Quang Ha-Van

Curriculum Vitae

Education

2011–2013 **Master of Mechanical Engineering**, *Korea University of Technology and Education*, Korea, *GPA – 4.35 / 4.5*.
Thesis: Stable Multilateral Teleoperation System with Time Domain Passivity Approach.

2004–2009 **Bachelor of Business Studies**, *Hanoi University of Science and Technology*, Vietnam, *GPA – 7.56 / 10.0*.
Thesis: Cargo elevator control system.

Experience

July 2015 - Present **PhD Student**, *University of Innsbruck*, Innsbruck.
Haptic feedback for surgical simulation.
- Haptic augmentation.
- Vibrotactile feedback for surgical simulation.
- Twisted string actuator.

2013 - 2015 **Senior Software Engineer**, *Toshiba Software Development Vietnam*, Vietnam.
Automotive System.
- Human-machine interface for car informative system.
- Visualization tool for electronic bus data.
- Project management, software development and quality assurance.

2011–2013 **Master Student**, *Korea University of Technology and Education*, Korea.
Haptic feedback for robot teleoperation system.
- Position driff compensation method for Time Domain Passivity Approach (TDPA) to improve the transparency in bilateral teleoperation system while maintaining the stability under time delay.
- Generalized framework to stabilize multilateral system, regardless of the control architecture, the amount of master/slave, amount of time-delay.
- Implemented TDPA in mobile manipulator teleoperation system with Samsung Heavy Industrial.
- Developed admittance type passivity observer and passivity controller to stabilize the admittance type robot with Korea Electronics Technology Institute (KETI).
- Studied the feasibility of various types of force feedback in mobile robot teleoperation system including: velocity based force feedback, velocity error based force feedback, object distance based force feedback and the combination of those forces.
- Studied and applied TDPA to stabilize bilateral system with different control architectures (position-position, position-force, velocity-force).

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2009 - 2011 **Embedded Software Engineer**, *Space Technology Institute - Vietnam Academy of Science and Technology*, Vietnam.

Robot and small satellite development

- Studied on Attitude Determination System of Micro-STAR satellite in Japan (Cooperative project of Japan, Korea, Malaysia, Indonesia, Thailand and Vietnam).
- Developed software for Attitude Determination System Simulator (Vietnam national project).
- Worked as system engineer and assistant manager in PicoDragon satellite project (Vietnam National project). This is the first small satellite developed by Vietnamese, launched in November 19th, 2013 and successfully communicated with the ground station.
- Designed and developed embedded software and user interface of a small, simple mobile robot platform.

2008 - 2009 **Student internship**, *Cuong Linh Company*, Vietnam.

Programmable Logic Controller and industrial system

- Designed and developed a cargo elevator control system.
- Developed a basic check in system using RFID technology.
- Studied on SCADA communication system including PLC, inverter, industrial controllers.
- Control CNC machine using PLC.

Publications

2017 Quang Ha-Van and Matthias Harders, "Augmenting contact stiffness in passive haptics – preliminary results with twisted string actuation," in World haptics conference (WHC), 2017 IEEE, 2017, pp. 148-153

2016 Quang Ha-Van and Matthias Harders, "Improved control methods for vibrotactile rendering," in Proceedings, part I of the 10th international conference on haptics: perception, devices, control, and applications-volume 9774, 2016, pp. 217-228.

2014 Vinay Chawda, Quang Ha-Van, Marcia K. O'Malley and Jee-Hwan Ryu, "Compensating position drift in time domain passivity approach based teleoperation," in Haptics Symposium (haptics), 2014 IEEE, pp. 195-202

2013 Quang Ha-Van, Jee-Hwan Ryu and Youngdo Kwon, "A feasibility study of rate-mode mobile robot bilateral teleoperation with time domain passivity approach," Intelligent Autonomous Systems 12, pp. 207-215, 2013.

2013 Quang Ha-Van and Jee-Hwan Ryu, "Stable multilateral teleoperation with time domain passivity approach," in Intelligent robots and systems (IROS), 2013 IEEE/RSJ international conference on, 2013, pp. 5890-5895.

2012 Quang Ha-Van, Ildar Farkhatdinov and Jee-Hwan Ryu, "Passivity of delayed bilateral teleoperation of mobile robots with ambiguous causalities: time domain passivity approach," in Intelligent robots and systems (IROS), 2012 IEEE/RSJ international conference on, 2012, pp. 2635-2640.

2012 Quang Ha-Van, Jee-Hwan Ryu, "Implementation of time domain passivity approach on rate-mode bilateral teleoperation," in Automation science and engineering (CASE), 2012 IEEE international conference on, 2012, pp. 846-850.

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Communication skill

2017 Poster presentation in World Haptic 2017, Munich, Germany.

2016 Oral presentation in Eurohaptics 2016, London, UK.

2013 Demo section in World Haptic 2013, Daejon, Korea.

2012 Oral presentation in IROS 2012, Portugal.

2012 Poster presentation in CASE 2012, Korea.

2012 Oral presentation in IAS 2012, Korea.

Other skills

Realtime operating interface (RTAI).

Robot Operating System (ROS).

Embedded system programming.

Programmable Logic Controller.

Dynamic system simulation and control design.

Android programming.

Others: C/C++, Java, QT, Eclipse, Visual Studio, Matlab, Labview,svn, git,...

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