

## Professor THAIS RUSSOMANO MD MSc PhD

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An organized, detail-oriented, and conscientious self-starter, with more than 30 years of experience in Space Life Science, Aerospace Medicine, Biomedical Engineering and Telehealth. An effective leader, skilled in motivating and enlisting the support of colleagues and team members in alignment with project and organizational goals, demonstrated by the establishment and coordination of the Microgravity Centre, PUCRS, Brazil, an internationally recognized and pioneer Space Life Sciences Research Centre in Latin America, and leading two successful private companies. Able to strategize and prioritize effectively to accomplish multiple tasks and work successfully in national and international scenarios. Understanding of the importance of academic/commercial collaboration and partnerships in developing innovative products and processes for the market. Skilled in academic course creation and delivery at community, graduate and postgraduate levels.

### CURRENT POSITIONS HELD

- Founder & Director, InnovaSpace Ltd, UK
- Co-Founder, Director & Chief Medical Officer, International Space Medicine Consortium Inc., USA
- Visiting Academic appointments: King's College London, UK (Space Physiology); University of Lisbon, Portugal (Aerospace Medicine); Deggendorf Institute of Technology, Germany (Medical Informatics); Aalto University, Finland (Space & Design); UFCSPA, Brazil (Space Medicine); FPCS, Brazil (Aerospace Medicine)
- Affiliated Member of the King's Brazil-Institute
- Consultant Skolkovo Foundation, Moscow, Russia
- Brazilian representative for the ISO/TC 20/SC 14/WG 6, Space systems and operations (Manned space flight)
- Mentor for Space4Women, UNOOSA, UN
- International Academy of Astronautics, Board of Trustees
- Academician of International Academy of Aviation and Space Medicine
- CoFounder/CoCoordinator of Student Working Group, ISfTeH
- Member of the iB Hubs Global Mentor Community, eHealth projects, India

### SUMMARY

- 30+ years experience in Aerospace Medicine, Human Physiology, Biomedical Engineering, Telemedicine & eHealth
- Founded & Coordinated for 18 years the Microgravity Centre (MicroG), PUCRS, Brazil
- Special interest & active participation in research/committees into Manned Space Flight and Space Tourism
- Development of Microgravity/Hypogravity & Hypergravity simulation research projects
- Development of an international MicroG network of Space focused research teams
- Educational Space lectures for the Brazilian Space Agency, Universities, Schools and general public
- Biomedical research & development, project coordination, management & liaison
- Inter-, multi-, transdisciplinary experience in developing and conducting national & international eHealth projects
- Invited participant, Rockefeller Foundation sponsored National eHealth Policies conference, Bellagio 2008
- Co-founder/Co-Coordinator of the Student Committee of the International Society for Telemedicine & eHealth
- Peer reviewer for 5 scientific journals in the areas of Telemedicine, eHealth and Aerospace Sciences
- Multidisciplinary teaching at both undergraduate & postgraduate level
- Extensive supervision of PhD & MSc thesis and BSc final projects at PUCRS & King's College London
- Numerous publications in peer reviewed journals and Chapters in Books
- Publication of 6 books in the areas of Astronomy, Space Life Sciences, & Aerospace Biomedical Engineering
- Holder of 7 patents: Products and processes related to Space Life Sciences and Aerospace Biomedical Engineering

Research areas include: telemedicine and eHealth projects; microgravity, hypogravity and hypergravity simulations; parabolic flight campaigns with the European Space Agency; hyperbaric and hypobaric chamber studies; tests in human centrifuges, Barany's chair, flight simulators, lower body positive pressure and negative pressure boxes, and positive pressure chambers, among others.

## EDUCATIONAL BACKGROUND

2006 - 2007 Post-Doctoral in Space Life Science, King's College London, England, UK  
2000 - 2009 Visiting Research Fellow - Department of Aerospace Medicine and Human Applied Physiology, King's College London, UK  
1994 - 1998 PhD in Respiratory Space Physiology, King's College London, England, UK  
1991 - 1995 MD in Emergency Rooms, Intensive Care Units and Ambulance Services, in the Porto Alegre region  
1989 - 1991 Master's Degree Program in Aerospace Medicine (GPA = 3.94/4.0), Wright State University, Ohio, USA  
1985 - 1989 Internal Medicine Residency Program, Clinical Hospital of Porto Alegre, RS, Brazil. Chief Resident (1988) and Senior Resident (1989) in Internal Medicine  
1980 - 1985 School of Medicine of the Federal University of Pelotas, RS, Brazil

## RESEARCH/TEACHING & EMPLOYMENT POSITIONS

2018 - Founder & Director, InnovaSpace Ltd, London UK  
2017 - Guest Lecturer at Deggendorf Institute of Technology, Germany, delivering eHealth modules  
2016 - 2019 International Relations Director, HuSCO, Human Spaceflight Capitalization Office, London, UK  
2015 - Co-Founder, Corporate Director & Chief Medical Officer, International Space Medicine Consortium Inc. ([www.ISMCInc.com](http://www.ISMCInc.com))  
2014 - Scientific consultant, Skolkovo Foundation, Moscow, Russia  
2013 - Guest Lecturer at Alto University, Finland delivering Space & Design modules  
2009 - 2009 Consultant - Wyle Laboratories GmbH, Cologne, Germany - Earlobe Arterialized Blood Collector Study  
2001 - 2017 Supervisor - MSc Dissertations - Biomedical Engineering Master's Degree Program, School of Engineering, PUCRS, Porto Alegre, RS, Brazil  
2009 - 2020 Deputy Course Director/Senior Lecturer, CHAPS, King's College, London  
2000 - 2009 Visiting Research Fellow - Department of Aerospace Medicine and Human Applied Physiology, King's College London  
1999 - 2017 Coordinator of the Microgravity Centre, PUCRS, Porto Alegre, RS, Brazil  
1998 - 2017 Professor - Biomedical Engineering Master's Degree Program – School of Electrical Engineering, PUCRS, Porto Alegre, RS, Brazil  
1998 - 2017 Professor - Institute of Aeronautical Sciences, PUCRS, Porto Alegre, RS, Brazil  
1998 - 2017 Professor - Department of Internal Medicine, School of Medicine, PUCRS, Porto Alegre, RS, Brazil  
1997 - Guest Scientist - Institute of Aerospace Medicine, German Space Agency – DLR, Cologne, Germany  
1993 - 1998 Assistant Professor - Department of Internal Medicine, School of Medicine, PUCRS, Porto Alegre, RS, Brazil  
1990 - 1993 Associate Researcher - Institute of Cardiology of Rio Grande do Sul, Porto Alegre, RS, Brazil

## SOME PROJECTS DEVELOPED UNDER MY COORDINATION

Development and Validation of:

First all-Brazilian Heart Defibrillator; Normobaric Hypoxia Chamber; Lower Body Negative Pressure Box and Lower Body Positive Pressure Box; Human Powered Small Centrifuge; Small centrifuge for the study of effects of hyperG on plants; Tilt Table for Microgravity Simulation; Earlobe Blood Collector for use in Microgravity; 3D Clinostat for the Study of Cells in Microgravity Simulation; Barany's Chair for the Study of the Vestibular System; Small hypobaric chamber to study the effects of pressure changes on medication; Individual portable dark chambers for pilot education/training.

Evaluation of Cardiopulmonary Resuscitation Procedures in Microgravity (Parabolic Flight) and Hypogravity simulations  
Tele-transmission of surgical procedures

Tele-education via international video conferences

Tele-medical assistance to remote areas including projects in: Tele-ECG, Tele-dermatology, Tele-pathology, Tele-odontology, Tele-toxicology, Tele-nutrition, Tele-pharmacy, Tele-physiotherapy, Tele-psychiatry and Tele-radiology  
eHealth for primary care attention

eHealth for Indian tribes in the Amazon, Brazil

## PRESENTATION/PUBLICATION & EDUCATIONAL WORKS

Participation in 250+ scientific events with 300+ scientific papers presented, as well scientific and educational works in 30+ countries:

Argentina, Austria, Bosnia & Herzegovina, Brazil, Canada, China, Colombia, Croatia, Czech Republic, England, Finland, France, Germany, Greece, India, Israel, Italy, Lithuania, Luxembourg, Mexico, The Netherlands, Norway, Philippines, Poland, Portugal, Romania, Russia, Scotland, Singapore, Slovenia, South Africa, Spain, Switzerland, Thailand, and United States of America.

## SELECTION OF PUBLICATIONS IN SCIENTIFIC JOURNALS

MACAGNAN, FABRÍCIO EDLER; FEOLI, ANA MARIA PANDOLFO; **RUSSOMANO, THAIS**. Acute Physical Effort Increases Sympathovagal Balance Responses to Autonomic Stimulation in Metabolic Syndrome. *Metabolic Syndrome and Related Disorders*, v. 17, p. 67-74, 2019.

GANAPATHY, K.; DA ROSA, MICHELE; **RUSSOMANO, T.** Neurological changes in outer space. *NEUROLOGY INDIA*, v. 67, p. 37-43, 2019.

HAMMOND, BENJAMINT ; DA SILVA MELO, DENIZARALBERTO ; DE FARIAS, RAFAELPIRES ; DA ROSA, MICHELE ; LAMADRID, INGRID ; DISIUTA, LEANDRO ; MARQUESDE LIMA, JULIOCESAR ; **RUSSOMANO, THAIS**. Mars walking simulation: An electromyographic analysis. *NEUROLOGY INDIA*, v. 67, p. 230-235, 2019.

**RUSSOMANO, THAIS**; DA ROSA, MICHELE; DOS SANTOS, MARLISE A. Space motion sickness: A common neurovestibular dysfunction in microgravity. *NEUROLOGY INDIA*, v. 67, p. 214-218, 2019.

MACKAILL, CHRISTINA; SPONCHIADO, GREGORI; LEITE, ANA K.; DIAS, PAOLA; DA ROSA, MICHELE; BROWN, ELLIOT J.; DE LIMA, JULIO C.M.; REHNBERG, LUCAS; **RUSSOMANO, THAIS**. **A new method for the performance of external chest compressions during hypogravity simulation**. *LIFE SCIENCES IN SPACE RESEARCH (PRINT)*, v. 18, p. 72-79, 2018.

NUNES, A. C. P; SANTOS, GLÊISON A. DOS; SANTOS, MARLISE A. DOS; **RUSSOMANO, T**; SANTOS, OSMARINO P. DOS; VALENTE, BRÍGIDA M. DOS REIS TEIXEIRA; RESENDE, MARCOS D. V. DE. **Application of hypergravity in eucalyptus and corymbia seeds**. *Ciência Rural*, v. 48, p. 1-7, 2018.

BROWN, E. J.; **RUSSOMANO, T.**; BANDEIRA, L.; DISIUTA, L.; LAMADRID, I.; ROSA, M. S. G.; LIMA, Julio C.M. de; BAPTISTA, R.; DIAS, R. L. **The metabolic cost of walking in simulated martian gravity and its implications**. *Journal of Exercise Physiology online*, v. 21, p. 25-35, 2018.

HINKELBEIN, J.; **RUSSOMANO, T.**; HINKELBEIN, F.; KOMOROWSKI, M. **Cardiac arrest during space missions: specificities and challenges**. *Trends in Anaesthesia and Critical Care*, v. 19, p. 6-12, 2018.

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SUNDARESAN, A.; MEHTA, S.K.; SCHLEGEL, T.T.; **RUSSOMANO, T**; PIERSON, D.L.; MANN, V.; MANSOOR, E.; OLAMIGOKE, L.; OKORO, E. **Placental growth factor levels in populations with high versus low risk for cardiovascular disease and stressful physiological environments such as microgravity: a pilot study**. *Microgravity, Science and Technology (Print)*, v. 29, p. 145-149, 2017.

ROSA, M. S. G. ; **RUSSOMANO, T.** ; SANTOS, Marlise A dos ; Felipe Escobal ; LAMADRID, I. ; ROSA, Mauricio Machado da ; OLIVEIRA, H. W. **Telemedicine as a health promotion tool: a multidisciplinary vision**. *J Int Soc Telemed eHealth*, v. 5, p. 17-20, 2017.

ESCOBAL F.; LAMADRID, I. ; ROSA, M. S. G. ; OLIVEIRA, H. W. ; **RUSSOMANO, T. Telegerontology: knowledge exchange related to elderly healthcare between brazilian and portuguese universities.** J Int Soc Telemed eHealth, v. 5, p. 22-24, 2017.

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SILVA-MARTINEZ, JACKELYNNE P. SORICE GENARO, ANDREIA; WEN, HUI ANNIE; GLAUBER, NAAMA; **RUSSOMANO, T . Remotely Guided Breast Sonography for Long-Term Space Missions: A Case Report and Discussion.** Telemedicine and e-Health, v. 23, p. tmj.2016.0245, 2017.

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**RUSSOMANO, T;** BAERS, J H; VELHO, R; CARDOSO, R B; ASHCROFT, A; GEHRKE, R; DIAS, M K P; BAPTISTA, R. **A comparison between the 2010 and 2005 basic life support guidelines during simulated hypogravity and microgravity.** *Extreme Physiology & Medicine* v. 1, p. 2-11, 2013.

PHILIP CARVIL; BAPTISTA, R.; **RUSSOMANO, T.** **The human body in a microgravity environment: long term adaptations and countermeasures.** *Aviation in Focus*, v. 4, p. 10-22, 2013.

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FALCAO, F., **RUSSOMANO, T.** **Clinical Validation of the Earlobe Arterialized Blood Collection.** *Aviation, Space, and Environmental Medicine*, v. 81: p 1053-1054, 2011.

SANTOS, M. A., BOSQUILLON, C., **RUSSOMANO, T.**, SUNDARESAN, A., FALCAO, F., MARRIOT, C., FORBES, B. **Modelling the effects of microgravity on the permeability of air interface respiratory epithelial cell layers.** *Advances in Space Research* 46 (2010) 712–718, 2010

MARTINELLI, LEONARDO K, **RUSSOMANO, T.**, SANTOS, M. A., FALCÃO, FELIPE P, BAUER, MOISES, AMANDA MACHADO, SUNDARESAN, ALAMELU. **The effect of microgravity immune cell viability and proliferation.** *IEEE Engineering in Medicine and Biology Magazine.* , v.1, p.85 - 90, 2009.

**RUSSOMANO, T.**; RIZZATTI, Mara R; AZEVEDO, Dario F G de; COELHO, Rodrigo P; SCOLARI, Diogo; SOUZA, Daniel de; PRÁVELEDA, Paula. **Effects of Simulated Hypergravity on Biomedical Experiments.** *IEEE Engineering in Medicine and Biology Magazine*, England, UK, v. May/Jun, p. 66-71, 2007.

**RUSSOMANO, T;** EVETTS, SIMON; CASTRO, JOÃO; SANTOS, MARLISE A DOS; GAVILLON, JORGE; AZEVEDO, DARIO F G DE; WHITTLE, JOHN; COATS, EDWARD; ERNSTING, JOHN. **A Device for Sampling Arterialized Earlobe Blood in Austere Environments.** *Aviation, Space, and Environmental Medicine*, Alexandria, Virginia, EUA, v. 77, n. 4, p. 453-455, 2006.

EVETTS, SIMON; EVETTS, LISA; **RUSSOMANO, T.**; CASTRO, JOAO; ERNSTING, John. **Basic Life Support In Microgravity: Evaluation of a Novel Method During Parabolic Flight.** *Aviation, Space, and Environmental Medicine*, Alexandria, VA, Estados Unidos, v. 76, n. 5, p. 506-510, 2005.

SIDES, MARIAN; VERNIKOS, JOAN; CONVERTINO, VICTOR; STEPANEK, JAN; TRIPP, LLOYD; DRAEGER, JORG; HARGENS, ALAN; PAPADELI, CHRYSOULA; TRAON, ANNE PAVY LE; **RUSSOMANO, T.** WONG, JULIELYNN; BUCCELLO, REGINA; LEE, PETER; NANGLAIA, VISHAL; SAARY, JOAN; DAY, PAM . **The Bellagio Report: Cardiovascular Risks for Space Flight: Implications for the Future of Space Travel.** *Aviation, Space, and Environmental Medicine*, USA, v. 76, n. 1, p. 877-895, 2005.

## BOOKS PUBLISHED

- RUSSOMANO, T;** CASTRO, JOAO DE C. A Fisiologia Humana no Ambiente Aeroespacial. InnovaSpace Books; Distributer Smashwords. eBook, 2020
- RUSSOMANO, T,** REHNBERG, L. (Editors). Into Space - A Journey of How Humans Adapt and Live in Microgravity. 1. ed. London, UK: IntechOpen, 2018. v. 1. 285p
- RUSSOMANO, T;** CASTRO, JOAO DE C. Fisiologia Aeroespacial - Conhecimentos Essenciais para Voar com Segurança. 1. ed. Porto Alegre: EdiPuc, 2012. v. 1. 186p. **(out of print)**
- RUSSOMANO, T;** VERNIKOS, J. A Gravidade Esta Grande Escultora (*Gravity, This Great Sculptor*). Edipucrs, 2009. 338p.
- ANTUNANO, M., HOBE, S., GERZER, R., **RUSSOMANO, T** (International Academy of Astronautics) Medical Safety & Liability Issues for Short Duration Orbital Space Flight. 2009. 45p.
- RUSSOMANO, T;** DALMARCO, G; FALCAO, F. P. Synthesis Lectures on Biomedical Engineering #18 - The Effects of Hypergravity and Microgravity on Biomedical Experiment (Paperback). 1. ed. Connecticut: Morgan & Claypool Publishers, 2008. v. 1. 70 p.
- RUSSOMANO, T;** DALMARCO, G; FALCAO, F. P. 1st. Ed. Connecticut: Biomedical Engineering Book Series Editor for Morgan and Claypool Publishers, 2007. v. 1. 70 p. The Effects of Hypergravity and Microgravity on Biomedical Experiments – also as an e-book (online)
- RUSSOMANO, T.;** BAUERMANN, B. O ABC da vida no espaço. (*The ABC of Life in Space*) 1. ed. Porto Alegre: Editora Alcance, 1992. v. 1. 82 p.
- RUSSOMANO, T.;** CHATKIN, M.; CHATKIN, A. Três Crianças Falam de Astronomia. (*Three Children Talk About Astronomy*) 1. ed. Rio de Janeiro: Editora Freitas Bastos S.A., 1976. v. 1. 43 p.

## CHAPTERS in BOOKS

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- PLETSE, V;** **RUSSOMANO, T.** Research in Microgravity in Physical and Life Sciences: An Introduction to Means and Methods. In: Vladimir Pletser, Thais Russomano. (Org.). Preparation of Space Experiments. 40ed.London: IntechOpen, 2020, v. 1, p. 1-20.
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- RUSSOMANO, T.** Life Support Systems for Manned Mars Missions, Overview. In: Erik Seedhouse; D. Shaler. (Org.). Handbook of Life Support Systems for Spacecraft and Extraterrestrial Habitats. 1ed.NY, USA: Springer International Publishing, 2016, v., p. 1-12.
- RUSSOMANO, T.** What medical skills will the crew need to survive and ultimately thrive on Mars? Improvisation and Exploration. In: Norbert Kraft, James R Kass, Raye Kass. (Org.). Mars One - Humanity's Next Great Adventure. 1ed.Dallas, Texas, EUA: BenBella Books Inc, 2016, v. 1, p. 23-36.
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- PORTO, F; GURGEL, J. L; **RUSSOMANO, T;** FARNINATTI, P. Moiré Topography: From Takasaki Till Present Day. In: InTech - Open Access Publisher. (Org.). Recent Advances in Scoliosis - Intech Publication. 1ed.: Intech, 2012, v. 1, p. 103-118.

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## PROFESSIONAL ASSOCIATIONS/COMMITTEES/COMPANIES – Past & Present

Co-Founder and CEO, InnovaSpace Ltd, UK  
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IAA Board of Trustees  
TelenetHealth Inc – Board member  
International Space Medicine Consortium Inc USA – Scientific Director  
Asociacion Iberoamericana de Medicina Aeroespacial, Mexico.  
Brazilian Aerospace Society, Brazil  
Honorary Member Slovenian Aerospace Medical Association, Slovenia  
IAA – International Academy of Astronautics, Space Life Sciences Committee  
International Academy of Aviation and Space Medicine, Europe  
Advisory Board of the Envihab, German Aerospace Centre  
International Space Committee ISO/TC 20/SC 14/WG 6 - Space systems - Man- Life activity support systems and equipment integration in space flight.  
Honorary member of the Philippine Academy of Aerospace Medicine & Biomedical Engineering  
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Aerospace Medical Association, USA  
Former member of the IAA – Medical Guidelines for crew members - Committee  
Former member of the IAA - Study Group in Space Tourism  
Former member of the Educational and Training Committee of the Aerospace Medical Association, USA  
Former member of the Educational Committee of the International Astronautical Federation  
Former member of the International Astronautical Federation's Committee on the Contribution of Space Related Research to Advances in the Field of Medicine

## MEMBER OF INTERNATIONAL WORKING GROUPS

2013 International Academy of Astronautics (IAA), Commission 2 on Space Life Sciences  
2013 International Academy of Astronautics (IAA), Space Life Sciences in the Exploration Era  
2011 International Space Committee ISO/TC20/SC14/WG6, Space Systems – Man-Life Activity Support Systems and Equipment Integration in Space Flight  
2011 International Academy of Astronautics (IAA), Medical Safety Guidelines for Space Crews Involved in Short-Duration Commercial Orbital Flight Operations  
2010 Advisory Board of Envihab, German Aerospace Centre  
2010 International Academy of Astronautics (IAA), Space Life Sciences Committee  
2010 International Academy of Astronautics (IAA), Space Tourism Committee  
2008 National eHealth Policies. Promoted by The World Health Organisation & The Rockefeller Foundation.  
2008 Commission 2 - International Academy of Astronautics Study Group –eLearning in space life science  
2006/2007 Medical Safety Guidelines for Passengers on Commercial Orbital Space Flights. Promoted by International Academy of Astronautics Study Group, Commission 2 – Life Sciences. 2006/2007  
2005 Space Flight Issues in the 21st Century: Cardiovascular and Fluid Shift Issues. Bellagio, Italy. Promoted by The Rockefeller Foundation & The Mayo Clinic, USA

## LANGUAGES

Portuguese Fluent, native language  
Spanish Fluent in comprehension, speech, reading and writing  
English Fluent in comprehension, speech, reading and writing  
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## REFERENCES

Available upon request