

## **Automated and Integrated Manufacturing System Modeling, Design and Control**

### *Refereed Journals - International*

1. Wong, Y.S., F.E.H. Tay, H.T. Loh and A.Y.C. Nee, "A Review and an Implementation of Contingency Management in FMS", *International Journal of Computer Integrated Manufacturing*, Vol. 5, No. 4 & 5 (1992), pp.266-276.
2. Ji, P., Y.S. Wong, H.T. Loh and L.C. Lee, "SMT Production Scheduling: A Generalised Transportation Approach", *International Journal of Production Research*, Vol. 32, No. 10 (1994), pp. 2323-2333.
3. Lee, S.M., G.S. Hong, Y.S. Wong and C.M. Chew, "A Directed Graph Model for Distributed Sequential Control", *International Journal of Computer Applications in Technology*, Vol. 10, No. 5/6 (1997), pp.337-347.
4. Hu, G.H., Y.S. Wong and H.T. Loh, "An FMS Scheduling and Control Decision Support System based on Generalized Stochastic Petri Nets", *International Journal of Advanced Manufacturing Technology*, Vol. 10 (1995), pp.52-58.
5. Fuh, J.Y.H., Y.S. Wong, C.Y. Yee, L. Zhuang, Y.F. Zhang and K.S. Neo, "On the Modeling, Analysis and Optimisation of an Assembly System" *CIRP Proceedings - Manufacturing Systems*, Vol. 25, No. 2 (1996), pp.197-203.
6. Fuh, J.Y.H., Y.S. Wong, C.Y. Yee, L. Zhuang and K.S. Neo, "Modelling, Analysis and Simulation for the Design of a Robotic Assembly System", *Computer Integrated Manufacturing Systems*, Vol. 9, No. 1 (1995), pp.19-31.
7. Zhuang, L., Y S Wong, J Y H Fuh, and C.Y. Yee, "On The Role of A Queueing Network Model In The Design of A Complex Assembly System", *Robotics and Computer-integrated Manufacturing*, Vol. 14 (1998), pp.153-161.
8. Subramaniam, V., G.K. Lee, G.S. Hong, Y.S. Wong and T. Ramesh, "Dynamic Selection of Dispatching Rules for Job Shop Scheduling", *Production Planning and Control*, Vol. 11, No. 1 (2000), pp.73-81.
9. Subramaniam, V., T. Ramesh, G.K. Lee, Y.S. Wong and G.S. Hong, "Job Shop Scheduling with Dynamic Fuzzy Selection of Dispatching Rules", *The International Journal of Advanced Manufacturing Technology*, Vol. 16 (2000), pp.759-764
10. Subramaniam, V, G.K. Lee, T. Ramesh, G.S. Hong and Y.S. Wong, "Machine Selection Rules in a Dynamic Job Shop", *The International Journal of Advanced Manufacturing Technology*, Vol. 16 (2000), pp.902-908.

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### *Refereed Journals - Local/Regional*

1. Wong Y.S. and K.B. Lim, "The Expanding Role of the Programmable Controller in Factory Automation", *Journal of the Institution of Engineers, Singapore*, Vol. 28, No. 4, Singapore, (Oct 1988) pp.72-79.
  2. Zhang, Y.F., Y.S. Wong and G.Y. Tey, "A Heuristic-based System for Job Shop Scheduling", *Journal of the Institution of Engineers, Singapore*, Vol. 36, No. 1 (1996), pp.23-31.
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### *Non-Refereed Journals*

1. Tay, E.H., Y.S. Wong, A.Y.C. Nee and H.T. Loh, "Error Recovery in Flexible Manufacturing Systems", Singapore Production Engineers Yearbook 1990, Vol. 7, Singapore, (1990) pp.41-47.
  2. Lim, K.B., Y.S. Wong and C.C. Loo, "An Expert System for Sequential Control using PLCs", Automation News, Vol. 6, No. 1/91, Singapore, (March 1991), pp.17-20.
  3. Neo, K.S., Y.S. Wong, H.T. Loh and G.H. Hu, "Modelling and Performance Study of A Flexible Manufacturing System using GSPN and Simfactory", ASME Yearbook, Singapore Chapter, Vol. 2 (1994), pp.35-42.
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### *Conferences*

1. Chen, Y.F., V.C. Venkatesh and Y.S. Wong, "Development of a Robot-operated Manufacturing Cell", Proc. Engineering Convention '83: Engineering Development and its Impact, Singapore, (August 1983) pp.105-110.
2. Chen, Y.F., V.C. Venkatesh and Y.S. Wong, "Optimisation of a Robot Operated Manufacturing Cell for Printed Circuit Boards", Proc. 11th All India Machine Tool Design and Research Conference, Madras, India, (Dec. 1984) pp.512-516.
3. Lim, K.B., Y.S. Wong and C.C. Loo, "An Expert System for Sequential Control using Programmable Controller", Proc. Asia-Pacific Industrial Automation Conference '90 (IA'90), Singapore, (23-25th May 1990), pp.650-666. (Received Outstanding Paper Award.)
4. Tay, E.H., Y.S. Wong, A.Y.C. Nee and H.T. Loh, "Economic Justification of Flexible Manufacturing System", Proc. Asia-Pacific Industrial Automation Conference '90 (IA'90), Singapore, (23-25th May 1990) pp.185-196.
5. Lim, K.B., Y.S. Wong and H.C. Liew, "Expert System for Sequential Control using Programmable Controller", Proc. GINTIC Institute of CIM Seminar Series, York Hotel, Singapore, (22nd February 1991), pp.30-44. (Invited Paper)
6. Loh, H.T., Y.S. Wong and G.H. Hu, "Improving the Productivity of FMS through Error Recovery and Contingency Management", Proc. International Conference on Productivity '91, NPB Convention Centre, Singapore, (14th-16th August 1991), pp.517-527.
7. Wong, Y.S. K.B. Lim, and C. Lee, "A PC-based Expert System for Generation of Sequential Control Programs for Programmable Controllers", Proc. International Conference on Manufacturing Automation, Hong Kong, 10th-12th August 1992, pp.631-636.
8. Choong, E.C.S., Y.S. Wong, H.T. Loh and C.M. Lau, "Improvements of AGV Route Management in an FMS", Manutech '93, National Symposium on Manufacturing Technology, 8th September 1993, National University of Singapore, Singapore, pp.264-271.
9. Fuh, J.Y. H., Y.S. Wong and C.Y. Yee, L. Zhuang and K.S. Neo, "The Analysis, Evaluation and Optimization of An Automated Assembly Line using the Simulation Approach", Proc. 3rd Asia-Pacific Industrial Automation Conference IA '94, 23-25 March 1994, Singapore, pp. TS-06.
10. Fuh, J.Y.S., Y.F. Zhang and Y.S. Wong, "A Flexible Robotic Assembly System for Automated Disk Drive Manufacturing", Proc. North American Manufacturing Research Conference (NAMRC XXII), 25-27 May 1994, Illinois, U.S.A., pp. 88-94. Technical Paper of NAMRI/SME, 1994.
11. J.Y.H. Fuh, Y.S. Wong, C.Y. Yee, L. Zhuang, Y.F. Zhang, and K.S. Neo, "On the Modelling, Analysis and Optimization of an Assembly System", Proceedings of the 27th CIRP International Seminar on Manufacturing Systems, Ann Arbor, Michigan, August 1995, pp.234-243.
12. Wang, W.L., Y.N. Yan, J.Y.H. Fuh and Y.S. Wong, "The Life Cycle Analysis of Manufacturing Systems", University of Connecticut, Storrs, U.S.A., 7-9 August 1996, pp.362-364 and 419-421.

13. Wang, W.L., Y.N. Yan, J.Y.H. Fuh and Y.S. Wong,"The Global View of Manufacturing and Manufacturing System Research", University of Connecticut, Storrs, U.S.A., 7-9 August 1996, pp.113-115.
14. Wang, W.L., Y.N. Yan, J.Y.H. Fuh and Y.S. Wong,"The Evolutionary Theory of Manufacturing Systems", University of Connecticut, Storrs, U.S.A., 7-9 August 1996, pp.313-315 and 365-367.
15. Viswanadham, N, Y.S. Wong and K.C. Chan,"Flexibility in Supply Chain Processes", Proceedings of the 4<sup>th</sup> ICCIM Conference, Vol. 1, October 1997, Singapore, pp.83-90.
16. Leu, K.P., M.H. Jr Ang and Y.S. Wong,"A Telemanufacturing Workcell over the Internet", Proceedings of the International Society for Optical Engineering: Telemanipulator and Telepresence Technologies V, November 1998, SPIE, pp230-237.
17. Tam, W.M., K.P. Leu, M.H. Jr Ang and Y.S. Wong,"Machine Accessed via Internet: Issues and Architecture", Proceedings of the International Society for Optical Engineering: Telemanipulator and Telepresence Technologies VI, November 1999, SPIE, pp192-199.
18. Y.S. Wong,"E-Manufacturing: Internet-enabled to be Agile", Proceedings of International Conference on Manufacturing (ICM-2000), 24-26 February 2000, Keynote Lecture, Bangladesh University of Engineering & Technology, Dhaka.
19. Jia Xiao, M. Abdul Mannan and Y.S. Wong,"Distributed Dynamic Integration of Open Architecture Systems", Proceedings of FAIM2000, 26-28 June 2000, U.S.A.
20. Jia Xiao, Y.S. Wong and M.A. Mannan,"Internet/Web-based Monitoring and Control of FMS", Proceedings of Seminar on Integrated Engineering, Engineering Advances at the Dawn of the 21st Century, Faculty of Engineering, National University of Singapore, 8-9 December 2000, Singapore, pp.435-441.
21. Y.S. Wong and Jianguo Wang,"Internet-enabled Collaborative Design, Manufacturing and Logistics", Proceedings of the 1<sup>st</sup> International Conference on Mechanical Engineering, Logistics Engineering Forum (Invited Paper), Shanghai, 20-22 November 2000, China, (in CDROM – Abstract on) 11pages.
22. Liao, Q., C.K. Tham, Y.S. Wong, J.G. Wang and C. Choy, "A Web-Based Material Requirement Planning Integrated Application", Proceedings of 5th IEEE International Conference on Enterprise Distributed Object Computing (EDOC 2001), Seattle, Washington, USA, Sept 2001, pp. 14-21.

#### *Seminar, Public Talk and Lecture*

1. Fuh, J.Y.H., Y.S. Wong, L.Zhuang and Y.F. Zhang,"A Simulation Approach for the Evaluation and Optimization of An Automated Assembly Line", Proc. Seminar on Manufacturing Simulation, 25 March 1995, Ngee Ann Polytechnic, Singapore, pp. 1-18
2. Chew, C.M., G.S. Hong and Y.S. Wong,"Sequential Control Implementation using Distributed Intelligent Network System", Proc. Seminar on Mechatronics -Essential Technology for 2000 and Beyond, 27 May 1995, Ngee Ann Polytechnic, Singapore, pp.18-27.
3. Y.S. Wong,"Realising Agile Manufacturing via the Internet," Joint IES/METC- SME Seminar on eManufacturing, 12 May 2000, Gintic Institute of Manufacturing Technology.

#### *Published Reports*

1. Fuh, J.Y.H., Y.F. Zhang and Y.S. Wong,"A Flexible Robotic Assembly System for Automated Disk Drive Manufacturing", SME Technical Paper, MS94-145 (1994).

#### *Funded Projects:*

1. Collaborator

Integrated Process Planning for Simultaneous Engineering, INPROSE (Source: NSTB/ \$2.55M)  
Research Institute: Gintic

2. Collaborator

PC-based Controller for NC Machine Tools  
(Source: MOE/\$169K) Industry Partner: Excel Machine Tool

Director of LCEL with projects having funding of about \$1M and equipment/software worth \$3M from technology partners.

### ***Postgraduate Research***

<i>#</i>	<i>PG</i>	<i>Title</i>	<i>Degree</i>
1	Tay E.H.	Technical and Economic Studies of FMS	M.Eng.
2	Hu G.H.	A GSPN Approach for Modeling, Analysis and Scheduling of FMS	Ph.D.
3	Zhang F.	Modeling and Scheduling of FMSs based on Object Oriented CTPN and Heuristics	M.Eng.
4	Lee S.M.	Distributed Control in Automation - A Network Approach	M.Eng.
5	Leu K.P.	A Framework of Monitoring and Control via the Internet	M.Eng.
6	Ramesh T.	Job Shop Scheduling with Multiple Job Routes using Fuzzy Logic	M.Eng.
7	Jia X.	Open Architecture of Manufacturing Systems Controllers in Concurrent Engineering Environment	M.Eng.

#### *Ongoing:*

1	Bok S.H.	Internet-based Computer-aided Design	Ph.D.
2	Fan J.H.	Mold Design and Manufacturing	Ph.D.
3	Du X.J.	Precision Engineering	M.Eng.