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B.Sc: Computer Engineering (Hardware), KNTU

M.Sc: Mechatronic Engineering, KNTU

Research Interest:

- Mechatronics
- Balancing robots
- Control Engineering
- Fuzzy logic
- System Identification

Thesis Title:

Design and Implementation of Fuzzy Parallel Distributed Controller on a Two-Wheeled Balancing Mobile Robot

Abstract:

The inverted pendulum system has been considered as a well known prototype system of representing nonlinear systems for testing control algorithms. A two-wheeled balancing robot is a mobile inverted pendulum system whose structure is a combination of a wheeled mobile robot and an inverted pendulum system. in this thesis a Takagi-Sugeno fuzzy model is used to model dynamics of a two wheeled balancing robot then based on the fuzzy model a controller using PDC (Parallel Distributed Compensation) approach will be designed for controlling the balance and movement and turn of robot. Robot will be connected to computer via Bluetooth and will be controlled in wireless real time method.

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