

Soggetto coordinatore	Dipartimento di Sistemi e Informatica Università di Firenze
Titolo del progetto	A railway automatic track warning system based on distributed personal mobile terminals.
Acronimo	ALARP
Descrizione del progetto	<p>The objective of the ALARP project is to study, design and develop an innovative more efficient Automatic Track Warning System (ATWS) to improve the safety of railway trackside workers.</p> <p>ALARP ATWS will be able to selectively inform the trackside workers about approaching trains on the track, maintenance events on power lines and/or safety equipment in the concerned tracks that may put at risk workers' safety (e.g. being hit by a train or by an electric shock) emergencies on tracks and tunnels nearby the workers (e.g. fires in a tunnel, toxic smoke, etc.), escape routes in case of emergencies; keep track of the status and localisation of the workers (and especially those at risk, not responding) and of the operating conditions of devices.</p>
TA/SG	
Riferimento Bando	FP7-SST-2008-RTD-1
Valore del progetto	€ 3.962.543,00
Pubblicazioni	<p>Capability: TA2.10 Sicurezza di rete TA: Comunicazioni/SG: ICT per la sicurezza</p> <ul style="list-style-type: none"> - J. Gronbaek, H. -. Schwefel, A. Ceccarelli and A. Bondavalli. "Improving Robustness of Network Fault Diagnosis to Uncertainty in Observations". <i>Network Computing and Applications (NCA), 2010 9th IEEE International Symposium on</i>. 2010. pp. 229 -232. - P. Ferrari, A. Flammini, S. Rinaldi, A. Bondavalli and F. Brancati. "Experimental Characterization of Uncertainty Sources in a Software-Only Synchronization System", <i>Instrumentation and Measurement, IEEE Transactions on</i>, Vol. 61, May, 2012, pp. 1512-1521. - A. Bondavalli, F. Brancati, A. Flammini and S. Rinaldi. "A Reliable and Self-Aware Clock for Reference Time Failure Detection in Internal Synchronization Environment". <i>IEEE International Workshop on Measurements and Networking (M&N 2011)</i>. 2011.

- P. Ferrari, A. Flammini, S. Rinaldi, A. Bondavalli and F. Brancati. "Evaluation of Timestamping Uncertainty in a Software-based IEEE1588 Implementation". *2011 IEEE Instrumentation and Measurement Technology Conference (I2MTC)*. 2011.

Capability: TA5.2 Sistemi ICT sicuri e resistenti agli attacchi (sicurezza del dato)

TA: Information processing and management/SG: ICT per la sicurezza

- M. Dixit, A. Casimiro, P. Verissimo, P. Lollini and A. Bondavalli. "Adaptare: Supporting automatic and dependable adaptation in dynamic environments", *To appear in ACM Transactions on Autonomous and Adaptive Systems*. 2012.
- P. Ferrari, A. Flammini, S. Rinaldi, A. Bondavalli and F. Brancati. "Improving robustness of the synchronization quality of IEEE1588 nodes". *Precision Clock Synchronization for Measurement Control and Communication (ISPCS), 2010 International IEEE Symposium on*. 2010. pp. 36 -41.

Capability: TA5.3 Piattaforme, architetture ed algoritmi per l'analisi in tempo reale di grandi volumi di dati (high performance computing)

TA: Information processing and management/SG: ICT per la sicurezza

- F. Brancati and A. Bondavalli. "Practical Aspects in Analyzing and Sharing the Results of Experimental Evaluation". *Reliable Distributed Systems, 2010 29th IEEE Symposium on*. 2010. pp. 328 -332.
- A. Ceccarelli, L. Vinerbi, L. Falai and A. Bondavalli. "RACME: a framework to support V&V and certification". In *Proc. of the 5th Latin-American Symposium on Dependable Computing (LADC 2011)*, Page(s): 116 – 125, São José dos Campos, Brazil, 25-29 April, 2011.

Capability: TA5.4 Metodologie e sistemi per il monitoraggio di grandi architetture di rete ICT al fine di rilevare anomalie, tentativi di accesso non autorizzato, incidenti

TA: Information processing and management/SG: ICT per la sicurezza

- A. Bondavalli, A. Ceccarelli and P. Lollini. "Architecting and Validating Dependable Systems: Experiences and Visions". *Architecting Dependable Systems VII*. 2010.
- L. Vinerbi, A. Bondavalli and P. Lollini. "Emergence: a new source of failures in complex systems". *Third International Conference on Dependability (DEPEND 2010)*. 2010.
- A. Bondavalli, A. Ceccarelli, L. Falai and M. Vadursi. "A New Approach and a Related Tool For Dependability Measurements on Distributed Systems", *IEEE Tran. on Instr. and Meas.*, Vol. 59.

2010, pp. 820-831.

- A. Bovenzi, F. Brancati, S. Russo and A. Bondavalli. "Towards identifying OS-level anomalies to detect Application Software Failures". *IEEE International Workshop on Measurements and Networking (M&N 2011)*. 2011.
- A. Bovenzi, F. Brancati, S. Russo and A. Bondavalli. "A Statistical Anomaly-Based Algorithm for On-line Fault Detection in Complex Software Critical Systems". *Computer Safety, Reliability, and Security*. Flammini et al eds. 2011. pp. 128-142.
- A. Bondavalli, F. Brancati, A. Ceccarelli and M. Vadursi. "Experimental Validation of a Synchronization Uncertainty-Aware Software Clock". *SRDS 2010*. 2010. pp. 245-254.
- M. Ficco, A. Daidone, L. Coppolino, L. Romano, A. Bondavalli. An event correlation approach for fault diagnosis in SCADA infrastructures. In Proceedings of the 13th European Workshop on Dependable Computing (EWDC '11), pages 15-20, Pisa, Italy, 2011.

Capability: TA2.6 Middleware, architetture di rete e comunicazione (Network Centric Communication), per l'integrazione di reti e sistemi eterogenei

TA: Comunicazioni/SG: Protezione dell'approvvigionamento, della generazione e della distribuzione di energia elettrica

TA: Comunicazioni/SG: Sicurezza del trasporto multimodale

- A. Ceccarelli, J. Gronbaek, L. Montecchi, H. P. Schwefel and A. Bondavalli. "Towards a Framework for Self-Adaptive Reliable Network Services in Highly-Uncertain Environments". *13th IEEE International Symposium on Object/Component/Service-Oriented Real-Time Distributed Computing Workshops (ISORCW 2010)*. 2010. pp. 184 -193.

Capability: TA2.9 Architetture di rete orientate al fast deployment

TA: Comunicazioni/SG: Sicurezza dei confini

- A. Ceccarelli, A. Bondavalli and M. Vieira. "A Testing Service for Lifelong Validation of Dynamic SOA." In *IEEE HASE 2011*. 2011.
- A. Ceccarelli, M. Vieira and A. Bondavalli. "A Service Discovery Approach for Testing Dynamic SOAs". *Object/Component/Service-Oriented Real-Time Distributed Computing Workshops (ISORCW), 2011 14th IEEE International Symposium on*. 2011. pp. 133-142.

	<p>Capability: TA4.7 Metodologie e strumenti per l'analisi del rischio e l'ottimizzazione costo/benefici basati su simulazione e modellistica analitica</p> <p>TA: Tecnologie per Crisis Management e per la Protezione di Persone, Asset e Infrastrutture/SG: Sicurezza Ferroviaria/SG: Protezione dell'approvvigionamento, della generazione e della distribuzione di energia elettrica</p> <ul style="list-style-type: none"> - L. Montecchi, P. Lollini and A. Bondavalli. "Towards a MDE Transformation Workflow for Dependability Analysis". <i>16th IEEE International Conference on Engineering of Complex Computer Systems (ICECCS 2011)</i>. 2011. - L. Montecchi, P. Lollini and A. Bondavalli. "Dependability Concerns in Model-Driven Engineering". <i>14th IEEE International Symposium on Object/Component/Service-Oriented Real-Time Distributed Computing Workshops (ISORCW 2011)</i>. 2011. - Bondavalli, P. Lollini and L. Montecchi. "Graphical formalisms for modeling critical infrastructures". In F. Flammini (ed), <i>Critical Infrastructure Security: Assessment, Prevention, Detection, Response</i>. Ashurst Lodge, Ashurst, Southampton, UK : WIT Press. 2012. pp. 57-73. - A. Bondavalli, O. Hamouda, M. Kaâniche, P. Lollini, I. Majzik and H. -. Schwefel. "The HIDE NETS Holistic Approach for the Analysis of Large Critical Mobile Systems", <i>IEEE Transactions on Mobile Computing</i>, Vol. 10, June, 2011, pp. 783 - 796. <p>Capability: TA1.6 Sistemi di localizzazione, navigazione e guida assistita TA: Sorveglianza & Situation Awareness/SG: Sicurezza dei confini</p> <ul style="list-style-type: none"> - A. Bondavalli, A. Ceccarelli, F. Gogaj, A. Seminatore and M. Vadursi. "Localization errors of low-cost GPS devices in railway worksite-like scenario". <i>M&N 2011</i>. 2011.
Curriculum	