The Academy of Sciences
Islamic Republic of Iran
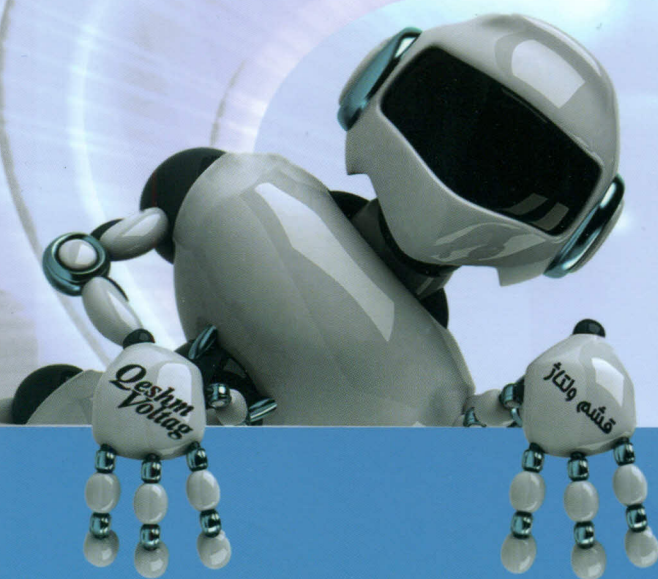
The Robotics Society of Iran

Sharif University of Technology

First RSI/ISM International Conference on Robotics and Mechatronics (ICRoM 2013)

Digest Book

Qeshm Voltag

Sharif University of Technology, Tehran

13-15 February 2013

IEEE
IRAN SECTION

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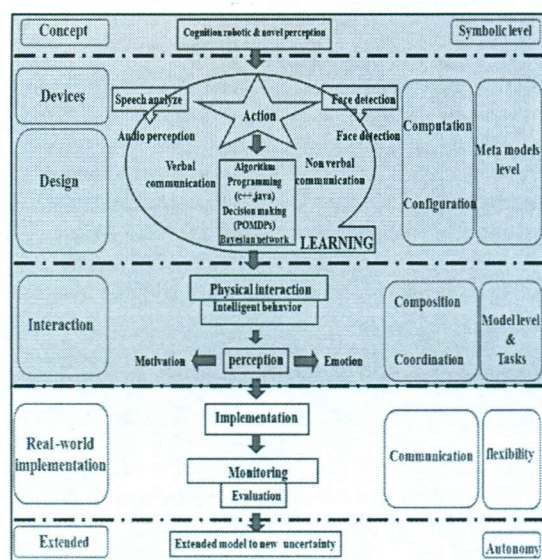MECHATRONIC

Cognitive Robotics
Exhibition Hall

COR05 1258

Design of an Architecture for human-robot interaction based on human perception

Mohammad Rabiei, Alessandro Gasparetto
DIEGM – University of Udine- Udine (Italy)

Architecture relationship between the architecture, design and antology

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COR06 1319

Detection and Tracking of Occluded Humans in Three-Camera Network

Ali Aghagolzadeh
Babol University of Technology

Sahereh Rahimi and Hadi Seyedarabi
University of Tabriz

Human tracking is one of the most important topics in surveillance systems. Increment of system's ability to detect and track humans in both indoor and outdoor crowded environments leads to a safer environment. In this paper color and shape information are fused based on particle filter framework to track humans. Histogram of oriented gradient (HOG) is a shape descriptor that is used as a feature to detect humans using support vector machine (SVM) classifier. The first step of human detection is mixture of Gaussian method that is used to find moving regions of the scene, then HOG feature of these regions is extracted and finally SVM is used to distinguish human from non-human. This algorithm leads to a fewer computational complexity against traditional method of human detection that used sliding windows to detect humans. Human motion is non-Linear and non-Gaussian so a particle filter framework is used to track human. Color and HOG histograms are used to model humans. Occlusion is one of the most important tracking challenges. According to increment of surveillance requirements, three-camera system is used to handle occlusion. Experimental results show the effectiveness of the proposed algorithm.

COR07 1321

Artificial Bee Colony optimization of Ferguson Splines for Soccer Robot Path Planning

Elahe Mansury
Mechatronics Research Lab, Islamic Azad University, Qazvin Branch, Qazvin, Iran

Alireza Nikookar
Department of Mathematics, Islamic Azad University, South Tehran Branch, Tehran, Iran

**Mostafa E. Salehi**
School of ECE, University of Tehran

In this paper four nonlinear methods are presented to stabilize the chaos Lorenz system on a desired target point. The first controller is based on Lyapunov stability theory, directly. The sliding mode control approach is utilized to design of the second controller. Also, this study proposed a decoupled sliding mode (DSM) control system in which that the three sliding surfaces are considered in the design of this control system for more performances. Moreover, in this paper a neural- network adaptive sliding mode (NASM) control system as an intelligent control system is presented. This proposed control system is designed with on line learning algorithm in the sense of Lyapunov stability theory and finite converging based on Barbalat's lemma. To show the performance and robustness property of the proposed control systems, two different disturbance conditions are considered. Finally, the effectiveness of these proposed controllers are shown with simulation results under the different conditions.

COR08 1328

جستجوی گروهی ربات ها با استفاده از بهینه سازی گروه ذرات

محمد حسن زاده ، محمد رضا میبدی و سعید شیری قیداری

دانشکده مهندسی کامپیوتر و فناوری اطلاعات، دانشگاه صنعتی امیرکبیر، ایران
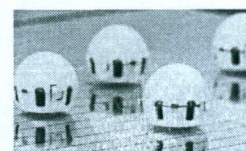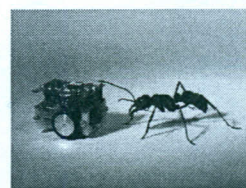
- گروه ربات-ها یک رویکرد جدید برای هماهنگی سیستم-های چند رباتی می-باشد
- بهینه-ساز گروه ذرات یک تکنیک محاسباتی است که مسأله را به صورت تکراری حل می کند
- جستجوی هدف از مسائل چالش برانگیز رباتیک می-باشد
- برای جستجوی هدف می-توان بهینه-ساز گروه ذرات را به گروه ربات-ها نگاشت داد.قسمت آزمایش های مقاله تأثیر تعداد ربات ها و شعاع ارتباطاتی میان آنها را بر کارایی اجرای الگوریتم بررسی شده است. همچنین کارایی الگوریتم پیشنهادی را در هر دوحالت هدف ثابت و هدف متحرک محاسبه نموده ایم.

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- Calibration
- Cognitive Robotics
- Cooperation and Coordination
- Design and Optimization
- Drivers
- Embedded Systems
- Field Instruments
- Field Robotics
- Flying Robots
- Haptics
- Humanoids
- Identification

- Industrial Robots
- Intelligent Robots
- Kinematics and Dynamics
- Learning Robots
- Legged Robots
- Machine Vision
- Measurement Systems
- Mechatronics Systems
- MEMS
- Micro- and Nano-Robots,
- Mobile Robots
- Motion and Force Control
- Motion Planning
- NEMS
- Object Manipulation

- Opto-Mechatronics
- Parallel Manipulators
- Probabilistic Robotics
- Reconfigurable Robots
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- Sensors
- Serial Manipulators
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