Huiyang Deng

denghuiyangbuaa@outlook.com
+86-15201613478

Current Address
IR&MCT Lab, No. 37, Xueyuan Road,
Beijing, China 100191

EDUCATION

Beihang University (BUAA), Beijing, China — **Sept 2014-Mar 2017**
Master's Degree in Control Science and Engineering
Average score: 90.1/100 Grade Rank: 15/128

Beijing Institute of Technology (BIT), Beijing, China — **Sept 2010-July 2014**
Bachelor's Degree in Automation
Average score: 86.3/100 Grade Rank: 34/189

CURRENT RESEARCH

Virtual Prototyping Design and Decoupling Control of A Three-DOF Permanent Magnet Spherical Motor (NSFC general program; Advisor: Prof. Liu Jingmeng)

Description: This subject focuses on key problems yet to be resolved in high precision position control of spherical motors. First, we optimized the mechanical structure of the spherical motor by redesigning multi-pole magnetic array to improve output torque and adjusting the measurement and support system to reduce the body size. Accordingly, we proposed adaptive sliding mode control based on backstepping algorithm, and dynamic decoupling control based on extended state observer to eliminate the coupling effect between spinning motion and tilting motion, as well as ensure the robustness and anti-interference of the system.

PUBLICATIONS

Jingmeng Liu, **Huiyang Deng**, etc. *A Dynamic Decoupling Control Structure for Permanent Magnet Spherical Actuators Based on Active Disturbance Rejection Control*. IEEE Conference on Industrial Electronics and Applications (ICIEA), June 2016, Hefei, China (Published).

Jingmeng Liu, **Huiyang Deng**, etc. *A Robust Dynamic Decoupling Control for Permanent Magnet Spherical Actuators Based on Extended State Observer*. IET Control Theory and Applications, IF: 1.957(Q1) (Published).

Jingmeng Liu, **Huiyang Deng**, etc. *Adaptive Backstepping Sliding Mode Control for 3-DOF Permanent Magnet Spherical Actuator*. Aerospace Science and Technology, IF: 1.751(Q1) (Under review for first major revision).

RESEARCH EXPERIENCE

Hardware Life Cycle Management System of Beijing Aikaka Information Technology Co. Ltd. — **Mar 2016-Apr 2016**

Project Leader

This system is used to maintain the state of Beacon and battery. Hardware is put in batch storage to generate corresponding Beacon individuals, batch numbers and storage operation records. When relevant personnel have checked warehouse-out orders filled by applicants, storekeepers can perform warehouse-out operations. The warehouse-out process is divided into different stages based on the state of warehouse-out orders. Before the real warehouse-out process, checkboxes are applied to the pre-warehouse-out process of Beacon, and changing corresponding fields of warehouse-out batteries can perform the pre-warehouse-out process of battery. The warehouse-out process of above two items is completed after type and quantity verification which can both avoid and tolerate unexpected errors. At return requests, storekeepers confirm the damaged Beacon whose status is then set to be back to the warehouse. The final process is to change the state of these damaged devices as having been returned after storekeepers complete the form related to returning factory.

Data Processing Requirement Based on Baidu API of Beijing Aikaka Information Technology Co. Ltd. **Nov 2015-Dec 2016**

Project Leader

This project used local search services of Baidu JavaScript API to achieve POI data acquisition and map instance construction. Based on search tags and Baidu POI data rules, as well as Python requests module, relevant data types are acquired via URL and subsequently analyzed and preserved. In order to display search results of POI data, the Baidu map application program interface based on JavaScript is applied to web development: cross-domain requests of resources are achieved via JSONP; data maps with current locations as centers are built by employing geolocation, map, marker, point and label classes of Baidu API; the use of related controls of Jquery EasyUI can achieve the display of data list, and supports paging, searching, filtering and so on.

Project Management System of Beijing Aikaka Information Technology Co. Ltd. **Oct 2015-Dec 2016**

Project Leader

This project is based on the requirement specification of Party A. First, database structure and front interface were designed. According to a variety of functional requirements, the system was divided into different modules, web development was developed using Thinkphp as framework, and unit testing and integration testing of the system were completed at the end of development. Access control based on RBAC Model was achieved. Initiation, creation, checking and implementation of different projects were completed. When a project is initiated, business, store and community data is used according to demand and project codes are generated automatically on the basis of certain rules. When a project is created, it can be associated with its subtasks by its ID and the distribution of tasks can be looked through with Gantt Chart. The entire business process is achieved by changes in project status and each function module can be added, deleted, modified, and checked with email notifications to related roles. Reports are generated through project, personnel and time after filling in labor hours via calendar forms. Current week can be located by sending asynchronous requests to the backend, and labor hours are submitted and saved in Datagrid. In the table of labor hours, project ID, user ID and time determine a unique record which can be used for calculating labor hours and costs of a project. In system settings, users, stores, prices and types are maintained. When stores are being added, provincial, municipal, and district business areas achieve linkage by using AMD asynchronous loading data module and the class of Baidu map can achieve auto-fill and return locations of search terms.

HONORS & AWARDS

BIT Top Ten, Beijing Undergraduate Students Research & Entrepreneurship Action Plan 06/2014

Second Place, "WellinTech Cup" Configuration Software Application Design Contest of National Information Technology Contest 12/2012

First Place, Mathematical Contest in Modeling for Chinese College Students (Beijing) 11/2012

Second Place, Interdisciplinary Contest In Modeling (ICM) 04/2012

Second Place, "Chinese Society for Electrical Engineering Cup" Electrical Engineering Mathematical Contest in Modeling 12/2011

PROFESSIONAL ACTIVITIES

ROBIO Reviewer, IEEE International Conference on Robotics and Biomimetics (ROBIO) 2016

ICCA Reviewer, IEEE International Conference on Control and Automation (ICCA) 2016

ICIEA Reviewer, IEEE Conference on Industrial Electronics and Applications (ICIEA) 2015&2016

TA, ARM9 Embedded System Experiment 2015-2016

TA, Circuit Analysis 2015-2016

PROFESSIONAL SKILLS

Matlab, C/C++, JavaScript, PHP; State Estimation, Control Theory.