Hongzhong Zhu

Fukuoka, Fukuoka, Japan

zhzenith1122@hotmail.com

linkedin.com/in/hongzhong-zhu-93a78761

Summary

I have 13 years of experience in control engineering and system science. Currently, I am an assistant professor at Kyushu University. My research of interests include PWM-VSC based motion control, convex optimization, control theories and their applications, and embedded system. Recently, I am engaged in developing renewable energy system, including wave energy converters, floating offshore wind turbine, and floating overhead power transmission system.

I also have over 5 years of experience in O&M of power plant. Daily work included inspection of high-voltage devices, power output adjustment, and project management during plant maintenance.

Competencies: mathematical optimization, embedded system, MATLAB/Simulink, Python, C++.

Experience

Assistant Professor

Kyushu University

Jan 2015 - Present (7 years +)

- Numerical modelling, control of floating offshore wind turbine and wave energy converter
  - Algorithms to computing aerodynamics and hydrodynamics;
  - Reliability study under extreme Typhoon conditions;
  - Model-based controller design for motion reduction of foundation;
  - Development of small-scale experimental system by 3D printer, embedded system(Arduino)
- Offshore overhead power transmission system
  - Multi-body system dynamics between floating tower and electric wires;
  - Optimization approach for floating tower design;
  - Course stability of ship towing system;
  - Neural network for motion prediction of ship towing system;
  - Industry-academia collaboration study (*JRC Radio Company, Furukawa Electric Co., Mitsui Engineering&Shipbuilding, etc.*)
- Vibration control of two-mass motion system
  - Linear-Matrix-Inequality (LMI) approach;
  - Embedded system (dSPACE board);
  - Collaboration with *Mitsui Engineering&Shipbuilding*

Postdoctoral Fellow

The University of Tokyo

Apr 2014 - Dec 2014 (9 months)

- Modeling and control of high-precision ball-screw stages for machine tools
  - Next generation high-precision ball-screw stage: concept design;
  - Nonlinear friction compensation approach;
  - Inverter-based motion controller design: PWM-VSC based inverter control;
  - Collaboration with *DMG Mori*

Senior Engineer

China Guodian Corporation

Aug 2003 - Nov 2008 (5 years 4 months)

- Senior operator of subcritical coal power plant unit
  - Daily inspection of high-voltage devices (230V~250kV);
  - Power output adjustment according to power grid demand;
  - Project management: scheduling and quality control on recovering power plant after maintenance or device accident.

Education

The University of Tokyo

Doctor of Philosophy (Ph.D.), Electrical and Electronics Engineering

2011 - 2014

Research on robust friction compensation of ball-screw-driven stages; Control theories and their applications on motion control; PWM-VSC inverter control; FPGA-based signal processing; Digital control

Kyoto University

Master's Degree, System Science

2009 - 2011

Modern control theories; Mechatronics; Convex optimization

Skills

MATLAB&Simulink • C++ • Data Analysis • Statistics • Mathematical Modeling • Programming • Analytical Skills

Honors & Awards

Best Dissertation of the Department of Electrical Engineering - Department of Electrical Engineering, The University of Tokyo

Mar 2014

Outstanding Self-supporting International Students - China Scholarship Council

Mar 2014

Research Award - the Society of Automotive Engineers of Japan, Inc.

Mar 2014

AEON scholarship - AEON

Apr 2010