Mobile Robots Evolutionary Approach

adaptive evolutionary planner/navigator for mobile robots ... - 18 ieee transactions on evolutionary computation, vol. 1, no. 1, april 1997 adaptive evolutionary planner/navigator for mobile robots jing xiao, member, ieee, zbigniew michalewicz, lixin zhang, associate member, ieee, and krzysztof trojanowski abstract—based on evolutionary computation (ec) concepts, **an evolutionary approach to formation control with mobile ...** - an evolutionary approach to formation control with mobile robots jane holland, josephine grifth and colm o'riordan college of engineering and informatics, national university of ireland, galway, ireland keywords: evolutionary robotics, swarm robotics, self-organisation, collective behaviours, kilobots. **evolutionary neural controllers for mobile robot colonies** - evolutionary control, robot colony learning. 1. introduction the evbotii autonomous mobile robot platforms were initially developed to test high-force and high-torque solid state motors, but quickly became the focus for other research. traditionally, in most of the contemporary applications of mobile robots, the research focused on navigation, **recent advances on locomotion mechanisms of hybrid mobile ...** - recent advances on locomotion mechanisms of hybrid mobile robots shun hoe lim universiti malaysia sabah evolutionary computing laboratory faculty of computing and informatics kota kinabalu, malaysia eohnuhs@outlook jason teo universiti malaysia sabah evolutionary computing laboratory faculty of computing and informatics kota kinabalu, malaysia **multi-objective evolutionary fuzzy modelling in mobile ...** - multi-objective evolutionary fuzzy modelling in mobile robotics j. m. lucas dept. information and communications engineering university of murcia **mobile robots path planning based on evolutionary ...** - abstract—this paper presents a new way for mobile robots' path planning which is based on the evolutionary artificial potential fields(eapf) approach. the apf theory is a traditional method to plan path for a robot. the evolutionary apf aims at helping a robot jump out of the local minimum point. **evolution of neural controllers for competitive game ...** - robotics and autonomous systems 46 (2004) 135–150 evolution of neural controllers for competitive game playing with teams of mobile robots a.l. nelsona,∗, e. granta, t.c. hendersonb a department of electrical and computer engineering, center for robotics and intelligent machines, north carolina state university, raleigh, nc 27695-7911, usa **article cooperative carrying control for multi ...** - cooperative carrying control for multi-evolutionary mobile robots in unknown environments jyun-yu jhang 1, cheng-jian lin 2,* and kuu-young young 1 1 institute of electrical and control engineering, national chiaotung university, hsinchu 300, taiwan; **mobile robots - intranet deib** - mobile robots range from the teleoperated sojourner on the mars pathfinder mission to cleaning robots in the paris metro. introduction to autonomous mobile robots offers students and other interested readers an overview of the technology of mobility—the mechanisms that allow a mobile robot to move **evolutionary modular robotics: survey and analysis** - evolutionary robots in the physical world, as advanced tech-nology and rapid prototyping techniques have made these modular robots feasible. moreover, evolutionary computa-tion can empower modular robots by allowing them to self-assemble, self-reconfigure, self-repair, and self-reproduce. thereafter, numerous modular robotic applications are ana- **challenges and opportunities of evolutionary robotics** - mobile robots a key objective in evolutionary robotics is to evolve be-havior-based controllers for autonomous mobile robots [8,9]. autonomous mobile robots often incorporate both reactive and longer-term planning components in order to accommodate goal-driven behaviors. the reactive por-tion of the controller may be encoded in a variety of forms. **plan planning of mobile robot in irregular environment ...** - evolution algorithm is feasible and efficient, because it enhances the performance and quality of mobile robot path planning. 1. introduction path planning in an irregular environment is an important research area of mobile robots navigation technology, because a well path planning result can improve some properties of **fuzzy embedded mobile robot systems design through the ...** - kinematics of mobile robot in the coordinate xy - space is finished. the novel fuzzy system design by the evolutionary pso learning algorithm will be discussed in the next section. 3 evolutionary fuzzy rule-based system generation these variables $(r,r,\theta tb-)$ considered as the input vector $x= (x1, x2, ... , xn)$ is collected in the **evolving adabot: a mobile robot with adjustable wheel ...** - mobile robots that combine wheeled and legged locomotion have received a great deal of interest [1–5]. the devices ... the evolutionary results presented in this paper show the ecacy of the robot's design. specifically, that the adjustable wegs enable the robot to eectively operate as **distributed biogeography based optimization for mobile robots** - mobile robots arpit shah abstract i present hardware testing of an evolutionary algorithm (ea) known as distributed biogeography based optimization (dbbo). dbbo is an extended version of biogeography based optimization (bbo). typically, eas require a central computer to **mobile robot global localization using an evolutionary map ...** - mobile robot global localization using an evolutionary map filter ... global localization · mobile robots 1 introduction localization is a key component in geometrical robot navigation and required to ... before presenting the evolutionary filtering method, ... **using cyclic genetic algorithms to learn gaits for an ...** - detail, the suitability of evolutionary computation techniques in gait optimization for mobile legged robots [1]. evolutionary computation techniques and in particular, genetic algorithms (ga), have previously been used to develop gaits for legged robots. graham spencer used genetic programs in his work to **evbots – the design and construction of a mobile robot ...** - conducting evolutionary robotic experiments, ... base being retro-

fitted, right: one of the evbot robot colony evbots – the design and construction of a mobile robot colony for conducting evolutionary robotic experiments john galeotti, ... mobile robots and 2) working in both the simulated and real worlds. the robots, called **nadia nedjah, leandro dos santos coelho, luiza de macedo ...** - mobile robots. the book should be useful both for beginners and experienced researchers in the field of mobile robotics. in the following, we go through the main content of the chapter included in this volume, which is organised in two main parts: evolutionary mobile robots and learning mobile robots part i. evolutionary mobile robots **a colony of robots using vision sensing and evolved neural ...** - keywords: evolutionary robotics, robot colonies, mobile robots, evolutionary neural computing, behavioral robotics, vision, robot vision abstract--this paper describes the development and testing of a new evolutionary robotics research test bed. the test bed consists of a colony of small computationally powerful mobile robots that use **optimal design of the fuzzy navigation system for a mobile ...** - no obstacles present in the robots path. abraham meléndez, oscar castillo, fevrier valdez, jose soria and mario garcia: 1 optimal design of the fuzzy navigation system for a mobile robot using evolutionary algorithms intechopen article int j adv robotic sy, 2013, vol. 10, 139:2013 **a dynamically stable single-wheeled mobile robot with ...** - fig. 2. stability of conventional wheeled mobile robots: (a) three-wheeled base, (b) four-wheeled base, (c) stability margin, (d) tipping moment during acceleration or deceleration. a mistake, however, to ignore the stability problem. statically-stable wheeled mobile robots may be an evolutionary dead end when it comes to operating in human ... **the use of artificial intelligence in autonomous mobile robots** - the use of artificial intelligence in autonomous mobile robots report on research project delft university of technology, the netherlands faculty of information technology and systems knowledge based systems group keywords: artificial intelligence, autonomous robots, behavior-based robotics, evolutionary robotics, genetic algorithms **path planning and evolutionary optimization of wheeled ...** - which is an evolutionary optimization algorithm. the performance metrics (namely path length, number of hops, number of loops and fail-rate) show 34.91%, 23.18%, 52.21% and 21.21% improvement after using optimized prm parameters. we also experimentally demonstrate the application of path planning using prm to mobile car-like robots. **the history of the mobot museum robot series: an ...** - interactive, autonomous mobile robots in public spaces. we have deployed four robots over the last three years, accumulating a total operational time of about six years. we introduce the robots, then focus on the lessons learned from ... the history of the mobot museum robot series: an evolutionary study ... **the history of the mobot museum robot series: an ...** - the history of the mobot museum robot series: an evolutionary study thomas willeke mobot, inc. pittsburgh pa twilleke@csanford ... abstract: this paper describes a long-term project to install socially interactive, autonomous mobile robots in public spaces. we have deployed four robots over the last three years, ... an evolutionary study **differential evolution to enhance localization of mobile ...** - algorithm for mobile robot localization is presented by moreno et al. [6]. it also applies evolutionary filter only locally, but uses extended kalman filter (ekf) instead of mcl to provide an estimate of robots pose. the proposed algorithm was tested indoor using a mobile robot equipped with 24 ultrasonic **evolution of herding behavior of multiple autonomous ...** - we study the evolution of herding behavior of multiple autonomous mobile robotic agents. agents are cloned to form a homogeneous team. cooperation strategies for a team of the robots are represented in a neural network. an evolutionary algorithm is used to evolve the neural network fitted for herding behavior. the effectiveness **active vision and receptive field development in ...** - mobile robots are therefore an ideal tool to investigate adaptive processes that take place in a behavioral context because such robots can autonomously select the sensory stimulation by moving in the environment (pfeifer and scheier, 1999;nolfi ... of receptive fields in an evolutionary mobile robot with active vision. in contrast to **finding the optimal location and allocation of relay ...** - have focused on finding optimal placements for mobile relays [27, 28, 29]. the mobility of robots is also an important charac-teristic for the overall performance so that several studies also has been done [30, 31]. nonetheless, evolutionary based algorithms such as the ga and pso have a number of desirable properties when it comes **evolutionary behavior learning for action-based ...** - evolutionary robotics approach to automatically acquire the suitable behaviors. 4. states, actions and environment vectors using real mobile robots as individuals in ga is currently impractical because it is impossible to operate several tens of real robots for more than 100 generations. thus we use a simulator for acquiring **path planning generation in mobile robots using ...** - path planning generation in mobile robots using evolutionary harmonic potential fields. luis a. gonzález hernández1, roberto a. reyes martínez2, 1instituto politécnico nacional, centro de investigación y desarrollo de tecnología digital, tijuana, baja california, méxico, email: lgonzal@citedi **evolution of implicit and explicit communication in mobile ...** - evolution of implicit and explicit communication in mobile robots 3 fig.1. the environment and the robots. the two circular areas of the environ-ment coloured in black and white represent the two target areas. right: the e-puck robotic platform including the ground sensor board and a stripe of red paper around the top part of the body. **multiple mobile robots navigation and obstacle avoidance ...** - evolutionary approach and artificial bee colony algorithm to solve the mobile robot path planning problem. parhi and mohanta [11] have developed the path planning of the multiple mobile robots in an unknown cluttered environment using a petri-potential fuzzy hybrid controller with different membership functions. **an evolutionary method for active learning mobile robot ...** - gence applied to mobile

robotics. for the experiments of our evolutionary path planning method, we have implemented a simulator for robotic soccer according to the laws of the game for mirosot, the micro- robot. world cup soccer tournament [6]. 'the size of a robot is 7 x 7.5cm x 7.5cm. the robots move around on a 2-u grid of 130cr-n x 90cm **proposal for an half-day tutorial on: evolutionary and ...** - proposal for an half-day tutorial on: evolutionary and adaptive robotics stefano nolfi institute of cognitive sciences and technologies, cnr ... (2010). evolution of implicit and explicit communication in a group of mobile robots. in s. nolfi & m. mirolli (eds.), evolution of communication and language in embodied agents. ... evolutionary ... **display collective behaviors stefano nol"** - robots were provided with 10 infrared sensors, two wheels, and two motors controlling them. in some cases the evolved individuals displayed interesting collective behaviors such as exploring the arena in couples. more recently, quinn et al. [7] evolved simple mobile robots provided with infrared sensors for the ability to move in space while **optimization of dynamic mobile robot path planning based ...** - optimization of dynamic mobile robot path planning based on evolutionary methods ... are used to find an optimal path for mobile robots to reach to target point with obstacle avoidance. for **evolutionary robotics - arpn journals** - simulated to real-world robots is indeed feasible and readily achievable with functioning mobile robots with autonomous behaviors that display a good level of fidelity. keywords: evolutionary robotics, 3d printing, continuum robots, hybrid robots, articulated robots, wheeled robots. introduction evolutionary robotics is currently a highly **applying digital evolution to the design of self-adaptive ...** - applying digital evolution to the design of self-adaptive software benjamin e. beckmann, laura m. grabowski, philip k. mckinley, and charles ofria ... and compile and load the programs onto mobile robots. keywords: digital evolution, evolutionary computation, auto- ... test generalities of the evolutionary process, as well as for problem ... **rights / license: research collection in copyright - non ...** - autonomous robots has not yet been well established. in this paper we will show different examples of applications of evolutionary robotics to real robots by describing three different approaches to develop neural controllers for mobile robots. in all the experiments described real robots are involved and are indeed the ultimate means of ... **comparison of evolutionary computing algorithms for ...** - environments, with high real-time and environmental adaptability in the path planning of mobile robots (qu, yang, willms and et al, 2009). evolutionary algorithm (mittal and deb, 2007) is a kind of random search algorithm based on the idea of natural selection. **evolutionary optimisation for obstacle detection and ...** - mobile robotics is proposed. keywords: evolutionary algorithm, stereovision, vision systems for robotics, obstacle detection 1. introduction artificial vision, an important element in the design of autonomous robots, can be approached as the resolution of the inverse problem of reconstructinga probable model of the scenefrom the images. **to appear in proceedings of spie mobile robots xiii ...** - to appear in proceedings of spie mobile robots xiii, boston ma, november 1998 an evolutionary strategy for achieving autonomous navigation douglas w. gage space and naval warfare systems center san diego spawarsyscen d371, san diego, ca 92152-7383 abstract **introducing wanda - a new robot for research, education ...** - designing small mobile robots for research in autonomous mobile robotics, evolutionary robotics, swarm robotics, arti-cial intelligence, and articial life has a long history and reaches back to the mid 90's with the design of the khepera robot at the epfl [7]. since then several robots, like the **metaheuristics and cognitive models for autonomous robot ...** - metaheuristics and cognitive models for autonomous robot navigation raj korpan ... the graduate center, cuny second exam presentation april 25, 2017 1 / 31. autonomous robot navigation (arn) •mobile robots move through an environment from one location to another without human intervention ... metaheuristics and cognitive models for autonomous ... **fpga-based design of an evolutionary controller for ...** - the important hardware issues involved with the fpga based design of an evolutionary robot controller for the collision free navigation of mobile robots fpga implementation of a fast hadamard transformer for wcdma sanat kamal bahl, jim plusquellic dept. of computer science and electrical engineering, university of maryland, baltimore county, **nonlinear motion control of mobile robot dynamic model** - nonlinear motion control of mobile robot dynamic model jasmin velagic, bakir lacevic and nedim osmic university of sarajevo bosnia and herzegovina 1. introduction the problem of motion planning and control of mobile robots has attracted the interest of researchers in view of its theoretical challenges because of their obvious relevance in **chaotic dynamics of a behavior-based miniature mobile ...** - mobile robots used in this study, and the collection of the sensory information during free movement in four different environments. three types of robots were modeled by three ... evolutionary processes and data collection are quite time consuming in general. the desk-top set-up **evolution of station keeping as a response to flows in an ...** - evolutionary robotics, neural network, application, simulation, station keeping, aquatic robotics, neuroevolution 1. introduction increasingly, mobile robots with embedded microprocessors and electronic control systems aid humans in a variety of tasks. while many applications currently rely on remote-controlled units, in-

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