

Assuring Software Safety in Industrial Automation Systems

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Abstract: Program analysis techniques have been used extensively to assure safe operation of software systems. Much of this work has been focused on 'general-purpose' languages like C, C++, Java etc. Industrial automation systems, on the other hand, typically use domain-specific, fourth generation languages. In order to use program analysis for these systems, one must take into account the different notations and semantics used by these languages and modify the existing analysis techniques accordingly.

In this talk, we will discuss the special considerations needed to apply program analysis for domain-specific languages and share some of our experiences in applying these techniques to the industrial automation domain.



Bio sketch of the Speakers: **Dr. Raoul Jetley** is a Principal Scientist with ABB Corporate Research, Bangalore. He has over 15 years of research experience in various research organizations across the globe. He has been part of several industry consortia and co-ordination groups, and has served on review panels for federal agencies like NSF, US FDA and NASA. Dr. Jetley received his doctorate degree in Computer Science from North Carolina State University. His areas of expertise include program analysis, formal methods and text analytics.



Dr. Sithu D Sudarsan leads the ABB India Corporate Software Research Team. He has over 25 years of research and development experience with leading national research and development agencies in India and US. His areas of specialization include Information Assurance, Network Security, Cyber Physical Systems, Sensor Networks, Safety Critical Systems, Semantic Mining, and Data Analytics. He is a recipient of several research grants in the area of information security. Before joining ABB in 2012, Dr. Sudarsan was with US Food and Drug Administration as a Visiting Scientist leading their Semantic Data Mining research and development program and received FDA's Outstanding Service Award for his contributions (2012). Dr. Sudarsan has a Ph. D. in Applied Computing from the USA and awarded Outstanding Ph. D. Graduate Award. He has over 90 publications/presentations to his credit. Prior to joining FDA, he was with CEDT, ERDCI, and CRL-BEL.