Information Technology Laboratory Seminar

Sponsored by
Software Diagnostic and Conformance Testing Division
and
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Room A362, Technology Bldg.
NIST
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Cleanroom Software Engineering for Developing High-reliability Software

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Cleanroom software engineering is a theory-based process for developing high reliability software under statistical quality control. The word cleanroom connotes avoidance of 'error' like 'dust" in a software production process. This methodology combines mathematics-based technologies for software specification, design, correctness verification, and statistical usage-based testing for objective certification of software fitness for use. Cleanroom project teams have reported substantial gains in productivity and quality. This seminar describes the Cleanroom technologies of incremental development, box structure specification and design, function-theoretic correctness verification, and statistical usage testing. It also discusses implementation processes and project results.

Richard Linger retired from IBM in 1994 and is now a Visiting Scientist at the Software Engineering Institute, Carnegie Mellon University. While at IBM, he co-developed the "cleanroom software engineering process." He was principal architect and development manager of IBM's first cleanroom-developed product, the COBOL Structuring Facility, where he introduced large-scale correctness verification, statistical testing, and developed technology for automatic reengineering. Mr. Linger has published extensively including two textbooks with a third in preparation. He is vice-president of the National Software Council, and a member of the ACM and the IEEE Computer Society.

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