Process Monitoring

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Chapter 4
Industrial Monitoring Review

Process Monitoring

Chapter Description

- Aims
  - Analyze the current progression of industrial monitoring application.
- Expected Outcomes
  - Conduct a critical review of the current industrial monitoring issues particularly on the MSPM extensions.
- Other related Information

Subtopics

4.2 Hybrid Monitoring System

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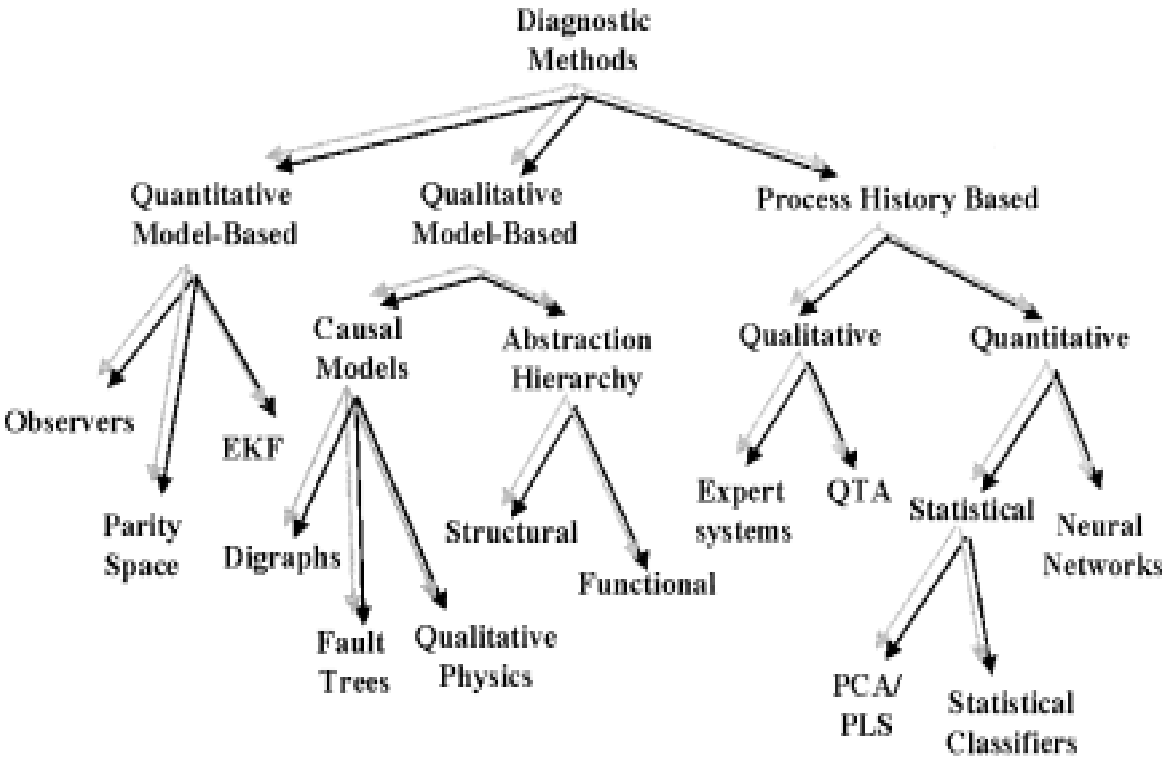

Venkatasubramanian et al., 2003a

4.2 Hybrid Monitoring System

	Observer	Digraphs	Abstraction hierarchy	Expert systems	QTA	PCA	Neural networks
Quick detection and diagnosis	✓	?	?	✓	✓	✓	✓
Isolability	✓	x	x	✓	✓	✓	✓
Robustness	✓	✓	✓	✓	✓	✓	✓
Novelty identifiability	?	✓	✓	x	?	✓	✓
Classification error	x	x	x	x	x	x	x
Adaptability	x	✓	✓	x	?	x	x
Explanation facility	x	✓	✓	✓	✓	x	x
Modelling requirement	?	✓	✓	✓	✓	✓	✓
Storage and computation	✓	?	?	✓	✓	✓	✓
Multiple fault identifiability	✓	✓	✓	x	x	x	x

4.2 Hybrid Monitoring System

Intelligent process monitoring by interfacing knowledge-based systems and multivariate statistical monitoring

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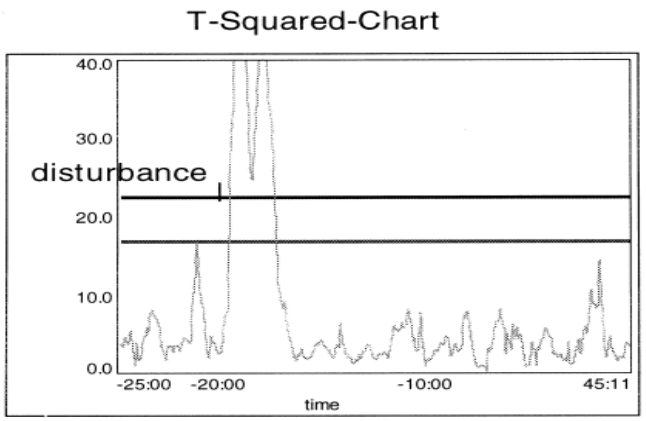

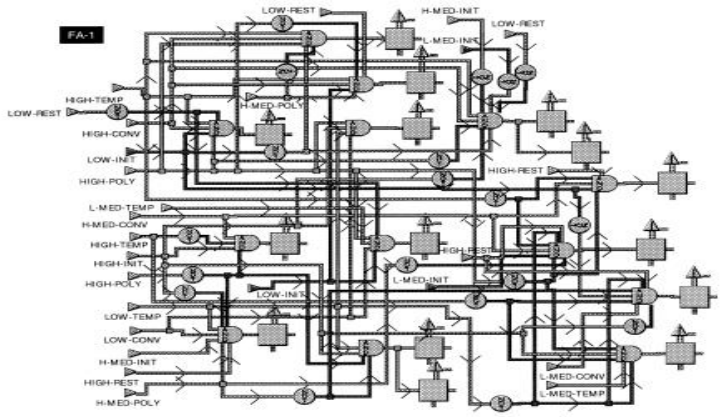

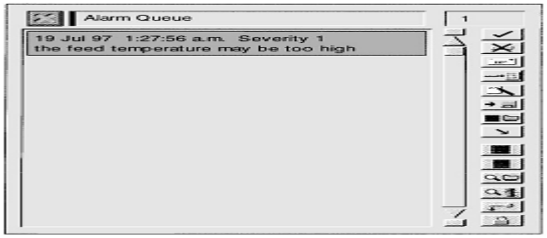

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4.2 Hybrid Monitoring System

Intelligent real-time performance monitoring and quality prediction for batch/fed-batch cultivations

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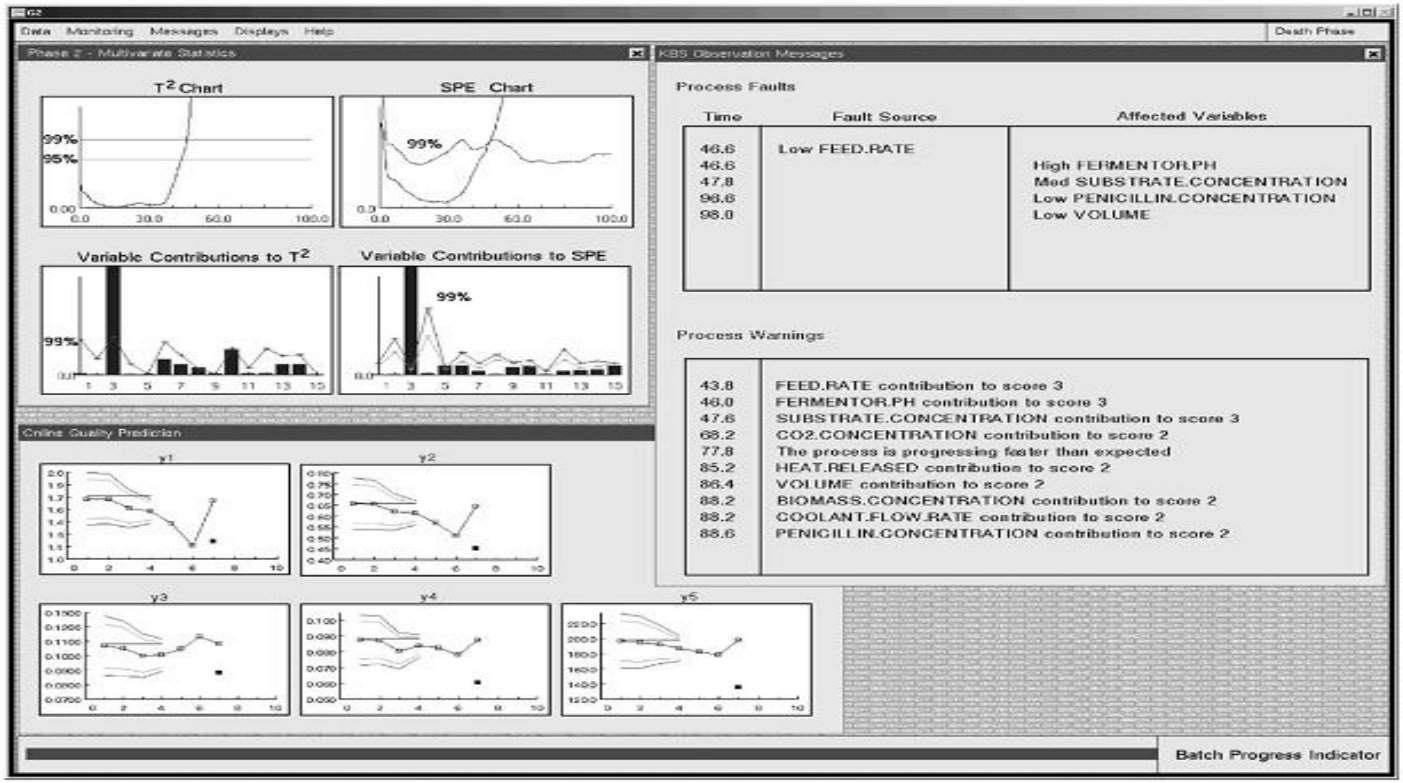

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4.2 Hybrid Monitoring System

COMPUTER-AIDED KNOWLEDGE-BASED MONITORING AND DIAGNOSTIC SYSTEM FOR EMULSION POLYMERIZATION

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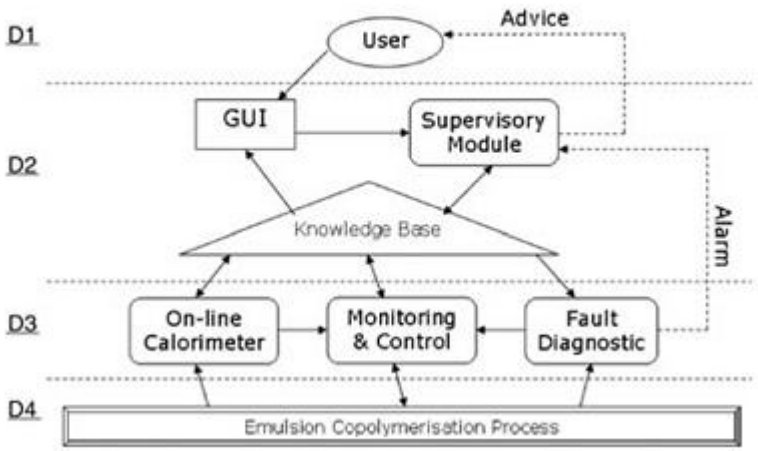

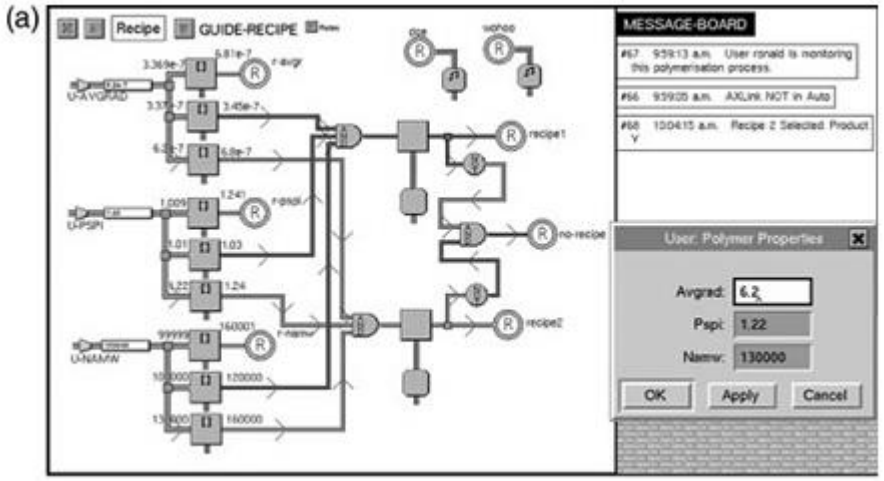

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- Venkatasubramanian, V., Rengaswamy, R., Kavuri, S.N., (2003b). A Review of Process Fault Detection and Diagnosis. Part II: Qualitative models and search strategies. *Computers and Chemical Engineering*, 27, 313 – 326.
- Venkatasubramanian, V., Rengaswamy, R., Kavuri, S.N., Yin, K., (2003c). A Review of Process Fault Detection and Diagnosis. Part III: Process History-based Methods. *Computers and Chemical Engineering*, 27, 327 – 346.

Authors Information

Credit to the authors: