Quang Hieu Ngo

Associate Professor, Ph.D., IEEE Senior Member

CONTACT INFORMATION

Department of Mechanical Engineering,
College of Engineering Technology, Can Tho University,
3/2 street, Ninh Kieu District, Can Tho City, Vietnam,
E-mail: nqhieu@ctu.edu.vn,
Tel: +84 292 3872233, HP: +84 949 103295.

Research Interests

Modeling and control of dynamics systems, intelligent control using adaptive control, port automation and crane control, autonomous system

Education

Pusan National University, Busan, Korea

Ph.D., Intelligent control and automation — Feb 2008 to Mar 2012

- Dissertation: *Modeling and control of an offshore container crane*
- Advisor: Professor Keum-Shik Hong

Asian Institute of Technology, Bangkok, Thailand

Master of Engineering, Mechatronics — Aug 2005 to May 2007

- Thesis: *Design and control of an exoskeleton*
- Advisor: Professor Manukid Parnichkun

Ho Chi Minh City University of Technology, Ho Chi Minh City, Vietnam

Bachelor of Engineering, Mechatronics — Sept 1997 to Feb 2002

Professional Experience and Membership

Associate Professor — May 2018 to Present
Department of Mechanical Engineering
Can Tho University, Can Tho City, Vietnam

Senior Lecturer — April 2018 to May 2018
Department of Mechanical Engineering
Can Tho University, Can Tho City, Vietnam

Lecturer — April 2002 to April 2018
Department of Mechanical Engineering
Can Tho University, Can Tho City, Vietnam

Senior Member — May 2019 to Present
Institute of Electrical and Electronics Engineers (IEEE)

Research Experience

Postdoctoral Research Fellow Apr 2015 to Oct 2015
School of Mechanical, Electrical, and Mechatronics System,
University of Technology Sydney, NSW, Australia
Supervisor: Professor Quang Ha

Research Assistant Feb 2008 to Mar 2012
School of Mechanical Engineering,
Pusan National University, Busan, Korea
Supervisor: Professor Keum-Shik Hong

Refereed Journal Publications

Q. H. Ngo, N. P. Nguyen, C. N. Nguyen, T. H. Tran, and V. H. Bui, "Payload pendulation and position control systems for an offshore container crane with adaptivegain sliding mode control," *Asian Journal of Control*, 2019 (Accepted).

Q. H. Ngo, N. P. Nguyen, C. N. Nguyen, T. H. Tran, and Q. P. Ha, "Fuzzy sliding mode control of an offshore container crane," *Ocean Engineering*, Vol. 140, pp. 125-134, 2017.

Q. H. Ngo, N. P. Nguyen, C. N. Nguyen, T. H. Tran, and K.-S. Hong, "Fuzzy sliding mode control of container cranes," *International Journal of Control, Automation and System*, Vol. 13, No. 2, pp. 419-425, 2015.

K.-S. Hong and **Q. H. Ngo**, "Dynamics of the container crane on a mobile harbor," *Ocean Engineering*, Vol. 53, pp. 16-24, 2012.

Q. H. Ngo and K.-S. Hong, "Adaptive sliding mode control of container cranes," *IET Control Theory and Application*, Vol. 6, No. 5, pp. 662-668, 2012.

Q. H. Ngo and K.-S. Hong, "Sliding mode control of an offshore container crane," *ASME/IEEE Transaction on Mechatronics*, Vol. 17, No. 02, pp. 201-209, 2012.

Q. H. Ngo and K.-S. Hong, "Skew control of a quay container crane," *Journal of Mechanical Science and Technology*, Vol. 23, No. 12, pp. 3332-3339, 2009.

Q. H. Ngo, K.-S. Hong and I. H. Jung, "Adaptive control of an axially moving system," *Journal of Mechanical Science and Technology*, Vol. 23, No. 11, pp. 3071-3078, 2009.

Refereed Conference Papers

Q. H. Ngo and N. P. Nguyen, "Sliding mode control design with the time varying parameters of the sliding surface of an offshore container crane,"

Proceedings of Asian Control Conference (ASCC), pp. 2669 - 2674, Gold Coast, QLD, Australia, 2017.

N. P. Nguyen, **Q. H. Ngo** and C. N. Nguyen, "Adaptive sliding mode control using radial basis function network for container cranes," *Proceedings of International Conference on Control, Automation and Systems*, pp. 1628 - 1633, Jeju, South Korea, 2017.

N. P. Nguyen, T. N. Phan, and **Q. H. Ngo**, "Autonomous offshore container crane system using a fuzzy-PD logic controller," *Proceedings of International Conference on Control, Automation and Systems*, pp. 1093-1098, Gyeongju, Korea, 2016.

N. P. Nguyen, **Q. H. Ngo**, and Q. P. Ha, "Active control of an offshore container crane," *Proceedings of International Conference on Control, Automation and Systems*, pp. 773-778, Busan, Korea, 2015.

Q. H. Ngo, Y. Nan, and K.-S. Hong, "Command shaping for vibration reduction of container cranes," *Proceedings of International Conference on Control, Automation and Systems*, pp. 651-655, Jeju, Korea, 2012.

Q. H. Ngo, Y. Yu, E. H. Kim, I. G. Jang, and K. S. Hong, "Orientation control of a cranes spreader: Application on mobile harbor," *Proceedings of International Conference on Control, Automation and Systems*, pp. 510-515, Seoul, Korea, 2011.

Q. H. Ngo and K.-S. Hong, "Anti-sway control of an offshore container cranes: Ship motion compensation," *Proceedings of IEEE/SICE International Symposium on System Integration*, Kyoto, Japan, 2011.

Q. C. Nguyen, **Q. H. Ngo**, and K.-S. Hong, "Transverse vibration control of axially moving webs by regulation of axial tension," *Proceedings of the International Conference on Control, Automation and Systems*, pp. 1936-1940, Seoul, Korea, 2010.

Q. H. Ngo, Q. C. Nguyen, and K.-S. Hong, "Nonlinear control of an offshore container crane," *Proceedings of the 10th International Conference on Motion and Vibration Control*, pp. 1C15.1-7, Tokyo, Japan, August 17-20, 2010.

Q. C. Nguyen, **Q. H. Ngo**, and K.-S. Hong, "Adaptive control for a rewinding process of a high-speed roll-to-roll system," *Proceedings of the 10th International Conference on Motion and Vibration Control*, pp. 2B11.1-9, Tokyo, Japan, August 17-20, 2010.

Z. M. Cao, **Q. H. Ngo**, Q. C. Nguyen and K. S. Hong, "Sway control of the crane mounted on a ship with rolling motion," *International Conference on Mechatronics and Information Technology*, Gwangju, Korea, December 3-5, pp. 430-435, 2009.

Z. M. Cao, **Q. H. Ngo**, Q. C. Nguyen and K. S. Hong, "Modeling of a container crane for mobile harbor," *Proceedings of the KSME 2009 Autumn Annual Meeting*, Busan, Korea, October 21-22, 2009.

K. S. Hong and **Q. H. Ngo**, "Port Automation: Modeling and control of container cranes," *Proceedings of International Conference on Instrumentation, Control and Automation*, Bandung Insitute of Technology, Bandung, Indonesia, October 2009. Plenary talk.

Q. H. Ngo, Q. C. Nguyen and K. S. Hong, "Adaptive boundary control of an axially moving string under the effect of boundary disturbance," *Proceedings of ICROS-SICE International Joint Conference 2009*, Fukuoka, Japan, pp. 304-309, 2009.

Q. C. Nguyen, **Q. H. Ngo** and K. S. Hong, "Active vibration control of an axially moving beam using varying velocity method," *Proceedings of ICROS-SICE International Joint Conference 2009*, Fukuoka, Japan, pp. 287-292, 2009.

Q. C. Nguyen, **Q. H. Ngo** and K. S. Hong, "Adaptive control of an axially moving string under spatiotemporally varying tension via a hydraulic actuator," *Proceedings of ICROS-SICE International Joint Conference 2009*, Fukuoka, Japan, pp. 293-297, 2009.

Q. H. Ngo and K. S. Hong, "Adaptive boundary control of an axially moving string system: application to container cranes," *Proceedings of IEEE International Symposium on Industrial Electronics*, Seoul, Korea, pp. 2121-2125, 2009.

Q. H. Ngo, K. S. Hong, K. H. Kim, Y. J. Shin and S. H. Choi, "Skew control of a container crane," *Proceedings of International Conference on Control, Automation and Systems 2008*, Seoul, Korea, pp. 1490-1494, 2008.

Awards

Contribution Awards

- Awards for Excellence Contribution in Teaching
  Ministry of Education and Training, Vietnam, 2016 and 2018.

Research Awards

- Endeavour Research Fellowship Award, Australia
  Apr 2015 to Oct 2015.

- JMST Contribution Award for Most Citations of JMST Papers, Korea 2016.

Travel Awards

- ICCAS 2015, Busan, Korea funded by NAFOSTED, Vietnam
  Oct 13 - Oct 17, 2015

Student Awards

- Outstanding Research Assistant Award, PNU, Busan, Korea
  May 2010
- Outstanding Students Achievement Award, Rencontres du Vietnam
  Oct 2005

Research Projects

Principal Investigator

- Active control of an offshore container crane, National Foundation for Science and Technology Development (NAFOSTED).
  August 2018 to August 2020.
- Robust control design of an offshore container crane, National Foundation for Science and Technology Development (NAFOSTED).
  Mar 2014 to Mar 2017.
- Feasibility study for rice growing method by transplanting, Yanmar Co. Ltd.
  Apr 2013 to March 2018.
- Research on power tiller, Yanmar Co. Ltd.
  Jun 2013 to Sept 2013.
- Development control algorithms for cranes, Can Tho University.
  Mar 2013 to Dec 2013.
- Development of a RoboCrane by using Stewart principle, Can Tho University.
  Apr 2004 to Mar 2005.

Research Assistance

- Development of core technology for a lightweight crane - KAIST Mobile Harbor, Pusan National University, Korea.
  Jul 2009 to Apr 2011.
- Exoskeleton robot for handicapped people, Asian Institute of Technology, Thailand.
  Aug 2006 to May 2007.

Teaching Experience

Undergraduate

- Mechatronics system design — Aug 2012 to Dec 2014
- Power hydraulics and pneumatics — Aug 2002 to present
- Introduction to robotics — Aug 2012 to present
- Engineering vibration — Aug 2012 to present

Graduate

- Digital control systems — Aug 2014 to present
- Robot dynamic and control — Aug 2014 to present

Services

Department of Mechanical Engineering,
Can Tho University, Vietnam

- Head — Jul 2014 to present.
- Deputy Head — Jul 2012 to June 2014.

Project Management Unit,
Can Tho University, Vietnam

- Procurement Manager — Apr 2015 to present.

Program Committee Member for Conferences

- ICCAS 2015, Busan, Korea — Oct 13 to Oct 17, 2015.
- ICCAS 2016, Gyeongju, Korea — Oct 16 to Oct 19, 2016.
- ICCAS 2017, Jeju, Korea — Oct 18 to Oct 21, 2017.
- ICCAS 2018, GangWon Province, Korea — October 17 20, 2018.

Associate Editor for Conferences

- ASCC 2017, Gold Coast, Australia — Dec 17 to Dec 20, 2017.

Reviewer for Journals

- Automatica
- IEEE/ASME Transactions on Mechatronics
- International Journal of Computer Mathematics: Computer Systems Theory
- Mechatronics
- IET Control Theory and Applications
- Ocean Engineering
- Asian Journal of Control
- Automation in Construction