

## Tapio Saarelainen



Major Tapio Saarelainen received his M.Sc. in Military Technology in 2006 from the National Defence University. He is a career officer of Finnish Defence Forces since 1990. He received his PhD in Military Science in 2013 from the National Defence University on "Improving the Performance of a Dismounted Future Force Warrior by Means of C<sup>4</sup>I<sup>2</sup>SR", ISBN 978-951-25-2457-0.

Currently, he serves in the Army Academy as a Section Chief in the Research and Development Division in Lappeenranta. He has been participating in projects related to the work aimed at improving the overall performance of a Future Force Warrior.

### Research interests and achievements

His research interests concern the methods of gathering Situational Awareness (SA) data and the means to improve the overall performance of a Future force Warrior by enhanced Common Operational Picture (COP). This has involved examining methods of gaining location data of own troops to minimize fratricide and collateral damage. His present studies include discussing systems applicable in ensuring a sustained reliable chain of Command and Control in the increasingly complex battlespace.

### IARIA Publications:

1. Tapio Saarelainen and Jorma Jormakka, "C4I2-Tools for the future battlefield Warrior", Proceedings of 8<sup>th</sup> European Conference on Information Warfare and Security, Lisbon, Portugal 6 – 7 July 2009, pp.216 – 223.
2. Tapio Saarelainen and Jorma Jormakka, Computer-Aided Warriors for Future Battlefields, Proceedings of 8<sup>th</sup> European Conference on Information Warfare and Security, Lisbon, Portugal 6 – 7 July 2009, pp.223 – 233.
3. Tapio Saarelainen, Enhancing SA by Means of Combat-ID to Minimize Fratricide and Collateral Damage in the Theatre, The Sixth International Conference on Digital Telecommunications, (ICDT2011), Budapest, 17 – 22.4.2011, Hungary. The Best Paper Award.
4. Tapio Saarelainen, Targeting Situational Awareness beyond the Event Horizon by Means of Sensor Element Munition, ICDT 2012, The Seventh International Conference on Digital Telecommunications, ISBN: 978-1-61208-193-9, pp.8 – 14.
5. Tapio Saarelainen, Modeling War as a Business Process with the Assistance of Service Oriented Architecture, ICDT 2014: The Ninth International Conference on Digital Telecommunications, pp. 1 – 7, ISBN: 978-1-61208-316-2.

### Other Publications:

1. Tapio Saarelainen, White Force Tracking, Journal of Communications and Computer, vol 9, Number 1, January 2012, David Publishing Company, ISSN 1548-7709 (print) ISSN 1930-1553 (online), pp. 113 – 121.
2. Tapio Saarelainen, Jorma Jormakka, Interfacing collaboration and command tools for crises management military command and control systems, J. of Electronic Security and Digital Forensics, 2010 Vol.3, No.3, pp.249 - 264.
3. Tapio Saarelainen and Jorma Jormakka, Collaboration and Command Tools for Crises Management, 6<sup>th</sup> International Conference, ICGS3 2010, Braga, Portugal, September 2010 Proceedings, ISBN 978-3-642-15716-5, pp. 28 – 38.
4. Tapio Saarelainen, Free Space Optics in the use of the Future Force Warriors, Journal of Communications and Computer, vol 9, Number 2, February 2012, David Publishing Company, ISSN 1548-7709 (print) ISSN 1930-1553 (online) pp. 123 – 133.
5. Tapio Saarelainen and Jussi Timonen, Tactical Management in near real-time Systems, IEEE

International Multi-Disciplinary Conference on Cognitive Methods in Situation Awareness and Decision Support, (CogSIMA2011), Miami Beach, Florida, 22. – 25.2.2011, U.S.A.

6. Jorma Jormakka, and Tapio Saarelainen, UAV-based Sensor Networks for Future Force Warriors, International Journal On Advances in Telecommunications, vol 4, numbers 1 and 2, 2011, ISSN: 1942-2601, pp. 58 – 71.

7. Tapio Saarelainen, Modeling War as a Business Process with the Assistance of Service Oriented Architecture, Journal of Communication and Computer (ISSN 1548-7709), in press.

#### **He has been an invited speaker in several conferences arranged by IQPC:**

1. Net Centric Operations Asia 2010, Singapore, October 2010 (as an invited international speaker).
2. IQPC Situation Awareness & Combat-ID Conference, United Kingdom, London, 16. – 18.10.2010 (as an invited international speaker).
3. Soldier Modernisation Asia 2011, Singapore, 12. – 19.3.2011, (speaker and session chair).
4. Belgium, Brussels, Net Centric Europe, 7. – 9.6.2011 (as an invited international speaker).
5. Interoperable Open Architecture, IOA, London 23. – 24.10.2013, (as an invited international speaker) topic: Examining War as a Business Process and applying Service Oriented Architecture.
6. Homeland Security Summit, Abu Dhabi 19. – 21.5.2014, topic: Software Defined Radio (SDR) and Tactical Networks in the Battlespace.

#### **IARIA Best Paper Awards**

1. Tapio Saarelainen and Jorma Jormakka, "C4I2-Tools for the future battlefield Warrior", Fifth International Conference on Digital Telecommunication, 13 – 19 June 2010, Athens, Greece.
2. Tapio Saarelainen, "Enhancing SA by Means of Combat-ID to Minimize Fratricide and Collateral Damage in the Theatre", The Sixth International Conference on Digital Telecommunications, (ICDT2011), Budapest, 17 – 22.4.2011, Hungary.

#### **IARIA Conference Activities**

1. ICDT2010, Session Chair, track ICDT5, 13 – 19 June 2010, Athens, Greece.
2. ECIW2010, Session Chair, track ICDT3, Portugal, Braga, August 2010
3. ICDT2011, Session Chair, track ICDT5, 16.-22.4.2011, Hungary, Budapest.
4. ICDT2014, Moderator, Panelist.

He has served as a peer-reviewer of several scientific articles for a number of years.

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