeedi, R. Sanz, M. Seto, B. Spencer, A. Vosughi, and H. Li, "Requirements for building an ontology for autonomous robots," *Industrial Robot: An International Journal*, vol. 43, no. 5, pp. 469–480, 2016. (* All authors contributed equally and are listed in alphabetical order).

Peer Reviewed Conference Articles

[1] L. Paez, A. P. **Kamilo Melo**, and A. J. Ijspeert, "To swim fast or to go far: answers from 1-guilla, a bio-inspired undulatory robot," in *76th Annual Meeting of the Division of Fluid Dynamics*, vol. A09, George Washington University, 2023.

[2] L. Paez, A. P. **Kamilo Melo**, and A. J. Ijspeert, "The simple reason why pressure sensors are not adequate to replicate the lateral line in free swimming fish-like robots," in *The 9.5th international symposium on Adaptive Motion of Animals and Machines*, pp. 47–48, 2021.

[3] L. Paez, **Kamilo Melo**, and A. J. Ijspeert, "Performance tradeoffs in anguilliform swimming via viscoelastic modulation," in *Annual Meeting of the Society-for-Integrative-and-Comparative-Biology (SICB)*, vol. 61, pp. E679–E680, OXFORD UNIV PRESS INC, 2021.

[4] L. Paez, **Kamilo Melo**, S. Sakar, and A. J. Ijspeert, "Kinematic and dynamic analysis of the mosquito larvae gait," in *Annual Meeting of the Society-for-Integrative-and-Comparative-Biology (SICB)*, vol. 60, pp. E182–E182, OXFORD UNIV PRESS INC, 2020.

[5] **Kamilo Melo**, T. Horvat, and A. J. Ijspeert, "Minimalist design of a 3-axis passive compliant foot for sprawling posture robots," in *2019 2nd IEEE International Conference on Soft Robotics (RoboSoft)*, pp. 788–794, 2019.

[6] L. Paez, **Kamilo Melo**, R. Thandiackal, and A. J. Ijspeert, "Adaptive compliant foot design for salamander robots," in *2019 2nd IEEE International Conference on Soft Robotics (RoboSoft)*, pp. 178–185, 2019.

[7] R. Thandiackal, **Kamilo Melo**, L. Paez, T. Kano, A. Ishiguro, and A. J. Ijspeert, "Undulatory swimming control with local exteroceptive sensory feedback," in *Annual Meeting of the Society-for-Integrative-and-Comparative-Biology (SICB)*, vol. 59, pp. E230–E230, OXFORD UNIV PRESS INC, 2019.

[8] L. Paez, **Kamilo Melo**, E. Standen, and A. J. Ijspeert, "Understanding Polypterus Senegalus Walking Locomotion from its Center of Mass Displacements," in *AMAM 9th International Symposium on Adaptive Motion of Animals and Machines*, August 2019.

[9] K. Akiyama, K. Yasui, J. Arreguit, L. Paez, **Kamilo Melo**, T. Kano, A. J. Ijspeert, and A. Ishiguro, "Undulatory swimming locomotion driven by cpg with multimodal local sensory feedback," in *Living Machines 2018: Biomimetic and Biohybrid Systems* (V. Vouloutsi, J. Halloy, A. Mura, M. Mangan, N. Lepora, T. J. Prescott, and P. F. Verschure, eds.), pp. 1–5, Springer International Publishing, 2018.

[10] J. Herault, F. Boyer, R. Thandiackal, **Kamilo Melo**, and A. J. Ijspeert, "Emergence d'une nage cohrerente induite par des retours sensoriels," in *21e Rencontre du Non Lineaire, Universite Paris Diderot, Paris 2018*, pp. 31–36, Non-Linéaire Publications, 2018. In french.

[11] R. Vasconcelos, S. Hauser, F. Dzeladini, M. Mutlu, T. Horvat, **Kamilo Melo**, P. Oliveira, and A. J. Ijspeert, "Active stabilization of a stiff quadruped robot using local feedback," in *2017 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, pp. 4903–4910, 2017.

[12] T. Horvat, **Kamilo Melo**, and A. J. Ijspeert, "Model predictive control based framework for com control of a quadruped robot," in *2017 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, pp. 3372–3378, 2017.

[13] M. Parsapour, **Kamilo Melo**, T. Horvat, and A. J. Ijspeert, "Challenges in visual and inertial information gathering for a sprawling posture robot," in *2017 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, pp. 2691–2697, 2017.

[14] D. Roa and **Kamilo Melo**, "Mechanical stability margin for scouting poses in modular snake robots," in *2016 IEEE International Symposium on Safety, Security, and Rescue Robotics (SSRR)*, pp. 182–188, 2016.

[15] M. Vespignani, **Kamilo Melo**, M. Mutlu, and A. J. Ijspeert, "Compliant snake robot locomotion on horizontal pipes," in *2015 IEEE International Symposium on Safety, Security, and Rescue Robotics (SSRR)*, pp. 1–8, 2015.

[16] M. Mutlu, **Kamilo Melo**, M. Vespignani, A. Bernardino, and A. J. Ijspeert, "Where to place cameras on a snake robot: Focus on camera trajectory and motion blur," in *2015 IEEE International Symposium on Safety, Security, and Rescue Robotics (SSRR)*, pp. 1–8, 2015.

[17] M. Vespignani, **Kamilo Melo**, S. Bonardi, and A. J. Ijspeert, "Role of compliance on the locomotion of a reconfigurable modular snake robot," in *2015 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, pp. 2238–2245, 2015.

[18] T. Horvat, K. Karakasiliotis, **Kamilo Melo**, L. Fleury, R. Thandiackal, and A. J. Ijspeert, "Inverse kinematics and reflex based controller for body-limb coordination of a salamander-like robot walking on uneven terrain," in *2015 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, pp. 195–201, 2015.

[19] **Kamilo Melo**, "Modular snake robot velocity for side-winding gaits," in *2015 IEEE International Conference on Robotics and Automation (ICRA)*, pp. 3716–3722, 2015.

[20] **Kamilo Melo** and L. Paez, "Experimental determination of control parameter intervals for repeatable gaits in modular snake robots," in *2014 IEEE International Symposium on Safety, Security, and Rescue Robotics (2014)*, pp. 1–7, 2014.

[21] A. Trujillo, J. Igua, and **Kamilo Melo**, "Passive brachiation. towards motion in trees with robotic snakes," in *2014 IEEE International Symposium on Safety, Security, and Rescue Robotics (2014)*, pp. 1–2, 2014.

[22] L. Paez and **Kamilo Melo**, "A preliminary review on metrics for modular snake robots locomotion," in *The 4th Annual IEEE International Conference on Cyber Technology in Automation, Control and Intelligent*, pp. 539–545, 2014.

[23] J. Monsalve, J. Leon, and **Kamilo Melo**, "Modular snake robot oriented open simulation software," in *The 4th Annual IEEE International Conference on Cyber Technology in Automation, Control and Intelligent*, pp. 546–550, 2014.

[24] A. Settimi, C. Pavan, V. Varricchio, M. Ferrati, E. Mingo Hoffman, A. Rocchi, **Kamilo Melo**, N. G. Tsagarakis, and A. Bicchi, "Integration scheme for modular snake robot software components," in *Modelling and Simulation for Autonomous Systems* (J. Hodicky, ed.), vol. 8906 of *Lecture Notes in Computer Science*, pp. 192–205, Springer International Publishing Switzerland, 2014.

[25] **Kamilo Melo**, J. Monsalve, A. DiZeo, J. Leon, A. Trujillo, W. Perdomo, D. Roa, and L. Paez, "Integration scheme for modular snake robot software components," in *Modelling and Simulation for Autonomous Systems* (J. Hodicky, ed.), vol. 8906 of *Lecture Notes in Computer Science*, pp. 184–191, Springer International Publishing Switzerland, 2014.

[26] **Kamilo Melo**, J. Leon, A. di Zeo, V. Rueda, D. Roa, M. Parraga, D. Gonzalez, and L. Paez, "The modular snake robot open project: Turning animal functions into engineering tools," in *2013 IEEE International Symposium on Safety, Security, and Rescue Robotics (SSRR)*, pp. 1–6, 2013.

[27] L. Paez, M. Granados, and **Kamilo Melo**, "Conceptual design of a modular snake origami robot," in *2013 IEEE International Symposium on Safety, Security, and Rescue Robotics (SSRR)*, pp. 1–2, 2013.

[28] **Kamilo Melo**, D. Roa, V. Gudavarthi, Y. Bello, A. DiZeo, J. Leon, and L. Paez, "Modular snake robots. research on locomotion and low cost open hard-software platforms, development and integration," in *Robotics for Risky Environments - Extreme Robotics, Proceedings of the 7th International Workshop IARP-RISE-ER2013* (E. Yurevich and I. Baudoin, eds.), vol. 69, pp. 391–397, Central Research Institute of Robotics and Technical Cybernetics, 2013.

[29] **Kamilo Melo**, J. Leon, J. Monsalve, V. Fernandez, and D. Gonzalez, "Simulation and control integrated framework for modular snake robots locomotion research," in *2012 IEEE/SICE International Symposium on System Integration (SII)*, pp. 523–528, 2012.

[30] **Kamilo Melo**, M. Hernandez, and D. Gonzalez, "Parameterized space conditions for the definition of locomotion modes in modular snake robots," in *2012 IEEE International Conference on Robotics and Biomimetics (ROBIO)*, pp. 2032–2038, 2012.

[31] **Kamilo Melo** and L. Paez, "Modular snake robot gaits on horizontal pipes," in *2012 IEEE/RSJ International Conference on Intelligent Robots and Systems*, pp. 3099–3104, 2012.

[32] **Kamilo Melo**, L. Paez, and C. Parra, "Indoor and outdoor parametrized gait execution with modular snake robots," in *2012 IEEE International Conference on Robotics and Automation*, pp. 3525–3526, 2012.

[33] **Kamilo Melo**, L. Paez, A. Polo, and C. Parra, "Gait programming and data acquisition user interfaces, for modular snake robots," in *Informatics in Control, Automation and Robotics* (D. Yang, ed.), vol. 133 of *Lecture Notes in Electrical Engineering*, pp. 113–117, Springer Berlin Heidelberg, 2011.

[34] **Kamilo Melo**, L. Paez, M. Hernandez, A. Velasco, F. Calderon, and C. Parra, "Preliminary studies on modular snake robots applied on de-mining tasks," in *IX Latin American Robotics Symposium and IEEE Colombian Conference on Automatic Control, 2011 IEEE*, pp. 1–6, 2011.

[35] **Kamilo Melo**, A. Velasco, and C. Parra, "Motion analysis of an ellipsoidal kinematic closed chain," in *IX Latin American Robotics Symposium and IEEE Colombian Conference on Automatic Control, 2011 IEEE*, pp. 1–6, 2011.

[36] L. Paez, **Kamilo Melo**, and C. Parra, "Center of mass displacements using rolling gaits for modular robots on the outside of pipes," in *IX Latin American Robotics Symposium and IEEE Colombian Conference on Automatic Control, 2011 IEEE*, pp. 1–6, 2011.

[37] F. Cortes, D. Linares, D. Patino, and **Kamilo Melo**, "A distributed model predictive control (d-mpc) for modular robots in chain configuration," in *IX Latin American Robotics Symposium and IEEE Colombian Conference on Automatic Control, 2011 IEEE*, pp. 1–6, 2011.

[38] F. Bravo, D. Patino, **Kamilo Melo**, and C. Parra, "Switching control and modeling of mobile robots formation," in *IX Latin American Robotics Symposium and IEEE Colombian Conference on Automatic Control, 2011 IEEE*, pp. 1–6, 2011.

[39] **Kamilo Melo** and A. Velasco, "Motion analysis of a wheel-like articulated closed chain," in *2010 IEEE ANDESCON*, pp. 1–6, 2010.

Workshop Contributions and Plenary Talks

[1] **Kamilo Melo**, T. Horvat, and A. J. Ijspeert, "K-Rocks, a Bio-robot Outside the Lab, Back In Nature," in *ICRA2018 Workshop on Multilegged Robots: Towards Robust Real-World Deployments*, May 2018.

[2] S. Hauser, M. Mutlu, **Kamilo Melo**, and A. J. Ijspeert, "Fast state-switching of a jamming-based foot," in *AMAM 8th International Symposium on Adaptive Motion of Animals and Machines*, 2017.

[3] **Kamilo Melo**, "Correcting orientation of helices in the space. the case of rolling gaits with modular snake robots," in *SWARM 2015, First International Symposium on Swarm Behavior and Bio-Inspired Robotics*, 2015.

[4] **Kamilo Melo**, T. Horvat, R. Thandiackal, and A. J. Ijspeert, "Use of tails in amphibious locomotion," in *Robotic Uses for Tails - Workshop in conjunction with 2015 Robotics Science and Systems*, 2015.

[5] M. Vespignani, **Kamilo Melo**, S. Bonardi, and A. J. Ijspeert, "Snake robot locomotion with compliant elements," in *Full-day Workshop Robot-Inspired Biology, 2015 International Conference on Robotics and Automation*, 2015.

[6] **Kamilo Melo**, M. Garabini, G. Grioli, M. G. Catalano, L. Malagia, and A. Bicchi, "Open source vsa-cubebots for rapid soft robot prototyping," in *Robot Makers - Workshop in conjunction with 2014 Robotics Science and Systems*, pp. 1–5, 2014.

and many more publications and contributions not listed here...