

JASPREET SINGH DHUPIA

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ACADEMIC QUALIFICATIONS

Doctor of Philosophy, Mechanical Engineering, 2007

University of Michigan, Ann Arbor

Dissertation: Effect of joint nonlinearities on the dynamic performance of machine tools

Advisors: Prof. A. Galip Ulsoy and Dr. Reuven Katz

Masters of Science, Mechanical Engineering, 2004

University of Michigan, Ann Arbor

Bachelors in Technology, Mechanical Engineering , 2001

Indian Institute of Technology, Delhi

PROFESSIONAL QUALIFICATIONS/MEMBERSHIPS

ASME (Member: 2008- 2016, Student Member: 2006-2007)

IEEE (Member: 2013 -To date)

PROFESSIONAL EXPERIENCE

Senior Lecturer, University of Auckland (July 2015 – To date)

- ❖ Involved in Dynamics and Control, and Mechatronics Teaching group
- ❖ Developed teaching material and lectured classes for MECHENG 312 Sensors and Actuators, MECHENG 705 Mechatronic Systems, MECHENG 724 Multivariable Control. Supervised final year undergraduate research projects.
- ❖ Co-supervising three doctoral students in areas of robotics and control applications.
- ❖ Awarded capital expenditure (CAPEX) grant for developing test rig for gearbox health monitoring
- ❖ Participated in organizing committees of international conference and as associate editor for the ASME Dynamic Systems and Control Conference

Visiting Faculty, University of Michigan-Shanghai Jiao Tong University Joint Institute (May 2016- July 2016, May 2015 – July 2015)

- ❖ Teach junior level Vm360 - Modelling, Analysis, and Control of Dynamics Systems

to Mechanical Engineering students

Assistant Professor, Nanyang Technological University (July 2008 – April 2015)

- ❖ Applied expertise in structural dynamics, vibrations and control to develop high fidelity models of electro-mechanical drive-trains used in electric tugboats, jack-up drilling rigs, more electric aircrafts and wind turbine applications.
- ❖ Secured research grants from Maritime Port Authority of Singapore, Ministry of Education of Singapore, ABB Pte. Ltd.- Marines and Cranes and Rolls-Royce Pte. Ltd.
- ❖ Supervised four doctoral students and two M.Sc. dissertation students to completion of their degrees.
- ❖ Lectured a third year Mechanical Engineering core course on ‘Dynamics and Controls’, and mentored tutorial groups and undergraduate projects.
- ❖ Awarded *Dr. S K Leung Excellence in Teaching Award 2013* for teaching third year undergraduate students. This is awarded after two rounds of student voting among a cohort size of around 600 students.

Research Fellow, University of Michigan, Ann Arbor, USA (Jan. 2007 - June 2008)

- ❖ Submitted a research proposal to investigate effects of vehicle’s longitudinal speed on its yaw-roll dynamics which could be used to develop better vehicle stability controllers.
- ❖ Used Lambert function based solution of time-delay differential equations to predict machine chatter.

Graduate Student Research Assistant, University of Michigan, Ann Arbor, USA (Aug.2002 - Dec. 2006)

- ❖ Doctoral research on ‘Effect of Nonlinearities in Machine Joints on Machine Tools Performance’
- ❖ Carried dynamics characterization of Arch-Type Reconfigurable Machine Tool
- ❖ Gave several presentations and developed research posters for sponsors of Engineering Research Center for Reconfigurable Manufacturing Systems
- ❖ Teaching assistant for a graduate level class on ‘Vehicle Control Systems’.

RESEARCH INTERESTS

- ❖ Energy/ power transmission systems
- ❖ System identification, modeling and controls
- ❖ Manufacturing
- ❖ Renewable energy

TEACHING INTERESTS

- ❖ Dynamics and controls
- ❖ Manufacturing automation
- ❖ Modeling and monitoring of rotating machines
- ❖ Vehicle control systems

JASPREET SINGH DHUPIA

(Details of teaching, research, service and publications)

A. RESEARCH

Funded Research Grants at UoA

Role	Research Grant	Funding Agency/ Grant Value	Duration	Research Team
1 Principle Invest.	Test bed for drive-train reliability and controls	UoA CAPEX / \$39,452.00	2016	Co-Applicant: Nirmal-Kumar Nair
2 Principle Invest.	Loads on a wind turbine during inertial response support for power grids	Ideas Day Seed Funding/ \$10,000	2016	Collaborator: Nirmal-Kumar Nair

Funded Research Grants at NTU

Role	Research Grant	Funding Agency/ Grant Value	Duration	Research Team
1 Principle Invest.	Optimising an Innovative, Fuel and Cost Saving Electric DC Grid Power System for Jack-up Rigs to Ensure its Reliability and Availability	Maritime and Port Authority of Singapore under the Marine Clean Energy Research Program/ \$434,667 ABB Singapore Pte. Ltd./ \$100,000	Feb 2014 - Feb 2017	Co-PI: Asst/P. Don Mahinda Vilathgamuwa (NTU-EEE). Collaborator: Dr. Alf-Kare Adnanes, Business Manager, Marines and Cranes, ABB Pte. Ltd. (Singapore).
2 Principle Invest.	Optimal power management of a fully electric tug	Maritime and Port Authority of Singapore under the Marine Clean Energy Research Program/ \$475,200.	Nov 2011 - Nov 2014	Co-PI: Asst/P. Lee Ka Man, Carman (NTU-MAE). Collaborator: Dr. Alf-Kare Adnanes, Vice-President, Technology-Marines and Cranes, ABB.
3 Principle Invest.	Condition Monitoring of Electro-mechanical systems	Rolls Royce Plc. / \$30,000	Feb 2011 - Feb 2014	
4 Principle Invest.	Combined model and data approach for fault diagnosis and prognosis of heavy-duty gearboxes used	AcRF Tier 1 (Ministry of Education) / S\$100,000.	Mar 2010 - Feb 2013	Co-PI: Prof. Wang Dan Wei (NTU-EEE). Collaborator: Dr. Luo Ming, Research Scientist, Mfg. Exec. and Control,

		in wind and tidal power plants			SIMTech
5	Principle Invest.	Structural Response during Mechanical Micro-Machining	Start-Up Grant (MoE-NTU) / S\$100,000	Jan 2009- Jun 2011	Collaborator: Dr. Ko Jeong Hoon, Machining Technology Group, Research Scientist, SIMTech.
6	Collaborator	Predictive Dynamic Machining Technology For Difficult to Machine Materials	SIMTech Collaborative Research Program/ \$107,350 (in-kind)	2009 - 2010	PI: Dr. Ko Jeong Hoon, Machining Technology Group, Research Scientist, SIMTech.

PhD Students Supervised

	Student	Dissertation Title	Completion Date	Current Employment
1	<u>Hong Liu</u>	Combined Data-Model Driven Condition Health Monitoring Techniques for Heavy Duty Gearboxes	June 2014	Lecturer, Wuhan Univ. of Tech. in China
2	<u>Zhang Jidong</u>	Signature Analysis of Electrical and Mechanical Signals for Fault Detection and Diagnosis of Electrical Machines	Feb 2015	Senior Engineer at DHI, Singapore
3	<u>Ayu Aaron</u>	Optimal Power Distribution for an Electric Marine Vessel	Nov 2015	Researcher at NTU, Singapore
4	Irving Paul <u>Girsang</u>	Modeling and Control for Load Mitigation of Wind Turbine Drivetrain	April 2016	Wind Engineer at Blue Circle Pte. Ltd., Singapore

M.Sc. Dissertation Students Supervised

	Student	Dissertation Title	M.Sc. Awarded Year
1	<u>Jose Thomas Thayil Tijo</u>	Correlation between Tool Wear on Cutting Forces in Hard to Machine Materials	2009
2	<u>Cao Haoqiang</u>	Shock Response of a Hard Disk Head Reader	2009

Research Fellows Supervised

1. Dr. Edoe Mensah, funded by ERI@N for research project “Optimal power management of a fully electric tug” awarded Maritime and Port Authority of Singapore under the Marine Clean Energy Research Program. (March 2011- November 2011).
2. Dr. Vu Thanh Long, funded under research grant “Optimal power management of a fully electric tug” by Maritime and Port Authority of Singapore under the Marine Clean Energy Research Program. (August 2012 - February 2014).

Awards Won By Supervised Research Students

1. Irving Paul Girsang, NRF Clean Energy Program Office Scholarship funding PhD studies at NTU for research proposal on “Modeling and Control of Offshore Wind Turbines”

Recognitions

1. Best team award at the NSF Engineering Center for Reconfigurable Mfg. Systems, University of Michigan, Ann Arbor. (2007)
2. ‘Padmashri Man Mohan Suri Memorial Award’ for most innovative hardware design, IIT Delhi, India. (2001)

B. TEACHING

Course Instruction at UoA

Multivariable Control Systems (MECHENG 724)

2016/S2: 12 lectures × 1hour, 70 students

2015/S2: 6 lectures × 1hour, 77 students

Sensors and Actuators (MECHENG 312)

2016/S1: 12 lectures × 1hour, 76 students, overall evaluation 4.08/5

Control Systems (MECHENG 705)

2016/S1: 12 Tutorials × 1hour

Mechatronic Systems (MECHENG 705)

2016/S1: 6 lectures × 1hour

Real Time Software Design (MECHENG 313)

2015/S2: 3 lectures × 1hour

Course Instruction at UM-SJTU, Joint Institute, China

Modeling, Analysis, and Control of Dynamics Systems (Vm 360)

2016/Summer: 32 lectures × 1.5 hours, 65 students

2015/Summer: 32 lectures × 1.5 hours, 79 students, overall evaluation 4.4/5 (Raw) 4.1/5 (Adj.)

Course Instruction at NTU

Manufacturing Automation and Control (M6236)

AY14-15/ S1: 14 lectures × 1.5 hours, 33 students

AY13-14/ S1: 14 lectures × 1.5 hours, 30 students, overall evaluation 4.08/5 (mean) 0.95 (Dev.)

Control Theory (MA3005) previously called Dynamics and Control (MP3001)

AY14-15/ S2: 12 Tutorials × 1 hour, 25 students

AY14-15/ S1: 14 lectures × 1 hour, 200 students

12 Tutorials × 1 hour, 25 students

AY13-14/ S1: 14 lectures × 1 hour, 120 students, overall evaluation 3.98/5(mean) 1.12 (Dev.)

12 Tutorials × 1 hour, 26 students, overall evaluation 4.53/5(mean) 0.68 (Dev.)

Similar teaching loads in from 2009 to 2013. Involved in tutorials for MP3001 in AY08-09

Mathematics 1 (FE1006)

AY11-12/ S1: 24 Tutorials × 1 hour, 30 students, overall evaluation 4.59/5(mean) 0.52 (Dev.)

AY10-11/ S1: 36 Tutorials × 1 hour, 30 students, overall evaluation 4.47/5(mean) 0.69 (Dev.)

Engineering Graphics and Machine Elements (MP2011)

AY10-11/ S2: 12 Tutorials × 3 hours, 30 students

AY08-09/ S2: 12 Tutorials × 3 hours, 30 students

Awards

1. Dr. S K Leung Excellence in Teaching Award 2013
2. Certificate of Honor for inspirational mentorship of Koh Boon Hwee Scholar 2011 recipient

Awards Won by Mentored Undergraduate Students

1. Irving Paul Girsang, Koh Boon Hwee Scholar 2011
2. Irving Paul Girsang, Most Popular Project, Discover URECA @ NTU, 2009
3. T020 group, 1st Prize, Energy and Environment Category, Engineering Innovation and Design for Happy Lap – lap laptop system, 2009
4. T021 group, 1st Prize, Health, Lifestyle & Assistive Technologies Category, Engineering Innovation and Design for The "ROCKER" Alarm, 2009

Teaching Seminars Attended/ Efforts Towards Improvement in Teaching

1. Certificate in Teaching for Higher Education (Part 1), National Institute of Education, Singapore, 2009.
2. Workshop on use of clickers in classrooms, 2009. Used clickers to gauge student understanding during large classroom lectures in AY 2009/10.
3. E-learning hands-on workshop on AcuStudio and AcuConference, 2010

C. SERVICE**Service to University / School**

1. HoD Nominee PhD Oral Examinations at UoA

Student	Thesis Title	Supervisor	Examination Date
Ye Ma	Patient-Specific Neuromusculoskeletal Models for Improving the Effectiveness of Human-Inspired Gait Rehabilitation Robots	Prof. Shane Xie	17 Oct 2016
Ryan McCardle	Classification of Facial Recognition Event Related Potentials: Progress Towards a System to Assist with Reminiscence Therapy for Dementia Patients	Dr. Claire Davies	31 Aug 2016
Mingming Zhang	Improving Effectiveness of Robot-Assisted Ankle Rehabilitation via Biomechanical Assessment and Interaction Control	Prof. Shane Xie	19 Jan 2016

2. Examiner/ HoD Nominee during PhD Proposal Confirmation Examinations

<i>For doctoral students at UoA</i>			
Lavesh Raghunanan	The Dynamics of Cable Harnessed Structures	Prof. Brian Mace (Sup.)/ Dr. Roger Halkyard (Co-Sup.)	7 Nov 2016
Frank Yu Dang	Modelling and Analysis of a Pneumatically Actuated Soft Robot Mimicking Human Gastric Motility	Prof. Peter Xu (Sup.)/ A.Prof. Leo Cheng (Co-Sup.)	14 Sept 2016
James Kutia	Aerial Manipulation for Canopy Sampling	Prof. Peter Xu (Sup.)/ Dr. Karl Stol (Co-Sup.)	14 Aug. 2015
<i>For doctoral students at NTU</i>			
Student	Thesis Title	Supervisor	Examination Date
Ferdinan Widjaja	Sensing of Pathological Tremor Using Surface Electromyography and Accelerometer for Real-time	Ast/P. Ang Wei Tech.	23 Nov. 2010

	Attenuation		
Wong Yoke Rung	In-Process Monitoring and Characterization of Arc Welding	Prof. Ling Shih Fu	14 Sep 2012
Lian Kar Foong	Transduction Matrix of AC Motor Driven Mechanical Systems : System Modeling and Fault Diagnosis	Prof. Ling Shih Fu	22 Nov 2012
Ju Feng	Biomimetic Whisker Transducer for Vibrissal Tactile Sensing	Prof. Ling Shih Fu	18 Jun 2013
Ivan Tanra	Tightening and Loosening of Bolted Joint	Prof. Ling Shih Fu	30 Aug 2013

3. Examiner during PhD Proposal Confirmation Examinations

Student	Thesis Title	Supervisor	Examination Date
Wong Yoke Rung	In-Process Monitoring and Characterization of Arc Welding	Prof. Ling Shih Fu	2010
Ju Feng	Development of an Active Tactile Sensor	Prof. Ling Shih Fu	27 Jan 2011
Luu Trieu Phat	Specific Gait Pattern Planning and Locomotion Control Strategy for Robotic Gait Rehabilitation	Prof. Low Kin Huat	29 Mar 2011
Yan Naing Aye	Real-Time High Performance Displacement Sensing in Handheld Instrument for Micro-Surgery	Ast/Prof. Ang Wei Tech	21 Jun 2012
Ojin Kwon	Establishment and Optimization of Wireless Sensor Network for Micro-grid Demand Response System and Body Area Networks	Ast/Prof. Yoon Yongjin	1 Feb 2013
Hu Peng	Characterization and control of systems with hysteresis nonlinearities	Ast/Prof. Tegoeh Tjahjowidodo	10 June 2013
Tao Kai	Electrostatic/Electret Micro Power Generator Based on Wind Induced Vibration	Prof Lye Sun Woh and Prof Hu Xiao	21 Oct 2013

4. M.Sc. Dissertation Examiner

Student	Dissertation Title	Date of Submission
Than Htay Naing	Tool condition monitoring using vibration signal	January 2012
John Joseph Brucelee	Development of a sensing device for real time force measurements during micro milling	October 2011

- Course Coordinator for MP3001 Dynamics and Controls (AY2009/10 to AY2013/14)
- Course Coordinator for MA3005 Control Theory (AY2013/14 S2)
- Laboratory Coordinator for MP3071 E3.2: Vibration of a two-degree of freedom system for full-time and part-time students

8. Deputy Knowledge Domain (KD) Leader, Sensing and Identification (AY 2009/10, AY 2010/11)

Service to Professional Bodies/ International Conferences

1. Associate Editor for (a) Invited Sessions, at 2014 American Control Conference to be held at Portland, OR, USA during 4-6 June 2014, (b) Invited Sessions at ASME 2014 Dynamic Systems and Control (DSC) Conference held at San Antonio, Texas, USA during 22-24 October 2014, and (c) 2015 American Control Conference held at Chicago, Illinois, USA during 1-3 July 2015.
2. Program Committee member and session organizer for “Sustainable Green Engineering” and “Monitoring, Sensing, and Control in Automated Systems” at the ISCIE/ASME 2014 International Symposium on Flexible Automation to be held at Awaji-Island, Hyogo, Japan during 14 - 16 July 2014.
3. Tutorials & Workshops Chair at the 2013 IEEE/ASME International Conference on Advanced Intelligent Mechatronics held on July 9-12, 2013 in Wollongong, Australia.
4. Session Chair for (a) S113: Dynamic Behavior of Materials & Structures, Vibration Analysis at the International Conference on Experimental Mechanics (icEM2014) held 15-17 November 2014 at Singapore, (b) “Structural Dynamics and Vibration” at 4th International Conference on Experimental Mechanics, Singapore, 18-20 Nov. 2009.
5. Reviewer for International Journal of Machine Tools and Manufacture, IEEE Transactions on Sustainable Energy, ASME Journal of Manufacturing Science and Engineering, Journal of Systems and Control Engineering, Mechanical Systems and Signal Processing, Mechanism and Machine Theory and others

Public Service/ Advisory Board Membership

1. Nanyang Research Project (NRP) mentor for Junior College students: Ms. Feng Xin Yu and Mr. Qingyun Xie. Project Title: “Developing a Test Bed for Fault Diagnosis of a Two-Stage Gearbox.” (2009 – 2010)
2. Advisory Board Member, SPJ Center for Multi-Disciplinary Research, Pune, Maharashtra, India. 2009- Till Present
3. Global Education Advisory Board Member for K.R. Mangalam University located at Gurgaon, Haryana, India 2014-

D. SCHOLARLY WORKS

Number of Journal Papers: 16

Number of Peer Reviewed Conference Papers: 24

Number of Book Chapters: 3

Citations

Web of Science Core Collection (SCI): 130	h-index: 7
Scopus: 236	h-index: 9
Google Scholar: 344	h-index: 9

Legend:

† A PhD student under my supervision

* An undergraduate/ master level student/ research staff under my supervision

Journal Papers

- J1. **Dhupia, J.**, Powalka, B., Katz, R., and Ulsoy, A. G., "Dynamics of the arch-type reconfigurable machine tool," *International Journal of Machine Tools and Manufacture*, 2006, vol. 47(2), p. 326-334. (R. Katz and A.G. Ulsoy were my PhD dissertation supervisors, B. Powalka was a research fellow in my project team)
- J2. **Dhupia, J.S.**, Powalka, B., Ulsoy, A. G., and Katz, R., "Describing Function Representation from Measured Nonlinearities in Machine Joints," *Transactions of the NAMRI/SME*, vol. 35, 2007, p. 263-270. (A.G. Ulsoy and R. Katz were my PhD dissertation supervisors, B. Powalka was a research fellow in my project team)
- J3. **Dhupia, J.S.**, Powalka, B., Ulsoy, A. G., and Katz, R., "Effect of a Nonlinear Joint on the Dynamic Performance of a Machine Tool," *ASME- Journal of Manufacturing Science and Engineering*, vol. 129, Oct. 2007, p. 943-950. (A.G. Ulsoy and R. Katz were my PhD dissertation supervisors, B. Powalka was a research fellow in my project team)
- J4. **Dhupia, J.S.**, Powalka, B., Ulsoy, A. G., and Katz, R., "Experimental Identification of the Nonlinear Parameters of an Industrial Translational Guide for Machine Performance Evaluation," *Journal of Vibration and Control*, vol. 14(5), May 2008, p. 645-668. (A.G. Ulsoy and R. Katz were my PhD dissertation supervisors, B. Powalka was a research fellow in my project team)
- J5. Powalka, B., **Dhupia, J.S.**, Ulsoy, A. G., and Katz, R., "Identification of a Machining Force Model from the Acceleration Measurements," *International Journal of Manufacturing Research*, vol. 3(3), 2008, p. 265-284. (A.G. Ulsoy and R. Katz were my PhD dissertation supervisors, B. Powalka was a research fellow in my project team)
- J6. **Dhupia, J.S.** and *Girsang, I.P., "Correlation Based Estimation Of Cutting Force Coefficients For Ball-End Milling Application", *Machining Science & Technology* , vol. 16 (2), April 2012, p. 287-303. (I.P. Girsang is URECA student supervised by me)
- J7. Saptaji, K., Subbiah, S., and **Dhupia, J.S.** "Effect of side edge angle and effective rake angle on top burrs in micro-milling" , *Precision Engineering*, vol. 36 (3), July 2012, p. 444-450.
- J8. †Girsang, I.P. and **Dhupia, J.S.**, "Collective Pitch Control of Wind Turbines using Stochastic Disturbance Accommodating Control", *Wind Engineering*, vol. 37 (5), Oct. 2013, p. 517-534.
- J9. †Girsang, I.P., **Dhupia, J.S.**, Muljadi, E., Singh, M., and Jonkman, J., "Modeling and Control to Mitigate Resonant Load in Variable-speed Wind Turbine Drivetrain", *IEEE Journal of Emerging and Selected Topics in Power Electronics*, vol. 1 (4), Dec. 2013, p. 277-286. (IE. Muljadi, M. Singh and J. Jonkman are research collaborators from National Renewable Energy Laboratory, Department of Energy in Golden, CO, USA)
- J10. †Hong, L., **Dhupia, J.S.**, and Sheng, S., "An Explanation of Frequency Features Enabling Detection of Faults in Equally-spaced Planetary Gearbox Mechanism and Machine Theory", *Mechanism and Machine Theory*, vol. 73, Mar. 2014, p. 169–183. (S. Sheng is a research collaborator from National Renewable Energy Laboratory, Department of Energy in Golden, CO, USA)
- J11. †Hong, L., and **Dhupia, J.S.**, "A time domain approach to diagnose gearbox fault based on measured vibration signals", *Journal of Sound and Vibration*, vol. 333(7), Mar. 2014, p. 2164–2180.
- J12. †Girsang, I.P, **Dhupia, J.S.**, Muljadi, E., Singh, M. and Pao, L.Y., "Gearbox and Drivetrain Models to Study of Dynamic Effects of Modern Wind Turbines", *IEEE Transactions on Industry Applications*, vol. 50(6), Nov./Dec. 2014, p. 1–10. (E. Muljadi and M. Singh are research collaborators from National Renewable Energy Laboratory, Department of Energy in Golden, CO, USA, Prof. L.Y. Pao is research collaborator from Univ. of Colorado, Boulder, USA)

- J13. †Zhang, J., **Dhupia, J. S.**, & Gajanayake, C. J., “Stator Current Analysis From Electrical Machines Using Resonance Residual Technique to Detect Faults in Planetary Gearboxes”, *IEEE Transactions on Industrial Electronics*, vol. 62(9), Sept. 2015, pp. 5709-5721. doi:10.1109/TIE.2015.2410254 (C.J. Gajanayake is an industrial collaborator from Rolls-Royce Advanced Technology Center, Singapore)
- J14. *Vu, T.L., **Dhupia, J.S.**, Ayu, A.A., Kennedy, L., and Adnanes, A.K., “Power Management for Electric Tugboats Through Operating Load Estimation”, *IEEE Transactions on Control Systems Technology*, vol. 23(6), Nov. 2015, pp. 2375 - 2382. doi: 10.1109/TCST.2015.2399440. (T.L. Vu is a research fellow working on funded research grant for which I am the PI, L. Kennedy and A.K. Adnanes are industrial collaborators from ABB Pte. Ltd.)
- J15. †Girsang, I.P. and **Dhupia, J.S.**, “Pitch controller for wind turbine load mitigation through consideration of yaw misalignment”, *Mechatronics- A Journal of International Federation of Automatic Control (IFAC)*, vol. 32, Dec. 2015, pp. 44–58. doi: 10.1016/j.mechatronics.2015.10.003.
- J16. †Hong, L., †Girsang, I.P. and **Dhupia, J.S.**, “Identification and control of stick–slip vibrations using Kalman estimator in oil-well drill strings”, *Journal of Petroleum Science and Engineering*, vol. 140, April 2016, pp. 119-127, doi: 10.1016/j.petrol.2016.01.017.

Book Chapters

- B1. **Dhupia, J.S.**, Ulsoy, A. G., and Koren, Y., “Arch-Type Reconfigurable Machine Tool,” *Smart Devices and Machines for Advanced Manufacturing*, L. Wang and J. Xi, Springer-Verlag, London, 2008.
- B2. **Dhupia, J.S.**, and Ulsoy, A.G., “Control of Machine Tools and Machining Processes,” *The Control Handbook*, W.S. Levine (ed.), 2nd Edition, CRC Press in cooperation with IEEE press, 2011.
- B3. †Girsang, I.P. and **Dhupia, J.S.**, “Machine Tools for Machining” *Handbook of Manufacturing Engineering and Technology*, Andrew Yeh-Ching Nee (ed.), Springer, 2015.

Peer Reviewed Conference Papers

- C1. **Dhupia, J.**, Powalka, B., Katz, R., and Ulsoy, A. G., "Dynamics of the arch-type reconfigurable machine tool," 3rd CIRP conference on Reconfigurable Manufacturing Systems, Ann Arbor, MI, USA, May 10-12, 2005.
- C2. **Dhupia, J.S.**, Powalka, B., Ulsoy, A. G., and Katz, R., "Effect of a Nonlinear Joint on the Dynamic Performance of a Machine Tool," 2nd CIRP conference on High Performance Cutting, Vancouver, BC, Canada, 12-13 June, 2006.
- C3. **Dhupia, J.S.**, Powalka, B., Ulsoy, A. G., and Katz, R., "Experimental Identification of the Nonlinear Parameters of an Industrial Translational Guide," ASME International Mechanical Engineering Congress and Exposition, Chicago, IL, USA, 5-10 November, 2006.
- C4. **Dhupia, J.S.**, Powalka, B., Ulsoy, A. G., and Katz, R., “Describing Function Representation for Nonlinear Restoring Force Functions of Machine Joints,” 35th Annual North American Manufacturing Research Conference, Ann Arbor, MI, USA, 22-27 May, 2007.
- C5. Ko, J.-H., *Girsang, I.P., †Ravi, V. and **Dhupia, J.S.**, “Surface quality assessment for micro-milling applications under various cutting conditions,” ASME International Manufacturing Science and Engineering Conference, West Lafayette, IN, USA, 4-7 Oct, 2009. (ASME Manufacturing Science and Engineering Conference is the flagship conference of ASME Manufacturing Science and Engineering Division)

- C6. †**Dhupia, J.S.** and *Girsang, I.P., “Correlation Based Estimation Of Cutting Force Coefficients For Ball-End Milling Application”, 8th International Conference on High Speed Machining, Metz, France, 8-10 December, 2010.
- C7. †**Dhupia, J.S.**, Adnanes A.K., Lee K. M., and Kennedy, L. “Electrification of Port and Port Operations”, International Maritime-Port Technology and Development Conference, Singapore, 13-15 April 2011.
- C8. †Hong, L. and **Dhupia, J.S.**, “Model Based Demodulation of Vibration Signals for Fault Detection of Planetary Gearbox”, 8th International Conference on Structural Dynamics, Leuven, Belgium, 4-6 July 2011.
- C9. †Zhang, J., †Hong, L. and **Dhupia, J.S.**, “Gear Fault Detection in Planetary Gearbox Using Stator Current Measurement of AC Motors”, ASME Dynamic Systems and Control Conference, Florida, USA, 17-19 October, 2012. (ASME Dynamic Systems and Control Conference is the flagship conference of ASME Dynamic Systems and Control Division)
- C10. †Girsang, I.P. and **Dhupia, J.S.**, “Performance of Linear Control Methods for Wind Turbines Dealing With Unmodeled Structural Modes”, 2012 ASME Dynamic Systems and Control Conference, Ft. Lauderdale, Florida, USA, 17-19 October, 2012. (ASME Dynamic Systems and Control Conference is the flagship conference of ASME Dynamic Systems and Control Division)
- C11. †Ayu, A.A., *Vu, T.L., and **Dhupia, J.S.**, “Optimal Design of Hybrid Power-Plant Using Optimisation Techniques Applied to Electric Tugboat Power Distribution System” Tugology’13, London, UK, 14-15 May 2013
- C12. *Vu, T. L., and **Dhupia, J.S.**, “Realtime Generation of the Bell States by Local-Nonlocal Measurements and Bang-bang Control”, American Control Conference, Washington D.C., USA, 17-19 June 2013. (American Control Conference- ACC is the annual conference of the American Automatic Control Council. Acceptance rate of ACC is around 55%)
- C13. †Liu, H., and **Dhupia, J.S.**, “A Time-domain Fault Detection Method based on Electrical Machine Stator Current for Planetary Gear-sets”, IEEE/ASME International Conference on Advanced Intelligent Mechatronics, Wollongong, NSW, Australia, 9-12 July 2013.
- C14. †Girsang, I.P, **Dhupia, J.S.**, Muljadi, E., Singh, M. and Pao, L.Y., “Gearbox and Drivetrain Models to Study of Dynamic Effects of Modern Wind Turbines”, IEEE Energy Conversion Congress and Exposition, Denver, CO, USA, 16 - 20 Sep 2013.
- C15. *Chua, L.W.Y., †Girsang, I.P, and **Dhupia, J.S.**, “Multi-SISO Control to Regulate Constant Power and Mitigate Drive-Train Load in Wind Turbine”, 3rd IFToMM International Symposium on Robotics & Mechatronics, Singapore, 2 – 4 October 2013.
- C16. *Vu, T.L., **Dhupia, J.S.**, †Ayu, A.A., Kennedy, L., and Adnanes, A.K., “Optimal Power Management for Electric Tugboats with Unknown Load Demand”, American Control Conference, Portland, OR, USA, 4-6 June 2014.
- C17. †Zhang, J., **Dhupia, J.S.**, and Gajanayake, C.J., “Model Based Current Analysis of Electrical Machines to Detect Faults in Planetary Gearboxes”, IEEE/ASME International Conference on Advanced Intelligent Mechatronics, Besançon, France, 8-11 July 2014.
- C18. †Zhang, J., **Dhupia, J.S.**, and Gajanayake, C.J., “Gear rattle under influence of bearings, lubricant churning and gear tooth sliding friction within a geared mechanism”, ISCIE/ASME 2014 International Symposium on Flexible Automation, Awaji-Island, Hyogo, Japan, 14 - 16 July 2014.
- C19. *Vu, T.L., **Dhupia, J.S.**, †Ayu, A.A., Kennedy, L., and Adnanes, A.K., “Control optimization for electric tugboats powertrain with a given load profile”, ISCIE/ASME 2014 International Symposium on Flexible Automation, Awaji-Island, Hyogo, Japan, 14 - 16 July 2014.
- C20. †Girsang, I.P, **Dhupia, J.S.**, Singh, M., Gevorgian, V., Muljadi, E. “Impacts of Providing Inertial Response on Drivetrain of Wind Turbine Generators”, IEEE Energy Conversion Congress and Exposition, Pittsburgh, PA, USA, 14 - 18 Sep 2014.

- C21.†Girsang, I.P. and **Dhupia, J.S.**, “Pitch Control for Wind Turbine in Yawed Inflow Condition”, 2014 ASME Dynamic Systems and Control Conference, San Antonio, Texas, USA, 22-24 October, 2014.
- C22.Hong, L., & Dhupia, J. S., “Modeling and Control of Coupled Torsional and Lateral Vibrations in Drill Strings”, 2015 ASME Dynamic Systems and Control Conference , Columbus, OH, USA, 28-30 October, 2015. doi:10.1115/DSCC2015-9714
- C23.Hong, L., Qu, Y., Dhupia, J. S., & Tan, Y., “A novel fault diagnostic technique for gearboxes under speed fluctuations without angular speed measurement”, 2016 International Symposium on Flexible Automation, Cleveland, OH, USA, 1-3 August, 2016.
- C24.Hong, L., Qu, Y., Dhupia, J. S., & Tan, Y., “A Novel Synergistic Diagnostic Scheme For Planetary Gearboxes Based On An Analytical Vibration Model of Planetary Gear-sets”, 2016 Prognostics and System Health Management Conference, Chengdu, China, 19-21 October, 2016.

Other Noteworthy Scholarly Activities (Seminars, Speeches, Technical Reports)

1. Seminar at the Mechanical Engineering Department at University of California, Merced, USA on 17 Oct 2014.
2. Seminar at the Mechanical Engineering Department at University of Texas at Austin, USA on 18 June 2014.
3. Seminar at the Department of Mechanical and Manufacturing Engineering, University of Calgary, Alberta, Canada on 10 June 2014.
4. **Dhupia, J.S.**, Ayu, A.A., Vu, T.L. Optimizing design and power management strategy of onboard DC grid based tugs, an article in *Generations- An annual customer magazine published by ABB- Marines and Cranes*, 2014
5. M. Singh, E. Muljadi, J. Jonkman, V. Gevorgian, I. Girsang, **J. Dhupia**, “Simulation for Wind Turbine Generator – with FAST and Matlab/Simulink Modules,” *NREL Technical Report NREL/TP-5500-59195*, (2014). Available at: www.nrel.gov/publications.
6. Girsang, I.P, **Dhupia, J.S.**, Muljadi, E., Singh, M. and Pao, L.Y., “Gearbox and Drivetrain Models to Study Dynamic Effects of Modern Wind Turbines”, *NREL Technical Report # NREL/CP-5500-58960*, (2013). Available at: www.nrel.gov/publications.
7. Department Seminar at Renewable and Sustainable Energy Institute (RASEI), University of Colorado University, Boulder, CO, USA on 22 Oct 2012. Video link: <http://www.scivee.tv/node/54425>.
8. Department Seminar at National Wind Turbine Center, National Renewable Energy Laboratory (US Department of Energy), Golden, CO, USA, 23 Oct 2012.
9. Keynote Conference Speech at 2013 International Conference on Advances in Engineering and Technology to be held at Lonavala, Pune (India) from 15 -17 May, 2013.