Requirements Engineering Annotated Bibliography

Contents

1 Document History

Version 1.0 (20 January 2000) This document is intended to be an extensive annotated bibliography on Requirements Engineering. At present, it's a little thinly populated, and doesn't include any annotations! Eventually, we plan to include at least one paragraph in each section offering a guide to the papers and books listed in that section. I welcome all comments and suggestions for additions and corrections.

2 General textbooks

2.1 Student-oriented

A. Davis, Software requirements: objects, functions and states, Prentice Hall, 1993.
G. Kotonya and I. Sommerville, Requirements Engineering: Processes and Techniques, Wiley, 1998.
P. Loucopoulos and V. Karakostas, System Requirements Engineering, McGraw Hill, 1995.
L. A. Macaulay, Requirements Engineering, Springer Verlag, 1996.
R. J. Wieringa, Requirements Engineering: Frameworks for Understanding, Wiley, 1996.
Flynn, D., Information Systems Requirements: Determination and Analysis, McGraw Hill, 1992
S. Roberston and J. Robertson, Mastering the Requirements Process: Addison-Wesley, 1999.

2.2 Practitioner-oriented

S. J. Andriole, Managing Systems Requirements: Methods, Tools, and Cases, McGraw-Hill, 1996.
D. C. Gause and G. M. Weinberg, Exploring Requirements: quality before design, Dorset House, 1989.
D. C. Gause and G. M. Weinberg, Are Your Lights On?: How to Figure Out What the Problem Really Is, Dorset House, 1990.
J. O. Grady, System Requirements Analysis, McGraw Hill, 1993.
I. S. Graham, Requirements Engineering and Rapid Development: A Rigorous, Object-Oriented Approach, Addison-Wesley, 1998.
B. L. Kovitz, Practical Software Requirements; A Manual Of Content And Style, Manning Publications, 1998

K. L. McGraw and K. Harbison, User-Centered Requirements: The Scenario-Based Engineering Process, Lawrence Erlbaum Associates, 1997.
J. Robertson and S. Robertson, The Complete Systems Analysis, Dorset House, 1998.
G. Schneider and J. P. Winters, Applying Use Cases: A Practical Guide, Addison-Wesley, 1998.
I. Sommerville and P. Sawyer, Requirements Engineering: A Good Practice Guide, Wiley, 1997.
R. Stevens, K. Jackson, P. Brook, and S. Arnold, Systems Engineering: Coping with Complexity, Prentice Hall 1998.

2.3 Collections of Readings

R. H. Thayer and M. Dorfman (eds.), Software Requirements Engineering, Second Edition, IEEE Computer Society Press, 1997.
J. Goguen, and M. Jirotka (Eds.), Requirements Engineering: Social and Technical Issues, Academic Press, 1994.

3 Specific Topics in RE

3.1 General and Introductory material

3.1.1 Context for RE - Software Engineering

Fred Brooks, “The Mythical Man-Month”, Addison-Wesley, 1975.
W. S. Humphrey, “A Discipline for Software Engineering”, Addison-Wesley, 1995.
T. DeMarco, "Why Does Software Cost So Much?", Dorset House, 1995.
M. A. Cusumano & R. W. Selby, “Microsoft Secrets : How the World's Most Powerful Software Company Creates Technology, Shapes Markets, and Manages People”, Free Press, 1995.
R. S. Pressman, Software Engineering: A Practitioner's Approach, McGraw Hill, 1996.
C. Ghezzi, M. Jazayeri, and D. Mandrioli, Fundamentals of Software Engineering, Prentice Hall, 1991
B. Blum, Beyond Programming. Oxford University Press, 1996.
B. W. Boehm, Software Engineering Economics. Englewood Cliffs, NJ: Prentice-Hall, 1981.
A. Endres, “An Analysis of Errors and Their Causes in System Programs,” in Transactions on Software Engineering, vol. 1: IEEE Computer Society Press, 1975, pp. 140-149.
T. Nakajo and H. Kume, “A Case History Analysis of Software Error Cause-Effect Relationships,” Transactions on Software Engineering, vol. 17, pp. 830-838, 1991.
B. Nuseibeh, “Ariane 5: Who Dunnit?,” Software, vol. 14, pp. 15-16, 1997.

3.1.2 Context for RE - Systems Engineering

Stevens, R., Jackson, K., Brook, P., Arnold, S., Systems Engineering: Coping with Complexity, Prentice Hall, 1998.
R. Carter, J. Martin, B. Mayblin, and M. Munday, “Systems, Management and Change: A Graphic Guide,”. London: Paul Chapman Publishing/Harper and Row, 1984.

3.1.3 Approaches to RE

M. Jackson, Software Requirements and Specifications: A lexicon of Practice, Principles and Prejudices, Addison Wesley, 1995.
P. Zave, “Classification of Research Efforts in Requirements Engineering,” Computing Surveys, vol. 29, pp. 315-321, 1997.

A. Finkelstein, “Requirements Engineering: an overview,” presented at 2nd Asia-Pacific Software Engineering Conference (APSEC'93), Tokyo, Japan, 1993.

3.2 Foundations (selected readings in related disciplines)

3.2.1 Linguistics

J. F. M. Burg, Linguistic Instruments in Requirements Engineering, IOS Press, 1997

3.2.2 Logic & Formal Methods

R. Kowalski, Logic for Problem Solving. North-Holland, 1979

C.A.R. Hoare, Communicating Sequential Processes, Prentice-Hall, 1985

S. Abramsky, D. Gabbay, and T. Maibaum, “Handbook of Logic in Computer Science Vol 1: Background: Mathematical Structures,” : Clarendon Press, 1992.

3.2.3 Usability and HCI

Newman, W. M. and Lamming, M. G. "Interactive System Design". Addison-Wesley 1995.

McGraw, K., Harbison, K., User-Centred Requirements: The Scenario-Based Engineering Process, Lawrence Erlbaum Associates, 1997

H. Beyer, K. Holtzblatt, Contextual Design. Morgan Kaufmann, 1998.

A. Dix, J. Finlay, G. Abowd, and R. Beale, “Human-Computer Interaction,” , 2nd Edition ed: Prentice Hall, 1998.

P. Johnson, Human-Computer Interaction: psychology, task analysis and software engineering: McGraw-Hill, 1992.

3.2.4 Computer-Supported Collaborative Work

S. M. Easterbrook, “CSCW: Cooperation or Conflict?,” in Computer Supported Cooperative Work, D. Diaper and C. Sanger, Eds. London: Springer-Verlag, 1993, pp. 211.

3.2.5 Software Architecture

B.W. Lampson, M. Paul, and H.J. Siegert (Editors), Distributed Systems--Architecture and Implementation: An Advanced Course, Springer-Verlag, Lecture Notes in Computer Science #190, 1983.

M. Shaw, D. Garlan, “Software Architecture: Perspectives on an Emerging Discipline”. Prentice Hall 1996.

3.2.6 Social Sciences

J. Goguen and M. Jirotka, “Requirements Engineering: Social and Technical Issues,” Academic Press, 1994.

3.2.7 Philosophy

B. Blum, Beyond Programming. Oxford University Press, 1996.

K. R. Popper, “Campbell on the Evolutionary Theory of Knowledge.,” in Evolutionary Epistemology, Rationality and the Sociology of Knowledge, G. Radnitsky and W. W. Bartley, Eds.: La Salle, IL: Open Court, 1987, pp. 115-120.

K. R. Popper, Conjectures and Refutations: The Growth of Scientific Knowledge. New York: Basic Books, 1963.

T. S. Kuhn, The Structure of Scientific Revolutions. Urbana: University of Chicago Press, 1962.

3.3 Eliciting Requirements

3.3.1 Elicitation - general

K. Holtzblatt and H. R. Beyer, “Requirements Gathering: The Human Factor,” Communications of the ACM, vol. 38, pp. 31-32, 1995.

J. F. M. Burg, Linguistic Instruments in Requirements Engineering. Amsterdam: IOS Press, 1997.

H. Sharp, A. Finkelstein, and G. Galal, “Stakeholder Identification in the Requirements Engineering Process,” presented at Proceedings of Workshop on Requirements Egineering Processes (REP'99) - DEXA'99, Florence, Italy, 1999.

N. Maiden and G. Rugg, “ACRE: Selecting Methods For Requirements Acquisition,” Software Engineering Journal, vol. 11, pp. 183-192, 1996.

C. Potts, K. Takahashi, and A. Anton, “Inquiry-based requirements Analysis,” Software, vol. 11, pp. 21-32., 1993.

3.3.2 Soft Systems Analysis

P. B. Checkland, Systems Thinking, Systems Practice, J. Wiley & Sons, 1981.

J. Scholes, P. B. Checkland, Soft Systems Methodology in Action, Wiley, 1990.

Quintas, P. "Social Dimensions of Systems Engineering" Ellis Horwood, 1993.

Rosenhead, J. (ed.) (1989) Rational Analysis for a Problematic World: Problem Structuring Methods for Complexity, Uncertainty and Conflict. Wiley

3.3.3 Ethnographic Approaches

J. Goguen and C. Linde, “Techniques for Requirements Elicitation,” presented at Proceedings of First IEEE International Symposium on Requirements Engineering (RE'93), San Diego, California, USA, 1993.

S. Viller and I. Sommerville, “Social Analysis in the Requirements Engineering process: from ethnography to method,” presented at Proceedings of 4th International Symposium on requirements Engineering (RE'99), Limerick, Ireland, 1999.

C. Potts, “Requirements Models in Context,” presented at Proceedings of 3rd International Symposium on Requirements Engineering (RE'97), Annapolis, USA, 1997.

3.3.4 Knowledge Acquisition approaches

M. Shaw and B. Gaines, “Requirements Acquisition,” Software Engineering Journal, vol. 11, pp. 149-165, 1996.

3.3.5 Prototyping

A. Davis, “Operational Prototyping: A New Development Approach,” Software, vol. 9, pp. 70-78, 1992.

3.3.6 Goal-based Elicitation

A. Dardenne, A. v. Lamsweerde, and S. Fickas, “Goal-Directed Requirements Acquisition,” Science of Computer Programming, vol. 20, pp. 3-50, 1993.

A. v. Lamsweerde and E. Letier, “Integrating Obstacles in Goal-Driven Requirements Engineering,” presented at Proceedings of 20th International Conference on Software Engineering (ICSE-20), Kyoto, Japan, 1998.

3.3.7 Scenario & Use Cases

G. Schneider and J. Winters, “Applying Use Cases: a practical guide,” Addison-Wesley, 1998.

M. Jarke, Special issue on Scenario Management, vol. 24. Transactions on Software Engineering: IEEE Computer Society Press, 1998.

N. Maiden, “CREWS-SAVRE: Scenarios for Acquiring and Validating Requirements,” Automated Software Engineering, vol. 5, pp. 419-446, 1998.
McGraw, K., Harbison, K., User-Centred Requirements: The Scenario-Based Engineering Process, Lawrence Erlbaum Associates, 1997

3.4 Modeling and Analysing Requirements

3.4.1 Modeling Enterprises and Organisations

P. Loucopoulos and E. Kavakli, “Enterprise Modelling and the Teleological Approach to Requirements Engineering,” International Journal of Intelligent and Cooperative Information Systems, vol. 4, pp. 45-79, 1995.
E. Yu, “Towards Modelling and Reasoning Support for Early-Phase Requirements Engineering,” presented at Proceedings of the 3rd IEEE International Symposium on Requirements Engineering (RE'97), Annapolis, USA, 1997.
S. Greenspan and M. Feblowitz, “Requirements Engineering Using the SOS Paradigm,” presented at Proceedings of 1st International Symposium on Requirements Engineering (RE'93), San Diego, USA, 1993.
C. Potts, “Requirements Models in Context,” presented at Proceedings of 3rd International Symposium on Requirements Engineering (RE'97), Annapolis, USA, 1997.

3.4.2 Domain Modeling

M. Jackson and P. Zave, “Domain Descriptions,” presented at Proceedings of 1st International Symposium on Requirements Engineering (RE'93), San Diego, USA, 1993.
H. B. Reubenstein and R. C. Waters, “The Requirements Apprentice: Automated Assistance for Requirements Acquisition,” Transactions on Software Engineering, vol. 17, pp. 226-240, 1991.

3.4.3 Object Oriented Modeling and Analysis

D. G. Firesmith, Object-Oriented Requirements Analysis and Logical Design: A Software Engineering Approach, John Wiley & Sons, 1996.
G. Booch, Object-Oriented Analysis and Design With Applications, Addison-Wesley, 1994.
M. Fowler, Analysis Patterns: Reusable Object Models, Addison-Wesley, 1997.
P. Coad and E. Yourdon, Object-Oriented Analysis, Yourdon Press, 1991.
S. Shlaer and S. J. Mellor, Object-Oriented Systems Analysis: Modeling the World in Data, Yourdon Press, 1989.
J. Martin and J. J. Odell, Principles of Object-Oriented Analysis and Design, Prentice Hall, 1992.
Sully, P. "Modelling the World with Objects". Prentice Hall. 1993.

3.4.4 Structured Modeling and Analysis

E. Yourdon, "Modern Structured Analysis", Prentice Hall, 1988.
S. Robertson and J. Robertson, “The Complete Systems Analysis: The Workbook, The Textbook, the Answers,” : Dorset House, 1994.

3.4.5 Formal Modeling and Analysis

Heitmeyer, C. and Mandrioli, D. "Formal Methods for Real-time Computing" Wiley, 1996.
G. J. Holzmann, “The Model Checker Spin,” Transactions on Software Engineering, vol. 23, pp. 279-295, 1997.
Gehani, N. and McGettrick, A. D. (eds) "Software Specification Techniques". Addison Wesley 1986.
M. Saaltink, “The Z/EVES System,” presented at Proceedings of 19th International Conference on the Z Formal Method (ZUM), Reading, UK, 1997.

C. L. Heitmeyer, R. D. Jeffords, and B. G. Labaw, “Automated Consistency Checking of Requirements Specifications,” Transactions on Software Engineering and Methodology, vol. 5, pp. 231-261, 1996.

3.4.6 Modeling Non-Functional Requirements

Chung, L., Nixon, B., Yu, E. and Mylopoulos, J., Non-Functional Requirements in Software Engineering, Kluwer, 1999.

J. Mylopoulos, L. Chung, and B. Nixon, “Representing and Using Non-functional Requirements: a process-oriented approach,” Transactions on Software Engineering, vol. 18, pp. 483-497, 1992.

3.4.7 Safety Analysis

F. Modugno, N. G. Leveson, J. D. Reese, K. Partridge, and S. D. Sandys, “Integrating Safety Analysis of Requirements Specifications,” presented at Proceedings of the 3rd IEEE International Symposium on Requirements Engineering (RE'97), Annapolis, USA, 1997.

R. Lutz, G. Helmer, M. Moseman, D. Statezni, and S. Tockey, “Safety Analysis of Requirements for a Product Family,” presented at Proceedings of the 3rd IEEE International Conference on Requirements Engineering (ICRE '98), Colorado Springs, USA, 1998.

3.4.8 Security Analysis

L. Chung, “Dealing with Security Requirements During the Development of Information Systems,” presented at Proceedings of 5th International Conference on Advanced Information Systems Engineering (CAiSE'93),, Paris, France, 1993.

3.4.9 Reliability Analysis

D. D. Gobbo, M. Napolitano, J. Callahan, and B. Cukic, “Experience in Developing System Requirements Specification for a Sensor Failure Detection and Identification Scheme,” presented at 3rd High-Assurance Systems Engineering Symposium, Washington, DC, USA, 1998.

3.4.10 Usability Analysis

McGraw, K., Harbison, K., User-Centred Requirements: The Scenario-Based Engineering Process, Lawrence Erlbaum Associates, 1997

H. Beyer, K. Holtzblatt, Contextual Design. Morgan Kaufmann, 1998.

P. Johnson, Human-Computer Interaction: psychology, task analysis and software engineering: McGraw-Hill, 1992.

3.4.11 Animating/Executing Requirements Models

A. Gravell and P. Henderson, “Executing Formal Specifications Need Not Be Harmful,” Software Engineering Journal, vol. 11, pp. 104-110, 1996.

G. J. Holzmann, “The Model Checker Spin,” Transactions on Software Engineering, vol. 23, pp. 279-295, 1997.

3.4.12 Knowledge-based Analysis

S. Fickas and P. Nagarajan, “Critiquing Software Specifications: a knowledge based approach,” Software, vol. 5, 1988.

G. Antoniou, “The role of nonmonotonic representations in requirements engineering,” International Journal of Software Engineering and Knowledge Engineering, vol. 8, pp. 385-399, 1998.

3.4.13 Reuse of Requirements Models

N. A. M. Maiden and A. G. Sutcliffe, “Exploiting Reusable Specifications Through Analogy,” Communications of the ACM, vol. 34, pp. 55-64, 1992.

3.5 Communicating Requirements

3.5.1 Natural Language Specifications

V. Ambriola and V. Gervasi, "Processing Natural Language Requirements," presented at Proceedings of the 12th International Conference on Automated Software Engineering, Lake Tahoe, USA, 1997.

B. L. Kovitz, Practical Software Requirements: A Manual of Contents & Style: Manning, 1999.

3.5.2 Logic-based Specification Languages

G. Antoniou, "The role of nonmonotonic representations in requirements engineering," International Journal of Software Engineering and Knowledge Engineering, vol. 8, pp. 385-399, 1998.

3.5.3 Standards & Templates for Specifications

R. Thayer and M. Dorfman, "Software Requirements Engineering," , 2nd Edition ed: IEEE Computer Society Press, 1997.

B. L. Kovitz, Practical Software Requirements: A Manual of Contents & Style: Manning, 1999.

3.6 Agreeing Requirements

3.6.1 Requirements Validation

3.6.2 Negotiation and Conflict Resolution

W. N. Robinson and S. Volkov, "Supporting the Negotiation Life-Cycle," Communications of the ACM, vol. 41, pp. 95-102, 1998.

B. Boehm, P. Bose, E. Horowitz, and M. J. Lee, "Requirements Negotiation and Renegotiation Aids: A Theory-W Based Spiral Approach," presented at Proceedings of the 17th International Conference on Software Engineering (ICSE-17), Seattle, USA, 1995.

3.6.3 Comparing and Prioritizing Requirements

J. R. Hauser and D. Clausing, "The House of Quality," The Harvard Business Review, pp. 63-73, 1988.

3.7 Evolving Requirements

3.7.1 Managing Change

S. A. Bohner and R. S. Arnold, "Software Change Impact Analysis," : IEEE Computer Society Press, 1996.

3.7.2 Managing Inconsistency

C. Ghezzi and B. Nuseibeh, "Guest Editorial - Managing Inconsistency in Software Development," Transactions on Software Engineering, vol. 24, pp. 906-907, 1998.

3.8 Integrated Requirements Processes

3.8.1 Requirements Process Models

K. Pohl, Process-Centered Requirements Engineering, Research Studies Press, 1996.

W. Swartout and R. Balzer, "On the Inevitable Intertwining of Specification and Implementation," Communications of the ACM, vol. 25, pp. 438-440, 1982.

M. Goedicke and B. Nuseibeh, “The Process Road Between Requirements and Design,” presented at Proceedings of 2nd World Conference on Integrated Design and process Technology (IDPT'96), Austin, Texas, USA, 1996.

3.8.2 Method Engineering and Meta-modeling

S. Brinkkemper and S. Joosten, “Editorial: Method Engineering and Meta-modelling,” Information and Software Technology, vol. 38, pp. 259, 1996.

3.8.3 Viewpoints-based RE Processes

A. Finkelstein and I. Sommerville, “The Viewpoints FAQ: Editorial - Viewpoints in Requirements Engineering,” Software Engineering Journal, vol. 11, pp. 2-4, 1996.

B. Nuseibeh, J. Kramer, and A. C. W. Finkelstein, “A Framework for Expressing the Relationships Between Multiple Views in Requirements Specification,” Transactions on Software Engineering, vol. 20, pp. 760-773, 1994.

3.8.4 RE Tools & Environments

QSS, “DOORS,” Quality Systems and Software http://www.qss.co.uk/, 1999.

Rational, “Requisite Pro,” Rational Corporation http://www.rational.com, 1999.

3SL, “CRADDLE,” Structured Software Systems Ltd. http://www.threesl.com/, 1999.