# Panel: Reflection on 20 Years of Architecture

**Rick Kazman** 

Software Engineering Institute Carnegie Mellon

© 2012 Carnegie Mellon University

#### Copyright 2012 Carnegie Mellon University

This material is based upon work funded and supported by the Department of Defense under Contract No. FA8721-05-C-0003 with Carnegie Mellon University for the operation of the Software Engineering Institute, a federally funded research and development center.

#### **NO WARRANTY**

THIS CARNEGIE MELLON UNIVERSITY AND SOFTWARE ENGINEERING INSTITUTE MATERIAL IS FURNISHED ON AN "AS-IS" BASIS. CARNEGIE MELLON UNIVERSITY MAKES NO WARRANTIES OF ANY KIND, EITHER EXPRESSED OR IMPLIED, AS TO ANY MATTER INCLUDING, BUT NOT LIMITED TO, WARRANTY OF FITNESS FOR PURPOSE OR MERCHANTABILITY, EXCLUSIVITY, OR RESULTS OBTAINED FROM USE OF THE MATERIAL. CARNEGIE MELLON UNIVERSITY DOES NOT MAKE ANY WARRANTY OF ANY KIND WITH RESPECT TO FREEDOM FROM PATENT, TRADEMARK, OR COPYRIGHT INFRINGEMENT.

This material has been approved for public release and unlimited distribution except as restricted below.

The Government of the United States has a royalty-free government-purpose license to use, duplicate, or disclose the work, in whole or in part and in any manner, and to have or permit others to do so, for government purposes pursuant to the copyright license under the clause at 252.227-7013 and 252.227-7013 Alternate I.

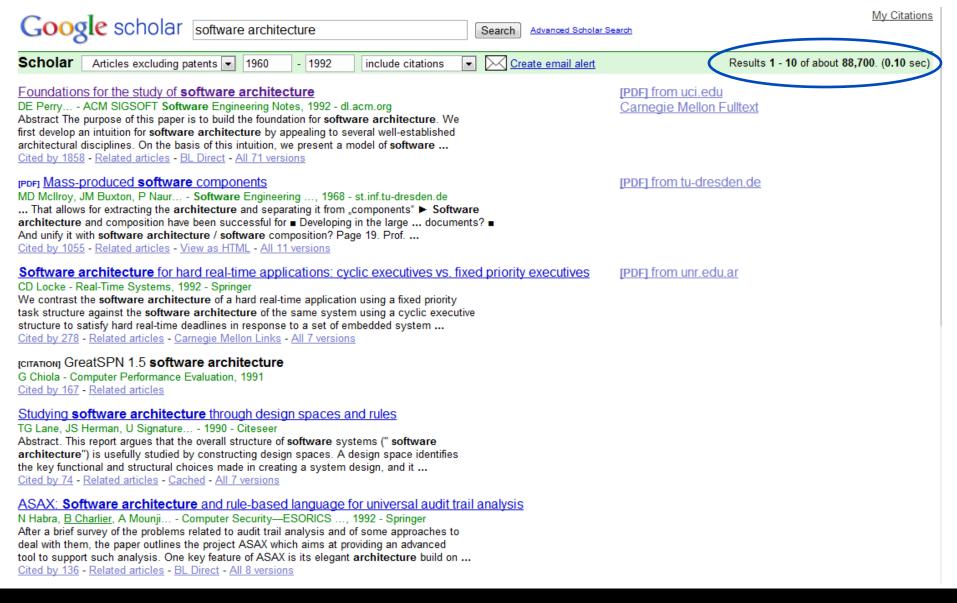
Internal use:\* Permission to reproduce this material and to prepare derivative works from this material for internal use is granted, provided the copyright and "No Warranty" statements are included with all reproductions and derivative works.

External use:\* This material may be reproduced in its entirety, without modification, and freely distributed in written or electronic form without requesting formal permission. Permission is required for any other external and/or commercial use. Requests for permission should be directed to the Software Engineering Institute at permission@sei.cmu.edu.

\* These restrictions do not apply to U.S. government entities.

© 2012 Carnegie Mellon University

### 20 Years Ago...





Software Engineering Institute

Carnegie Mellon © 2012 Carnegie Mellon University

3

### Today

Google scholar software architecture	Advanced Scholar Search My Citations
Scholar Articles excluding patents 🔹 anytime 💌 include citations 💌 🔀 Creat	Results 1 - 10 of about 2,380,000. (0.20 sec)
[BOOK] <u>Software architecture in practice</u> <u>L Bass</u> , P Clements 2003 - dl.acm.org Our goals for the first edition were threefold. First, we wanted to show through authentic case studies actual examples of software architectures solving real-world problems. Second, we wanted to establish and show the strong connection between an architecture and an <u>Cited by 4578</u> - <u>Related articles</u> - <u>Carnegie Mellon Links</u> - <u>Library Search</u> - <u>All 14 versions</u>	
<b>BOOKI</b> Software architecture: perspectives on an emerging discipline M Shaw 1996 - mendeley.com Abstract Good software developers often adopt one or several architectural patterns as strategies for system organization. But, although they use these patterns purposefully, they often use them informally and nearly unconsciously. This book organizes this substantial <u>Cited by 4201</u> - <u>Related articles</u> - <u>Cached</u> - <u>Carnegie Mellon Links</u> - <u>Library Search</u> - <u>All 10 versions</u>	
[BOOK] <b>Software</b> reuse: <b>architecture</b> , process and organization for business success I Jacobson, M Griss 1997 - mendeley.com Abstract Systematic <b>software</b> reuse is the most effective way to significantly improve <b>software</b> development. Many organizations adopt object technology expecting significant reuse. Without an explicit reuse process, they will not succeed. Companies succeeding with <u>Cited by 1266</u> - <u>Related articles</u> - <u>Cached</u> - <u>Carnegie Mellon Links</u> - <u>Library Search</u> - <u>All 7 versions</u>	<u>5</u>
Software architecture: The next step J Bosch - Software architecture, 2004 - Springer This position paper makes the following claims that, in our opinion, are worthwhile to discuss at the workshop. 1) The first phase of software architecture research, where the key concepts are components and connectors, has matured the technology to a level where industry <u>Cited by 193</u> - <u>Related articles</u> - <u>BL Direct</u> - <u>All 6 versions</u>	[PDF] from rug.nl
[BOOK] Pattern-oriented software architecture: Patterns for concurrent and networked D Schmidt, M Stal, H Rohnert 2000 - mendeley.com Abstract Designing application and middleware software to run in concurrent and networked environments is a significant challenge to software developers. The patterns catalogued in this second volume of Pattern-Oriented Software Architectures (POSA) form the basis of a <u>Cited by 1309</u> - <u>Related articles</u> - <u>Cached</u> - <u>Carnegie Mellon Links</u> - <u>Library Search</u> - <u>All 10 versions</u>	<u>ed objects</u>
рооку <u>Pattern-oriented software architecture</u> : On patterns and pattern languages F Buschmann, K Henney 2007 - books.google.com Software patterns have revolutionized the way developers think about how software is designed, built, and documented, and this unique book offers an in-depth look of what patterns are, what they are not, and how to use them successfully The only book to attempt <u>Cited by 4256</u> - <u>Related articles</u> - <u>Carnegie Mellon Links</u> - <u>Library Search</u> - <u>All 14 versions</u>	[PDF] from ispras.ru
Software Engineering Institute Ca	rnegie Mellon © 2012 Carnegie Mellon University 4

## **Today's Panelists**

Linda Northrop, SEI Doug Schmidt, Vanderbilt & SEI Ian Gorton, PNNL Robert Schwanke, Siemens Jeromy Carriere, X.com



**Carnegie Mellon**