


## Resume and Academic Profile

<b>DETAILS AND PHOTO</b>	 <p style="text-align: center;"><b>Assoc. Prof. Roberto Sabatini</b>  FRIN, SMAIAA, SMIEEE, MRAeS, MCGI  School of Aerospace, Mechanical &amp; Manufacturing Engineering  RMIT University - Building 57, Level 3, Office 36  115 Queensberry Street, Carlton, VIC 3053, Australia  Telephone: 61 3 992 58015  Mobile: 0457 126 495  E-mail: <a href="mailto:roberto.sabatini@rmit.edu.au">roberto.sabatini@rmit.edu.au</a>  <a href="http://www.rmit.edu.au/aeromecheng">http://www.rmit.edu.au/aeromecheng</a></p>
<b>KEYWORDS</b>	Aerospace Navigation and Guidance Systems, Satellite Navigation, Unmanned Aircraft Systems, Avionics Sensors and Integrated Systems, Air Traffic Management Systems, Aerospace Systems and Software Engineering, Spacecraft Electronic Systems, Satellite Communications, Aeronautical Communication Systems, Electro-Optics, Guided Weapon Systems, RADAR and LIDAR, Multisensor Data Fusion, Aircraft Data Networks and Integrated Modular Avionics.
<b>BACKGROUND</b>	<p>Dr Roberto Sabatini has over 20 years of professional experience in Research, Development, Test and Evaluation (RDT&amp;E) of Aerospace Electronic Systems for Civil and Military applications. He is an expert in the design, verification and certification of advanced Avionics and Air Traffic Management (ATM) Systems, with specific hands-on competence in Navigation, Communications and Surveillance Systems for Unmanned Aerial System (UAS) applications. Dr Sabatini graduated with a PhD in Avionics Sensor Systems from the Department of Aerospace, Power and Sensors of Cranfield University (2003). He also obtained a third level advanced degree in Astronautical Engineering summa cum laude from Rome University "La Sapienza", with a thesis on GNSS and Integrated Navigation/Guidance Systems (2006), and an MSc in Navigation Technology from the University of Nottingham (1997). After completing formal Engineering Officer's training in the Italian Air Force (Engineering Commissioned Officer), he received the qualifications of Aerosystems Graduate from the Royal Air Force (UK) and of Flight Test Engineer (Avionic Systems) from the Italian Air Force (1994). Additionally, he holds an Aircraft Private Pilot License, an Airborne Parachutist License, and the military qualifications of NATO Electronic Warfare Officer and Weapons Employment Officer (Air).</p> <p>Dr Roberto Sabatini served several years as a Military Officer (Lieutenant Colonel), Experimental Flight Test Engineer and Acquisition Manager in the Air Force/MoD and in the US Department of Defence (Joint Program Executive Office for Joint Tactical Radio System - MIDS International Program Office). During his carrier, Dr Roberto Sabatini was responsible for numerous research, development and flight test programs, including a variety of Avionics/CNS Systems (communications, navigation, identification, electro-optics and radars), as well as guided weapon systems for different classes of airplanes, helicopters and UAVs. Before joining RMIT University, Associate Professor Sabatini was a member of Cranfield University's task-force working to the EU Clean Sky Joint Technology Initiative for Aeronautics and Air Transport (Co-Principal Investigator and Technical Program Manager of the Systems for Green Operations Integrated Technology Demonstrator – Greener Aircraft Trajectories Under ATM Constraints) and led the university research team working to the development of future Air Traffic Management Systems for SESAR and NextGen. Dr Sabatini was awarded several professional and scientific recognitions both nationally and internationally. These included various Italian and US Service Achievement Awards, Military Decorations and the NATO Research and Technology Organization (RTO) Scientific Achievement Award. Dr Roberto</p>

	<p>Sabatini is the author and co-author of more than 200 scientific papers, technical volumes, textbooks and project reports on UAS navigation and guidance, CNS/ATM and aerospace sensor systems, focusing on various aspects of design, integration, verification and certification. Dr Sabatini is a Fellow of the Royal Institute of Navigation, a Senior Member of the American Institute of Aeronautics and Astronautics (AIAA), a Senior Member of the Institute of Electrical and Electronics Engineers (IEEE) and a Life Member of the Armed Forces Communications and Electronics Association (AFCEA). Additionally, he is a Member of the Royal Aeronautical Society (RAeS), the American Institute of Navigation (ION), the Society of Flight Test Engineers (SFTE) and the NATO Research and Technology Organization (RTO).</p>
<p><b>CURRENT ACTIVITIES</b></p>	<p>Dr Sabatini's research interests include Avionics/ATM and UAS Systems Design, Integration, Test and Evaluation. The current research focus is Aircraft Trajectory Optimisation, Air Traffic Flow Management, UAS Sense-and-Avoid, Fault-Tolerant Avionics Architectures, Airborne LIDAR, GNSS Integrity Augmentation and Multi-Sensor Fusion for Mission- and Safety-Critical applications.</p> <p>Dr Sabatini's teaching responsibilities comprise planning, developing and delivering courses on Avionics &amp; CNS/ATM Systems and on Sustainable Aviation Engineering (both post-graduate and undergraduate level). These include lectures on Aerospace Systems and Software Engineering, Global Navigation Satellite Systems (GNSS), Aerospace Sensor and Integrated Systems, CNS/ATM Systems, Multi-sensor Data Fusion and Experimental Flight Testing. He also supervises various research projects in the field of UAS, Avionics and ATM Systems (PhD students and final-year Master/Bachelor students).</p>
<p><b>SELECTED AND RECENT PUBLICATIONS</b></p>	<ol style="list-style-type: none"> <li>1. <b>R. Sabatini</b>, C. Bartel, A. Kaharkar, T. Shaid, S. Ramasamy, "Navigation and Guidance System Architectures for Small Unmanned Aircraft Applications." International Journal of Mechanical, Industrial Science and Engineering, Vol. 8, No. 4, pp. 733-752. International Science Index. April 2014.</li> <li>2. <b>R. Sabatini</b>, A. Gardi and M. A. Richardson, "LIDAR Obstacle Warning and Avoidance System for Unmanned Aircraft." International Journal of Mechanical, Industrial Science and Engineering, Vol. 8, No. 4, pp. 62-73. International Science Index. April 2014.</li> <li>3. <b>R. Sabatini</b>, T. Moore, C. Hill, "A Novel GNSS Integrity Augmentation System for Civil and Military Aircraft." International Journal of Mechanical Science and Engineering, Vol. 7, No. 12, pp. 1433-1449. International Science Index 84, 2013. Available online at: <a href="http://waset.org/publications/9996882">waset.org/publications/9996882</a>. December 2013.</li> <li>4. <b>R. Sabatini</b>, M. A. Richardson, M. Cantiello, M. Toscano, P. Fiorini, "A Novel Approach to Night Vision Imaging Systems Development, Integration and Verification in Military Aircraft." Aerospace Science and Technology, Vol. 31, Issue 1, pp. 10-23. DOI: 10.1016/j.ast.2013.08.021. December 2013.</li> <li>5. <b>R. Sabatini</b>, S. Ramasamy, A. Gardi and L. Rodriguez Salazar, "Low-cost Sensors Data Fusion for Small Size Unmanned Aerial Vehicles Navigation and Guidance." International Journal of Unmanned Systems Engineering, Vol. 1, No. 3, pp. 16-47. DOI: 10.14323/ijuseng.2013.11. August 2013.</li> <li>6. M. Sangam, <b>R. Sabatini</b>, S. Ramasamy and A. Gardi, "Advanced Flight Management System for an Unmanned Reusable Space Vehicle." International Journal of Unmanned Systems Engineering, Vol. 1, No. 3, pp. 48-68. DOI: 10.14323/ijuseng.2013.12. August 2013.</li> <li>7. <b>R. Sabatini</b>, A. Kaharkar, C. Bartel and T. Shaid, "Carrier-phase GNSS Attitude Determination and Control for Small UAV Applications." Journal of Aeronautics and Aerospace Engineering, Vol. 2, No. 4. DOI: 10.4172/2168-</li> </ol>

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8. **R. Sabatini**, T. Moore, C. Hill. "A New Avionics Based GNSS Integrity Augmentation System: Part 2 – Integrity Flags." *Journal of Navigation*, Vol. 66, No. 4, pp. 511-522. DOI: 10.1017/S0373463313000143. June 2013.
9. **R. Sabatini**, M.A. Richardson and E. Roviario, "Development and Flight Test of an Avionics LIDAR for Helicopter and UAV Low-Level Flight." *Journal of Aeronautics and Aerospace Engineering*, Vol. 2, No. 4. DOI: 10.4172/2168-9792.1000114. May 2013.
10. **R. Sabatini**, M.A. Richardson, C. Bartel, A. Kaharkar, T. Shaid, L. Rodriguez and A. Gardi, "A Low-cost Vision Based Navigation System for Small Size Unmanned Aerial Vehicle Applications." *Journal of Aeronautics and Aerospace Engineering*, Vol. 2, No. 3. DOI: 10.4172/2168-9792.1000110. May 2013.
11. **R. Sabatini**, T. Moore and C. Hill. "A New Avionics Based GNSS Integrity Augmentation System: Part 1 – Fundamentals." *Journal of Navigation*, Vol. 66, No. 3, pp. 363-383. DOI: 10.1017/S0373463313000027. May 2013.
12. **R. Sabatini** and M.A. Richardson. "Novel Atmospheric Extinction Measurement Techniques for Aerospace Laser System Applications." *Infrared Physics & Technology*, Vol. 56, pp. 30-50. DOI: 10.1016/j.infrared.2012.10.002. January 2013.
13. **R. Sabatini**, C. Bartel, A. Kaharkar, T. Shaid, S. Ramasamy, "A Novel Low-cost Navigation and Guidance System for Small Unmanned Aircraft Applications." Paper presented at the WASET International Conference on Aeronautical and Astronautical Engineering (ICAAE 2013). Melbourne (Australia), December 2013.
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17. D. Pisani, D. Zammit-Mangion and **R. Sabatini**, "City-Pair Trajectory Optimization in the Presence of Winds using the GATAC Framework." Paper presented at the AIAA Guidance, Navigation & Control (GNC) Conference 2013. Boston, Massachusetts (USA), August 2013.
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19. S. Ramasamy, **R. Sabatini**, Y. Liu, A. Gardi, L. Rodriguez Salazar. "A Novel Flight Management System for SESAR Intent Based Operations." Paper presented at the European Navigation Conference 2013 (ENC 2013). Vienna (Austria), April 2013.
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23. L. Rodriguez, **R. Sabatini**, A. Gardi and S. Ramasamy. "A Novel UAV Sense and Avoid System Based on Low-Cost Navigation and Tracking Sensors." Paper presented at the Conference Avionics Europe 2013 – Tackling the Challenges in Avionics: Single Sky Many Platforms. Munich (Germany), February 2013.
24. **R. Sabatini**, T. Moore and C. Hill. "A Novel Avionics-Based GNSS Integrity Augmentation System for UAV Applications." Paper presented at the Royal Institute of Navigation (RIN) Conference on Unmanned Air Vehicles - Sharing the Airspace. Teddington (UK), February 2013.
25. **R. Sabatini**, C. Bartel, A. Kaharkar and T. Shaid. "Low-cost Vision Sensors and Integrated Systems for Unmanned Aerial Vehicle Navigation and Guidance." ARPN Journal of Systems and Software, ISSN: 2222-9833, Vol. 2, Issue 11, pp. 323-349. December 2012.
26. **R. Sabatini**, L. Rodríguez, A. Kaharkar, C. Bartel and T. Shaid." Carrier-phase GNSS Attitude Determination and Control System for Unmanned Aerial Vehicle Applications." ARPN Journal of Systems and Software, ISSN: 2222-9833, Vol. 2, Issue 11, pp. 297-322. December 2012.
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40. **R. Sabatini**, M.A. Richardson, H. Jia, and D. Zammit-Mangion. "Airborne Laser Systems for Atmospheric Sounding in the Near Infrared." Paper presented at the SPIE Photonics Europe 2012 Conference. Brussels (Belgium), March 2012.
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2009 organized by the Institute of Electrical and Electronics Engineers (IEEE) and the Armed Forces Communications and Electronics Association (AFCEA). Boston, MA (USA), March 2009.

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51. **R. Sabatini**, L. Aulanier, G. Marinoni, M. Martinez, B. Pour and H. Rutz. "Multifunctional Information Distribution System (MIDS) Low Volume Terminal Development and Integration Programs towards Network Centric Allied/Coalition Operations." Paper presented at the NATO RTO IST-083 Symposium on "Military Communications with a Special Focus on Tactical Communications for Network Centric Operations." Prague (Czech Republic), March 2008.
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