IARP Workshop

Robotics and Mechanical assistance in Humanitarian De-mining and Similar risky interventions

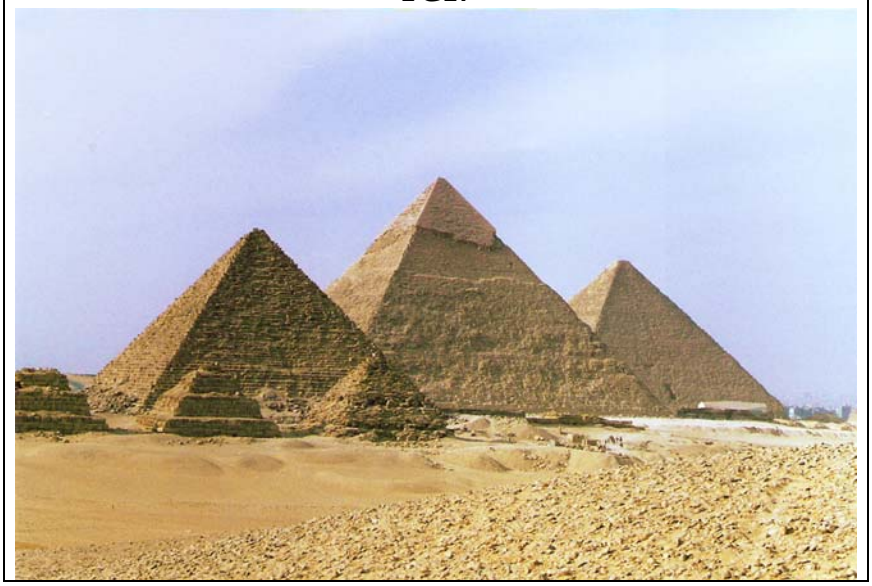
HUDEM'2008

28-30 March, 2008

American University in Cairo (AUC), Cairo
EGYPT

PROGRAM

TC17



SESSION 1-3 and Round Table: 28 March 2008, Friday

08.00H REGISTRATION		
KEYNOTE SESSION **Chairman** **Prof Y. Baudoin (RMA)**		
08.45-09.30H	Mobile Robotic Systems Facing the Humanitarian Demining Problem: State of the Art (SOTA) December 2007 ITEP 3.1.4 Task	Yvan Baudoin, et Al Royal Military School 30 Av de la Renaissance B 1000 Brussels, Belgium
SESSION F1. MOBILE ROBOTICS SYSTEMS - I **Chairman** **Prof Y. Baudoin (RMA)**		
09.30-10.00H	**Mechanical Design of a New Locomotion Concept for Humanitarian De-mining**	Prof. Dr. Dr.h.c.mult. Peter Kopacek Lukas Silberbauer Institute of Handling Devices and Robotics Vienna University of Technology Favoritenstraße 9-11 1040 Vienna, Austria
10.00-10.20H	Development of a semi-autonomous De-mining vehicle	Daniela Doroftei, Yvan Baudoin Royal Military School (RMS) Department of Mechanical Engineering (MSTA) Av. de la Renaissance 30, 1000 Brussels, Belgium
10:20 – 10:40 COFFEE BREAK		
SESSION F2. MOBILE ROBOTICS SYSTEMS - II **Chairmen:** **Prof P. Kopacek (Vienna University of Technology) and Edwardo F. Fukushima (Tokyo Institute of technology)**		
10.40-11.00H	Remote Operation of the Mini MineWolf in High-Threat Mine Environments	Christoph Frehsee Director Products and Services MineWolf Systems AG Seedammstrasse 3 8808 Pfäffikon SZ Switzerland
11.00-11.20H	De-mining techniques of improvised explosive materials by the usage of mobile robots.	Arbnor Pajaziti, Jakup Berisha, Xhevahir Bajrami Faculty of Mechanical Engineering, University of Prishtina Kosova Arbnesh Ajvazi Improvised Explosive Device Disposal Unit, Kosovo Police Service Kosova

11.20-11.40H	Humanitarian Demining Robot Gryphon - an Objective Evaluation	Marc Freese, Edwardo F. Fukushima and Shigeo Hirose Tokyo Institute of Technology
11.40-12.00H	Agricultural derived tools for ground processing in humanitarian de-mining operations – set up of testing facility in Jordan	Emanuela Elisa Cepolina (1) & Bassam Snobar (2), (1) PMARlab, Department of Mechanics and Machine Design (DIMEC), University of Genova, Italy (2) Professor at the Department of Horticulture and Crop Science, Faculty of Agriculture, University of Jordan, Amman, Jordan.
12:00 – 13:40 LUNCH		
SESSION F3: SENSOR SYSTEMS **Chairmen:** **Ptof. H. Itozaki (Osaka University) and Dr. Alaa Sheta (Al-Balqa Applied University)**		
13.40-14.00H	Nuclear Quadrupole Resonance for explosive detection	Hideo Itozaki and Go Ota Osaka University Graduate School of Science Engineering 1-3 Machikaneyama Toyonaka, Osaka 560-8531,Japan
14.00-14.20H	Exploitation of nonlinear dynamics in ferromagnetic and ferroelectric materials for novel high performances B-field and E-field sensors	B. Andò, S. Baglio, N. Savalli, C. Trigona Facoltà di Ingegneria, Univ. degli Studi di Catania, DIEES Viale A. Doria 6, 95125 Catania, Italy. V. In, A. R. Bulsara Space and Naval Warfare Systems Center 49590 Lassing Road A341, San Diego, CA 92152-5001, USA
14.20-14.40H	Segmentation of Infrared Images to Detect Landmines: An Integrated Approach	Mohamed Salama, Aseel Ajlouni and Alaa Sheta Information Technology Department Al-Balqa Applied University Al-Salt, Jordan
14.40-15.00H	A Complementary Multi-sensory Method for Landmine Detection	Snaider Carrillo(1), Carlos Santacruz(1), Diego Botero(1), Alejandro Forero(1), Carlos Parra(1) and Michel Devy(2) (1)Pontificia Universidad Javeriana, Carrera 7ª No. 40 – 62. Bogotá, Colombia (2) Laboratoire d'Analyse et d'Architecture des Systèmes (LAAS-CNRS). 7, Avenue du Colonel Roche, 31077 Toulouse Cedex 4, France
15.00-15.20H	Design of a Landmine Detection System Using NXT Robot and	Mohamed Salama, Aseel Ajlouni and Alaa Sheta Information Technology Department

	Mobile Phone Camera for Unstructured Environment	Al-Balqa Applied University Al-Salt, Jordan
15:20-15:40H	Fuzzy Template Based Automatic Landmine Detection from GPR Data	Zakarya Zyada1, Takayuki Matsuno2 and Toshio Fukuda3 1 Mechanical Eng. Dept., Tanta Univ., Tanta, Egypt; 2 Dept. of Intelligent Systems Design Eng., Toyama Prefectural Univ., Toyama, Japan; **3** Micro-Nano System Eng. Dept., Nagoya Univ., Nagoya Japan
15:40 – 16:00	Landmine detection using integration of GPR and Magnetic survey	M. A. Atya, I. El-Hemaly, A. Khozym, A. El-Emam, G. El-Qady, M. Soliman and M. Abd Alla National Research Institute of Astronomy and Geophysics, Cairo, Egypt.
16:00 – 16:20 COFFEE BREAK		
16.20-17:00 ROUND TABLE on ROBOTS and SENSORS for Humanitarian De-mining		

SESSIONS Keynote, T1-T4, and Farewell: 29 March 2008, Saturday

KEYNOTE SESSION **Chairman:** **Prof Maki Habib (AUC)**		
08.45-09.30H	Humanitarian Demining and the Challenge of Technology	Prof. Maki Habib American university of Cairo
SESSION T1. DATA PROCESSING, CONTROL and SIMULATION - I **Chairman:** **Prof Maki Habib (AUC) and Dr. Munsang Kim (KIST)**		
09.30-10.00H	tbc	tbc
12.00-12.20H	Legged robot - Animal cooperation to trace smell gradients in minefields	Thrishantha Nanayakkara[1], R. H. Lakshita Ranasingha[2], and D. Madura Rajapaksha[2] [1] School of Engineering and Applied Science [2]Harvard University, USA Department of Mechanical Engineering University of Moratuwa, Sri Lanka
10.20-10.40H	Data Association for Robot Localization in Satellite Images	Sid Ahmed Berrabah, Yvan Baudoin Mechanical Department, Royal Military School, Avenue de la Renaissance 30, 1000 Brussels, Belgium

10:40 – 11:00 COFFEE BREAK		
SESSION T2. DATA PROCESSING, CONTROL and SIMULATION - II **Chairmen:** **Prof. Janusz Bedkowski (PIAP) and Dr. Ayman Abbas (BUE)**		
11.00-11.20H	Cognitive Theory – Based Approach for Inspection using Multi Mobile Robot Control.	Janusz Bedkowski, Andrzej Maslowski Research Institute for Automation and Measurements PIAP, Warsaw, Poland
11.20-11.40H	Framework for Creation of the Simulators for Inspection Robotic Systems	Janusz Bedkowski, Grzegorz Kowalski, Andrzej Masłowski Research Institute for Automation and Measurements PIAP, Warsaw, Poland
11.40-12.00H	A Fuzzy Approach for the Control of Autonomous Vehicles Operating in Hazardous Terrain Environments	Dr Ayman Abbas British University in Egypt
12.00-12.20H	Virtual Training System for Teleoperation of ROBHAZ-DT2	Dongseok Ryu, Sungchul Kang, Munsang Kim Korea Institute of Science and Technology Center for Intelligent Robotics
12:20 – 13:30 LUNCH		
SESSION T3 : RISKY INTERVENTIONS-ENVIRONMENTAL SURVEILLANCE **Chairmen: Prof G. Muscato (DIEES) and Prof. V. G. Gradetsky (Russian Academy of Sciences)**		
13.30-13.50H	Heterogeneous robot cooperation for interventions in risky environments	C. Bruno, D. Longo, D. Melita, G. Muscato, S. Sessa, G. Spampinato DIEES Università degli Studi di Catania Viale A. Doria 6 Catania, Italy
13.50-14.10H	HIL tuning of UAV for exploration of risky environments	G. Astuti, D. Longo, D. Melita, G. Muscato, A. Orlando DIEES Università degli Studi di Catania Viale A. Doria 6 Catania, Italy
14.10-14.30H	AMARANTA: Modular Platform for a Mine Hunting Robot	Snaider Carrillo(1), Carlos Santacruz(1), Diego Botero(1), Carlos Parra(1) , Alvaro Hilarión(1), Martha Manrique(1), Camilo Otalora(1) and Michel Devy(2) (1)Pontificia Universidad Javeriana, Carrera 7ª No. 40 – 62. Bogotá, Colombia (2) Laboratoire d'Analyse et d'Architecture des Systèmes (LAAS-CNRS). 7, Avenue du Colonel Roche, 31077 Toulouse Cedex 4, France
14.30-14.50H	Demining in Shallow Inland Water Areas	Viktor Kálmán PhD student, Miklós Vogel researcher, dr. László Vajta associate professor Budapest University of Technology and

		Economics Department of Control Engineering and Information Technology
14.50-15.10H	Robotic Assistance in Extreme Conditions	Professor V. G. Gradetsky The Institute for Problems in Mechanics of Russian Academy of Sciences
15.10-15.30H	Robotised Combine to demining of mine fields	Marin Midilev 40-A-10, Bademа str 6300 Haskovo Bulgaria
CONCLUSIONS : IARP WS'HUDEM'2009 OBJECTIVES – ITEP CONTRIBUTION HUDEM' 2008 Workshop Farewell		