DUC CANH NGUYEN

(+33) 7-5869-2625
duc-canh.nguyen@cea.fr
canhnd.vn@gmail.com

RESEARCH EXPERIENCES

2019 **CEA**, France
- Post-doc in Robotics and AI Safety

2015 – 2018 **University of Grenoble Alpes,** France
Phd student in Gipsa - Grenoble Images Parole Signal Automatique laboratory
Speech & Cognition department,
Supervisor: Prof. Gerard Bailly

- **Teaching socio-communicative behaviors for a humanoid robot by immersive teleoperation:** Modeling multimodal interactive behavior using Deep Learning; Programing for robot's gesture controllers: head, gaze, and arm.

2013 – 2015 **Soongsil University,** Seoul, Korea.
Research Assistant, Intelligent Mechatronic System Laboratory
Department of Mechanical Engineering,
Supervisor: Prof. Hyeong-Joon Ahn

- **Reaction force compensation (RFC) system for linear motor motion stage:** Modeling dynamic and control for RFC system.
- **Dynamic and control parallel robot:** dynamic and control of a parallel RPR manipulator

2012 – 2013 **Center of Unmanned Aerial Vehicle (UAV)– Viettel Institute of Research & Development**

A member of Simulation & Algorithm team of the VTPatrol – UAV : identification, design controller and path planning of the UAV

EDUCATION

PhD candidate, Human Robot Interaction, Computer Science, University of Grenoble Alpes, France
Thesis title: "Teaching socio-communicative behaviors for a humanoid robot by immersive teleoperation"

Master, Mechanical Engineering, Soongsil University, Korea.
Thesis title: "Reaction Force Compensation (RFC) mechanisms for a Linear Motor Motion Stage"

Bachelor, Mechatronics Engineering**,** Center for Training of **Excellent Students** (CTES), Hanoi University of Science and Technology (**HUST**), Vietnam

Thesis title: "Dynamic and control of parallel robot using sliding mode with neural network"

AWARDS

Best Poster award, Journée des Doctorants (JDD) EEATS, 2017, France
Best Paper award, International Conference of Cognitive InfoComunications, Wroclaw, Poland, 2016
Best Paper award, International Conference of ASPEN, Harbin, P.R. China, 2015
Best Paper award, Korean Society of Mechanical Engineers annual meeting conference, 2014
Full scholarship of Soongsil University for Master student
Third prize in "Student's Research Contest", Hanoi University of Science and Technology,2012
Silver Medal, in the Olympiad for Hydraulics and Pneumatics, Hanoi University of Science and

Technology,2011

Silver Medal, the Olympiad for *Hydraulics and Pneumatics* in the **"Student's national mechanical Olympiad "**, 2011

Gold Medal, the Olympiad for *Strength of Material* in the **"Student's national mechanical Olympiad "**, 2010

▊▊▊▊▊ RESEARCH INTERESTS

Robotics, Human-Robot Interaction, Machine Learning (Reinforcement Learning, Deep Learning), Dynamic Modeling, Nonlinear Control, Vibration Isolator, Linear Motor, Computer Vision, Artificial Intelligent

▊▊▊▊▊ PUBLICATIONS

International journal papers

Duc Canh Nguyen, Gerard Bailly, Frederic Elisei, "Learning Off-line vs. On-line Models of Interactive Multimodal Behaviors with Recurrent Neural Networks", Pattern Recognition Letter, Volume 100, 1 December 2017, Pages 29-36.link

Duc Canh Nguyen, Hyeong Joon Ahn, "Semi-active reaction force compensation for a linear motor motion stage", International Journal of Precision Engineering and Manufacturing, Volume 17, Issue 7, pp 857–862, July 2016.link

Duc Canh Nguyen, Hyeong Joon Ahn**,** " A Fuzzy-PD controller of an Active Reaction Force Compensation (RFC) Mechanism for a Linear Motor Motion Stage ", International Journal of Precision Engineering and Manufacturing, 2015, Vol.16, No. 6, pp 1067-1074.link

Duc Canh Nguyen, Hyeong Joon Ahn**,** "Dynamic analysis and iterative design of a passive reaction force compensation device for a linear motor motion stage", International Journal of Precision Engineering and Manufacturing, 2014, Vol.15, No. 11, pp.2367-2373.link

International conference papers

Nguyen, Q. V., L. Girin, G. Bailly, F. Elisei & **D.-C. Nguyen**, Autonomous Sensorimotor Learning for Sound Source Localization by a Humanoid Robot, 2nd Workshop on Crossmodal Learning for Intelligent Robotics, Oct., 2018, Madrid, Spain.

D.C. Nguyen, G. Bailly & F. Elisei, "Comparing cascaded LSTM architectures for generating gaze-aware head motion from speech in HAI task-oriented dialogs", HCI International 2018, Las Vegas, USA

Duc Canh Nguyen, Gerard Bailly, Frederic Elisei, "An Evaluation Framework to Assess and Correct the Multimodal Behavior of a Humanoid Robot in Human-Robot Interaction", Gesture and Speech in Interaction, August 2017, Adam Mickiewicz University in Poznań. Poland.

Duc Canh Nguyen, Gerard Bailly, Frederic Elisei, "**Conducting neuropsychological tests with a humanoid robot: design and evaluation**", 7th IEEE International Conference on Cognitive Infocommunications (CogInfoCom 2016) Wroclaw, Poland. [**Best Paper award**] link

Duc-Canh Nguyen, Anh-Duc Pham, Hyeong-Joon Ahn, Motion input generation of a linear motor motion stage with a passive reaction force compensation (RFC) mechanism using optimal control theory, International Conference on Electronics, Information, and Communications (ICEIC), 2016, Vietnam.

Duc Canh Nguyen, Hyeong Joon Ahn, "Back EMF compensation of a linear motor stage with a passive RFC using Neural Network", International MOVIC Conference, Aug,2014, Japan link

Duc Canh Nguyen, Hyeong Joon Ahn, "Active Reaction Force Compensation Mechanism using PD-

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Fuzzy controller", International Symposium on Green Manufacturing and Applications Conference, July, 2014, Korea.

Duc Canh Nguyen, Hyeong Joon Ahn, "Dynamic analysis of a passive reaction force compensation device for a linear motor motion stage", Joint International Conference on Multibody System Dynamics & Asian Conference on Multibody Dynamics, July, 2014, Busan, Korea

The Linh Tran, Dong Jun Kim**, Duc Canh Nguyen**, Hyeong Joon Ahn, "FE Analysis of Torsional Rigidity of a 2-stage Cycloid Reducer for ECVVT", International Symposium on Green Manufacturing and Applications Conference, July, 2014, Korea.

Domestic conference & journal paper

Duc Canh Nguyen, Bailly Gerard, Frederic Elisei, **"**Demonstrating to a humanoid robot how to conduct neuropsychological tests", National Days of Humanoid Robotics (JNRH), Toulouse France, pp.10-12, 2016

Duc Canh Nguyen, Hyeong Joon Ahn, "A Passive Reaction Force Compensation Mechanism for a Linear Motor Motion Stage using an Additional Movable Mass", The Korean Society of Mechanical Engineers, Vol.31, issue 10, 2014. pp.929-934 [**Best Paper award**]

The Linh Tran; **Duc Canh Nguyen**; Minh Nha Pham; Hyeong Joon Ahn "Kinetostatic Analysis of a 2-stage Cycloid drive reducer " KSME 2014

Authors also have published couple of conference papers on other conferences organized by KSME, KSPE , etc.

▬▬▬▬▬▬ INVITED TALKS

Duc-Canh Nguyen, Bailly Gerard, Frederic Elisei, Learning, generating and evaluating socio-communicative behaviors of a humanoid robot for human-robot interaction, l'axe Robotique, Gipsa, link

▬▬▬▬▬▬ ENGINEERING SKILLS

Programing Python, MatLab/Simulink, R, C++, C, Maple, Javascript, HTML, Nodejs, Perl

Design SolidWorks, AutoCAD

Devices iCub, NAO – a humanoid robot platform, Industrial robots (Delta robot, Universal robot, etc.) linear motor motion stage, horizontal vibration isolator, Microprocessor (DSP), d-Space controller, Motor controller Delta Tau, Sensors (displacement, acceleration, velocity, hall-effect, IMU, etc.)

Middleware YARP (middle-ware: Yes, Another Robot Platform), ROS (Robot Operating System), ROS2

OS Windows, Linux, Unix,

▬▬▬▬▬▬ LANGUAGES

English (fluent), Vietnamese (native), Korean (basic), French (basic).

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