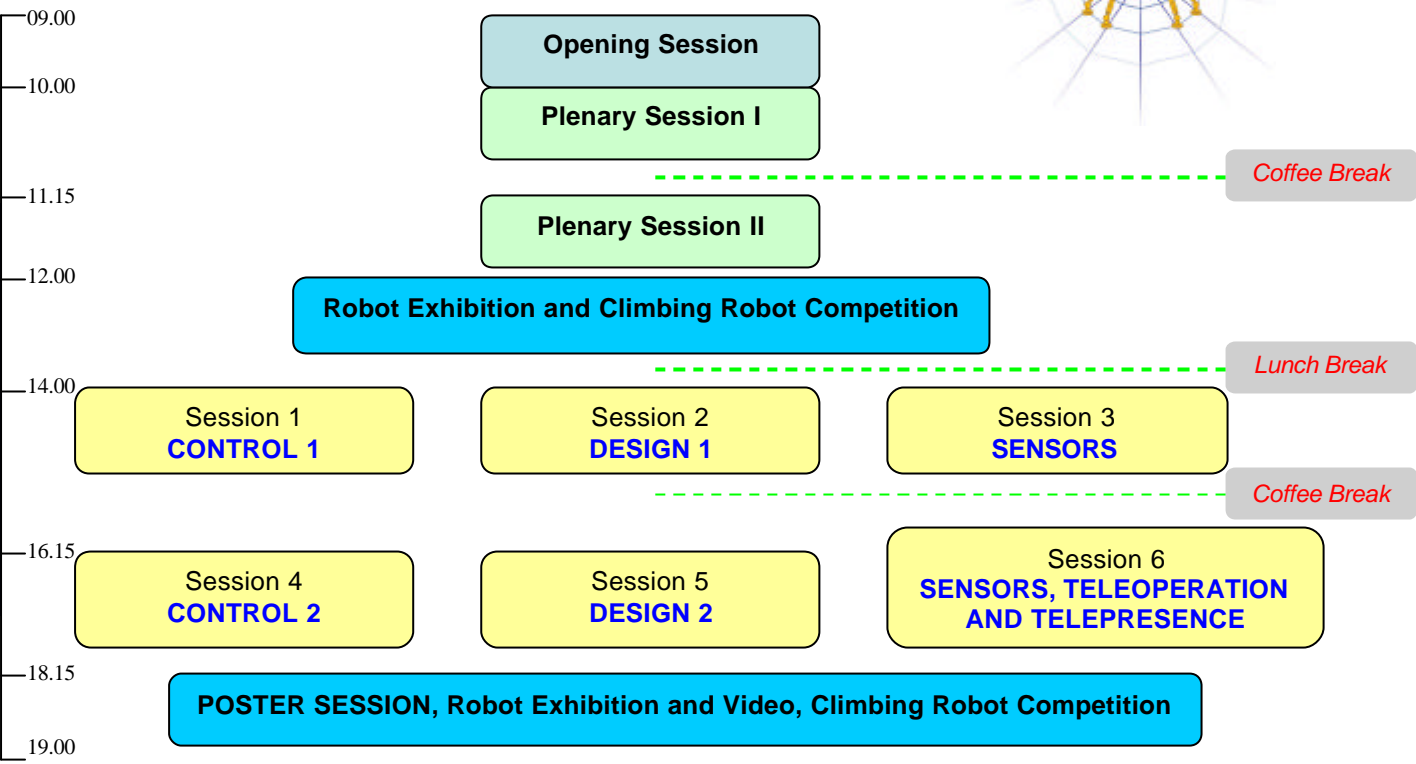


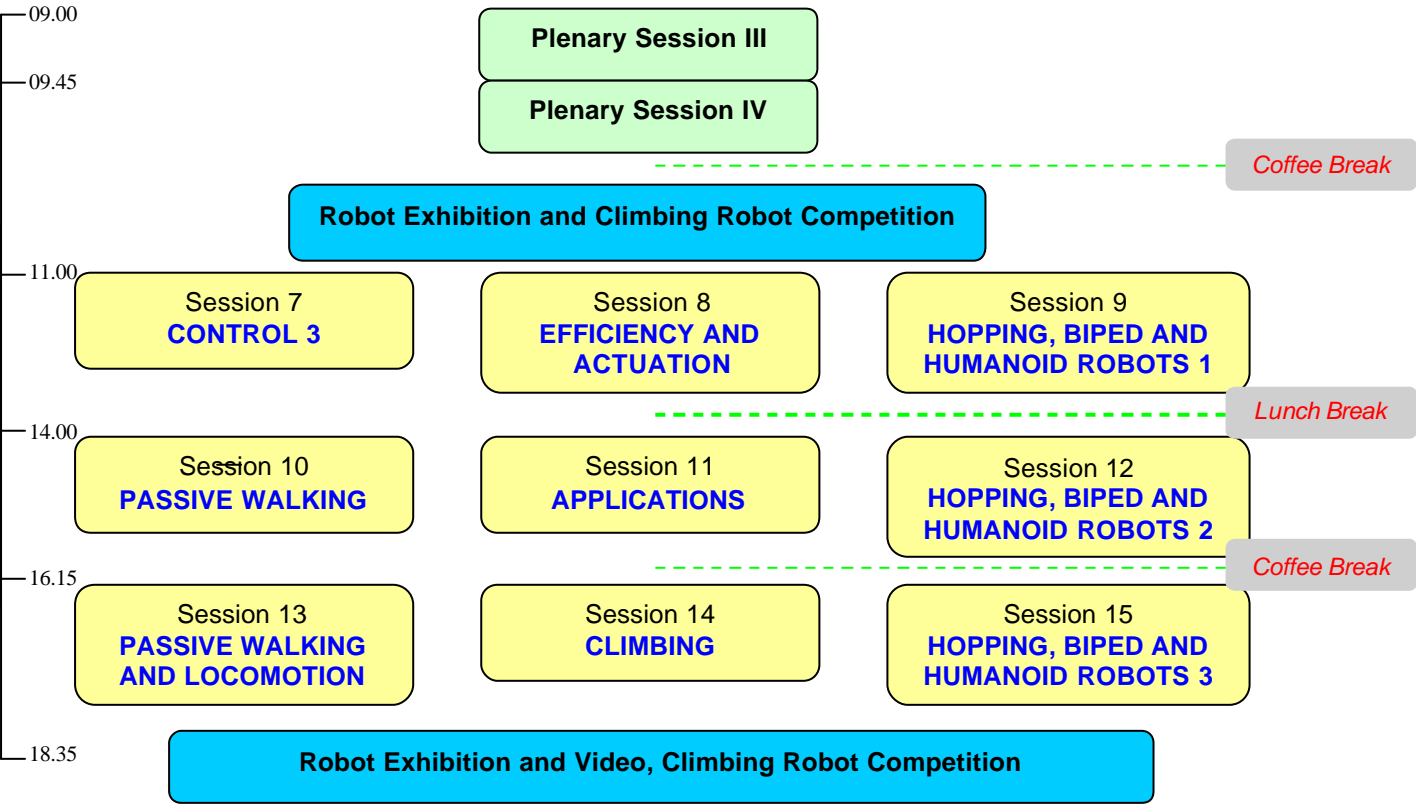
CLAWAR'04 ROADMAP



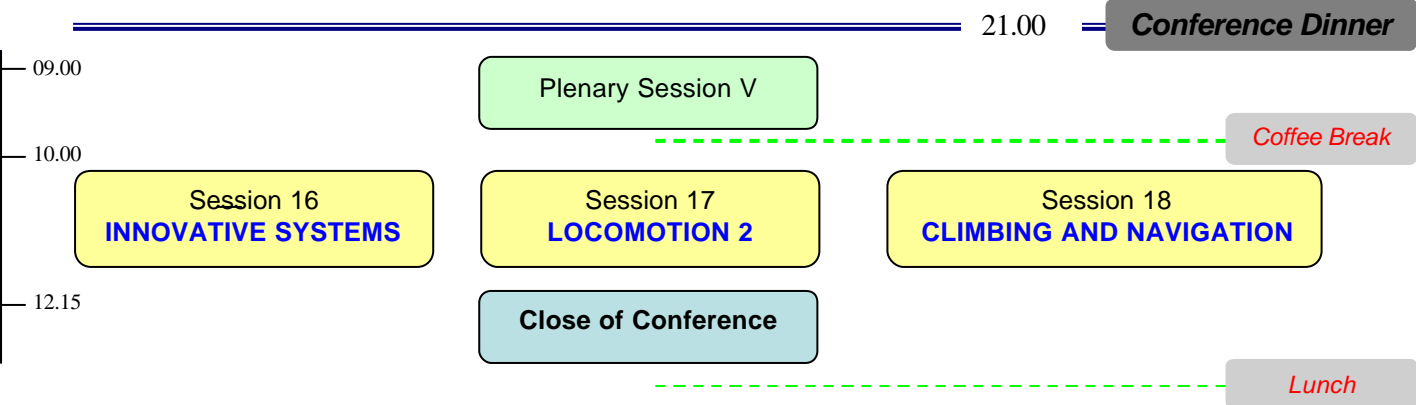
WEDNESDAY
22



THURSDAY
23



FRIDAY
24



CLAWAR'04 CONFERENCE TIMETABLE

Tuesday 21 September 2004			
17.00	19.30	Conference registration desk opening and exhibition set-up	
Wednesday 22 September 2004			
08.15	08.45	Conference registration	
Room A Sal3n de Actos del CSIC. CSIC Headquarters Main Building			
09.00	10.00	Opening Session	
10.00	10.45	Plenary Session I	Prof. R. DILLMANN <i>BIOLOGICALLY MOTIVATED CONTROL OF WALKING MACHINES</i>
10.45	11.15	<i>Coffee Break</i>	
11.15	12.00	Plenary Session II	Prof. R. MCNEILL ALEXANDER <i>PROBLEMS OF SCALE FOR WALKING AND CLIMBING ANIMALS</i>
12.00	13.00	Robot Exhibition and Climbing Robot Competition	
13.00	14.00	<i>Lunch Break</i>	
		Room A	Room B
14.00	16.00	Session 1	Session 2
16.00	16.15	<i>Coffee Break</i>	
16.15	18.15	Session 4	Session 5
18.15	19.00	Poster Session, Robot Exhibition and Video, Climbing Robot Competition	
Thursday 23 September 2004			
Room A Sal3n de Actos del CSIC. CSIC Headquarters Main Building			
09.00	09.45	Plenary Session III	Prof. D A WINTER <i>WHAT BIPEDAL HUMAN LOCOMOTION CAN TEACH US ABOUT MOTOR CONTROL SYNERGIES FOR SAFE ROBOTIC LOCOMOTION</i>
09.45	10.30	Plenary Session IV	Prof. A L RUINA <i>SOME MECHANICS PERSPECTIVES ON ROBOT LOCOMOTION</i>
10.30	11.00	<i>Coffee Break</i> + Robot Exhibition and Climbing Robot Competition	
		Room A	Room B
11.00	13.00	Session 7	Session 8
13.00	14.00	<i>Lunch Break</i>	
		Room A	Room B
14.00	16.00	Session 10	Session 11
16.00	16.15	<i>Coffee Break</i>	
16.15	18.35	Session 13	Session 14
18.35	19.15	Robot Exhibition and Video, Climbing Robot Competition	
	21.00	<i>Conference Dinner</i>	
Friday 24 September 2004			
Room A Sal3n de Actos del CSIC. CSIC Headquarters Main Building			
09.00	09.45	Plenary Session 5	Prof. M XIE <i>ROBOT VISION: A HOLISTIC VIEW</i>
09.45	10.00	<i>Coffee Break</i>	
		Room A	Room B
10.00	12.00	Session 16	Session 17
Room A Sal3n de Actos del CSIC. CSIC Headquarters Main Building			
12.15	13.00	Close of Conference	
13.00	14.00	<i>Lunch</i>	

Scientific Programme

Tuesday 21 September 2004

17.00 19.30 Conference registration desk opening and exhibition set-up

Wednesday 22 September 2004

08.15 08.45 Conference registration

09.00 10.00

Opening Session

Chairman
Room A

10.00 10.45

Plenary Session I

Chairman G S VIRK
Room A

Prof. R. DILLMANN

BIOLOGICALLY MOTIVATED CONTROL OF WALKING MACHINES

10.45 11.15

Coffee Break

11.15 12.00

Plenary Session II

Chairman P GONZALEZ
Room A

Prof. R. MCNEILL ALEXANDER

PROBLEMS OF SCALE FOR WALKING AND CLIMBING ANIMALS

12.00 13.00

Robot Exhibition and Climbing Robot Competition

13.00 14.00

Lunch Break

Session 1

CONTROL 1

Chairman J ESTREMER
Room A

14.00 14.20

INTEGER VS. FRACTIONAL ORDER CONTROL OF A HEXAPOD ROBOT
M F SILVA, J A TENREIRO MACHADO, A M LOPES

14.20 14.40

SYNCHRONOUS LANDING CONTROL OF A ROTATING 4-LEGGED ROBOT, PEOPLER, FOR STABLE DIRECTION CHANGE
T OKADA, Y HIROKAWA, T SAKAI, K SHIBUYA

14.40 15.00

NEURO-CONTROLLERS FOR WALKING MACHINES - AN EVOLUTIONARY APPROACH TO ROBUST BEHAVIOR
J FISCHER, F PASEMANN, P MANOONPONG

15.00 15.20

DECENTRALIZED DYNAMIC FORCE DISTRIBUTION FOR MULTI-LEGGED LOCOMOTION
T ODASHIMA, Z W LUO

15.20 15.40

AN OUTDOOR VEHICLE CONTROL METHOD BASED BODY CONFIGURATION INFORMATION
D CHUGO, K KAWABATA, H KAETSU, H ASAMA, T MISHIMA

15.40 16.00

IMPLEMENTATION OF A DRIVER LEVEL WITH ODOMETRY FOR THE LAURON III HEXAPOD ROBOT
J L ALBARRAL, E CELAYA

Session 2	DESIGN 1	Chairman G S VIRK Room B
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|-------|-------|--|
| 14.00 | 14.20 | OPEN MODULAR DESIGN FOR ROBOTIC SYSTEMS
<i>I CHOCHLIDAKIS, Y GATSOULIS, G S VIRK</i> |
| 14.20 | 14.40 | MECHANICAL DESIGN OPTIMIZATION OF A WALKING ROBOT LEG USING GENETIC ALGORITHM
<i>C REYES, F GONZALEZ</i> |
| 14.40 | 15.00 | KINEMATICS OF A NEW STAIRCASE CLIMBING WHEELCHAIR
<i>R MORALES, A GONZÁLEZ, V FELIU, P PINTADO</i> |
| 15.00 | 15.20 | DESIGN TOOLSET FOR REALISING ROBOTIC SYSTEMS
<i>Y GATSOULIS, I CHOCHLIDAKIS, G S VIRK</i> |
| 15.20 | 15.40 | DESIGN, DYNAMIC SIMULATION AND EXPERIMENTAL TESTS OF LEG MECHANISM AND DRIVING SYSTEM FOR A HEXAPOD WALKING ROBOT
<i>J ROCA, M NOGUES, S CARDONA</i> |
| 15.40 | 16.00 | LIMB-MECHANISM ROBOT WITH WINCH MECHANISM
<i>N FUJIKI, Y MAE, T UMETANI, T ARAI, T TAKUBO, K INOUE</i> |

Session 3	SENSORS	Chairman P BIDAUD Room C
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|-------|-------|--|
| 14.00 | 14.20 | INDUCTION MAGNETIC FIELD SENSOR AS AN ORGAN OF ROBOT VISION
<i>R SKLYAR</i> |
| 14.20 | 14.40 | RESULTS OF APPLYING SENSOR FUSION TO A CONTROL SYSTEM USING OPTIC FLOW
<i>G MARTINEZ, V BECERRA</i> |
| 14.40 | 15.00 | LEARNING ABOUT THE ENVIRONMENT BY ANALYZING ACOUSTIC INFORMATION - HOW TO ACHIEVE PREDICTABILITY IN UNKNOWN ENVIRONMENTS?
<i>M DEUTSCHER, M KATZ, S KRÜGER</i> |
| 15.00 | 15.20 | ULTRASOUND SENSOR SYSTEM WITH FUZZY DATA PROCESSING
<i>J A MORGADO DE GOIS, M HILLER</i> |
| 15.20 | 15.40 | FINDING ODOURS ACROSS LARGE SEARCH SPACES: A PARTICLE SWARM-BASED APPROACH
<i>L MARQUES, A T DE ALMEIDA</i> |
| 15.40 | 16.00 | VISION FEEDBACK IN CONTROL OF A GROUP OF MOBILE ROBOTS
<i>P DUTKIEWICZ, M KIELCZEWSKI</i> |

16.00	16.15	<i>Coffee Break</i>
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Session 4	CONTROL 2	Chairman K KOZLOWSKI Room A
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|-------|-------|--|
| 16.15 | 16.35 | LOCAL POSITIVE VELOCITY FEEDBACK (LPVF): GENERATING COMPLIANT MOTIONS IN A MULTI-JOINT LIMB
<i>A SCHNEIDER, H CRUSE, J SCHMITZ</i> |
| 16.35 | 16.55 | MOTION CALCULATION FOR HUMAN LOWER EXTREMITIES BASED ON EMG-SIGNAL-PROCESSING AND SIMPLE BIOMECHANICAL MODEL
<i>C FLEISCHER, K KONDAK, C REINICKE, G HOMMEL</i> |
| 16.55 | 17.15 | BIFURCATING RECURSIVE PROCESSING ELEMENTS IN NEURAL ARCHITECTURES FOR APPLICATIONS IN MULTIDIMENSIONAL MOTOR CONTROL AND SENSORY FUSION IN NOISY / UNCERTAIN ENVIRONMENTS
<i>E DEL MORAL</i> |

- 17.15 17.35 **THE EFFECTIVENESS OF ENERGY CONVERSION ELEMENT IN THE CONTROL OF POWERED ORTHOSES**
S C GHAROONI, M O TOKHI, G S VIRK
- 17.35 17.55 **KINEMATICAL BEHAVIOR ANALYSIS AND WALKING PATTERN GENERATION OF A FIVE DEGREES OF FREEDOM PNEUMATIC ROBOTIC LEG**
G MUSCATO, G SPAMPINATO
- 17.55 18.15 **ARTIFICIAL POTENTIAL BASED CONTROL FOR A LARGE SCALE FORMATION OF MOBILE ROBOTS**
K KOZLOWSKI, W KOWALCZYK

Session 5**DESIGN 2****Chairman J ALBIEZ
Room B**

- 16.15 16.35 **WALLWALKER: PROPOSAL OF LOCOMOTION MECHANISM CLEANING EVEN AT THE CORNER**
T MIYAKE, H ISHIHARA
- 16.35 16.55 **WALKIE6.4: A NEW IMPROVED VERSION OF A RIGID FRAMES HEXAPOD ROVER**
N AMATI, B BONA, M CHIABERGE, G GENTA, M PADOVANI, R VOLPE
- 16.55 17.15 **BIOLOGICAL INSPIRED WALKING - HOW MUCH NATURE DO WE NEED?**
J ALBIEZ, K BERNS
- 17.15 17.35 **BEHAVIOUR NETWORKS FOR WALKING MACHINES - A DESIGN METHOD**
J ALBIEZ, R DILLMANN
- 17.35 17.55 **EMBODIMENT IN TWO DIMENSIONS**
C R LINDER
- 17.55 18.15 **LEGGED ROBOT WITH ARTICULATED BODY IN LOCOMOTION OVER COMPLEX TERRAIN**
F PALIS, V RUSIN, U SCHMUCKER, A SCHNEIDER, Y ZAVGORODNIY

Session 6**SENSORS, TELEOPERATION
AND TELEPRESENCE****Chairman D HOWARD
Room C**

- 16.15 16.35 **VISION COMPUTER TOOL TO IMPROVE THE DEPENDABILITY OF MOBILE ROBOTS FOR HUMAN ENVIRONMENTS**
C SALINAS, L PEDRAZA, M ARMADA
- 16.35 16.55 **INTELLIGENT TECHNICAL AUDITION AND VISION SENSORS FOR WALKING ROBOT REALIZING TELEPRESENCE FUNCTIONS**
V E PAVLOVSKY, S A POLIVTSEEV, T S KHASHAN
- 16.55 17.15 **VEHICLE TELEOPERATION WITH A MULTISENSORY DRIVING INTERFACE**
M MAZA , S BASELGA, J ORTIZ
- 17.15 17.35 **APPROACHES TO THE GENERATION OF WHOLE BODY MOTION SENSATION IN TELEOPERATION**
M MAZA , S BASELGA, J ORTIZ
- 17.35 17.55 **NOVEL METHOD FOR VIRTUAL IMAGE GENERATION FOR TELEOPERATION**
R CHELLALI, C MAAOUI, J-G FONTAINE
- 17.55 18.15 **VIRTUAL PLATFORM FOR LAND-MINE DETECTION BASED ON WALKING ROBOTS**
A RAMIREZ, E GARCIA, P GONZALEZ DE SANTOS
- 18.15 19.00 **Poster Session, Robot Exhibition and Video, Climbing Robot Competition**

POSTER SESSION*Room: Exhibition Hall***CLAWAR MODULARITY – DESIGN TOOLS***G S VIRK***18.15 19.00****CLAWAR WP3 APPLICATIONS: NATURAL / OUTDOOR AND UNDERWATER ROBOTS***D LONGO, G MUSCATO***INTERACTION SPACE ANALYSIS FOR CLAWAR WP5 SOCIETAL NEEDS***M ARMADA, M PRIETO***CLAWAR WP 6 - ECONOMIC PROSPECTS, EXPLOITATION AND RISK ASSESSMENT OF MOBILE ROBOTIC SYSTEMS***H A WARREN*

Thursday 23 September 2004

09.00 09.45	<p>Plenary Session III</p> <p>Prof. D A WINTER <i>WHAT BIPEDAL HUMAN LOCOMOTION CAN TEACH US ABOUT MOTOR CONTROL SYNERGIES FOR SAFE ROBOTIC LOCOMOTION</i></p>	<p>Chairman R CABALLERO Room A</p>
09.45 10.30	<p>Plenary Session IV</p> <p>Prof. A L RUINA <i>SOME MECHANICS PERSPECTIVES ON ROBOT LOCOMOTION</i></p>	<p>Chairman G MUSCATO Room A</p>
10.30 11.00	<p><i>Coffee Break + Robot Exhibition and Climbing Robot Competition</i></p>	

Session 7	CONTROL 3	<p>Chairman J L CORONADO Room A</p>
11.00 11.20	<p>TWO NEURAL APPROACHES FOR SOLVING REACHING TASKS WITH REDUNDANT ROBOTS <i>J MOLINA-VILAPLANA, J L PEDREÑO-MOLINA, J LÓPEZ-CORONADO</i></p>	
11.20 11.40	<p>DESIGN AND IMPLEMENTATION OF FORCE SENSOR FOR ROBOCLIMBER <i>H MONTES, S NABULSI, M ARMADA, V SANCHEZ</i></p>	
11.40 12.00	<p>DETECTING ZERO-MOMENT POINT IN LEGGED ROBOT <i>H MONTES, S NABULSI, M ARMADA</i></p>	
12.00 12.20	<p>VISION FEEDBACK IN CONTROL OF A GROUP OF MOBILE ROBOTS <i>P DUTKIEWICZ, M KIELCZEWSKI</i></p>	
12.20 12.40	<p>PHYSICALLY VARIABLE COMPLIANCE IN RUNNING <i>J W HURST, A A RIZZI</i></p>	
12.40 13.00	<p>MOBILE MINI ROBOTS FOR MAS <i>M W HAN, P KOPACEK, B PUTZ, E SCHIERER, M WÜRZL</i></p>	

Session 8	EFFICIENCY AND ACTUATION	<p>Chairman M O TOKHI Room B</p>
11.00 11.20	<p>THE DESIGN AND SIMULATED PERFORMANCE OF AN ENERGY EFFICIENT HYDRAULIC LEGGED ROBOT <i>S AL-KHARUSI, D HOWARD</i></p>	
11.20 11.40	<p>MASS DISTRIBUTION INFLUENCE ON POWER CONSUMPTION IN WALKING ROBOTS <i>T A GUARDABRAZO, P GONZALEZ DE SANTOS</i></p>	
11.40 12.00	<p>THE MODULARITY OF SUPER EMBEDDED REAL-TIME PC (SERPC) <i>A BASILE, N ABBATE, C GUASTELLA, M LO PRESTI, G MACINA</i></p>	
12.00 12.20	<p>TOWARD SPRINGY ROBOT WALK USING STRAND-MUSCLE ACTUATORS <i>M SUZUKI, A ICHIKAWA</i></p>	
12.20 12.40	<p>ACTUATOR SIZES IN BIO-ROBOTIC WALKING ORTHOSES <i>S C GHAROONI, G S VIRK, M O TOKHI</i></p>	

12.40 13.00 **DESIGN OF DUAL ACTUATOR FOR WALKING ROBOTS**
T AKINFIEV, R FERNANDEZ, M ARMADA

Session 9 **HOPPING, BIPED AND HUMANOID ROBOTS 1** **Chairman J-G FONTAINE**
Room C

11.00 11.20 **CONTROL OF A 3-D HOPPING APPARATUS**
V B LARIN

11.20 11.40 **LEARNING OF THE DYNAMIC WALK OF AN UNDERACTUATED BIPEDAL ROBOT: IMPROVEMENT OF THE ROBUSTNESS BY USING CMAC NEURAL NETWORKS**
C SABOURIN, O BRUNEAU, J-G FONTAINE

11.40 12.00 **DYNAMIC STABILIZATION OF AN UNDER-ACTUATED ROBOT USING INERTIA OF THE TRANSFER LEG**
A DAVID, O BRUNEAU, J-G FONTAINE

12.00 12.20 **KINEMATIC AND DYNAMIC ANALYSES OF A PANTOGRAPH-LEG FOR A BIPED WALKING MACHINE**
E OTTAVIANO, M CECCARELLI, C TAVOLIERI

12.20 12.40 **GA OPTIMISATION OF THE PD COEFFICIENTS FOR THE LMBC OF A PLANAR BIPED**
D HARVEY, G S VIRK, D AZZI

12.40 13.00 **PARALLEL MANIPULATOR HIP JOINT FOR A BIPEDAL ROBOT**
J HOFSCHULTE, M SEEBODE, W GERTH

13.00 14.00 *Lunch Break*

Session 10 **PASSIVE WALKING** **Chairman M WISSE**
Room A

14.00 14.20 **STABLE WALKING AND RUNNING ROBOTS WITHOUT FEEDBACK**
K D MOMBAUR, H G BOCK, J P SCHLÖDER, R W LONGMAN

14.20 14.40 **FROM PASSIVE TO ACTIVE DYNAMIC 3D BIPEDAL WALKING - AN EVOLUTIONARY APPROACH**
S WISCHMANN, F PASEMANN

14.40 15.00 **FIRST STEPS IN PASSIVE DYNAMIC WALKING**
M WISSE, A L SCHWAB

15.00 15.20 **CONTROLLING WALKING PERIOD OF A PNEUMATIC MUSCLE WALKER**
T TAKUMA, K HOSODA, M ASADA

15.20 15.40 **EVOLUTIONARY DESIGN OF AN ADAPTIVE DYNAMIC WALKER**
J HAß, J M HERRMANN, T GEISEL

15.40 16.00 **THE PASSIVITY PARADIGM IN THE CONTROL OF BIPEDAL ROBOTS**
M W SPONG

Session 11**APPLICATIONS****Chairman M P RIBEIRO
Room B**

- 14.00 14.20 **ROBTANK INSPEC - IN SERVICE ROBOTIZED INSPECTION OF HAZARDOUS PRODUCTS STORAGE TANK**
A CORREIA CRUZ, M SILVA RIBEIRO
- 14.20 14.40 **SIRIUSC - FAÇADE CLEANING ROBOT FOR SKYSCRAPER IN MUNICH, GERMANY**
N ELKMANN, D KUNST, T KRUEGER, T BÖHME, T FELSCH, J SAENZ
- 14.40 15.00 **IN-PIPE MICROROBOT WITH INERTIAL MOOD OF MOTION**
*G G RIZZOTTO, M VEKLENKO, P AMATO, V GRADETSKY, S BASHKIROV
M KNYAZKOV, V SOLOVTSOV*
- 15.00 15.20 **THE LAYER CROSSING STRATEGY OF CURVED WALL CLEANING ROBOT**
L RONG, H JIN, S LONG, Z GUANGHUA, Z HOUXIANG
- 15.20 15.40 **PNEUMATIC CLIMBING ROBOTS FOR GLASS WALL CLEANING**
H ZHANG, J ZHANG
- 15.40 16.00 **DESIGN AND PROTOTYPING OF A HYBRID POLE CLIMBING AND MANIPULATING ROBOT WITH MINIMUM DOFS FOR CONSTRUCTION AND SERVICE APPLICATIONS**
M TAVAKOLI, M R ZAKERZADEH, G R VOSOUGHI, S BAGHERI

Session 12**HOPPING, BIPED AND HUMANOID ROBOTS 2****Chairman C BALAGUER
Room C**

- 14.00 14.20 **THREE-DIMENSIONAL RUNNING IS UNSTABLE BUT EASILY STABILIZED**
J E SEIPEL, P J HOLMES
- 14.20 14.40 **A BIOMIMETIC APPROACH FOR THE STABILITY OF BIPED ROBOTS**
J DE LOPE, D MARAVALL
- 14.40 15.00 **GAITS STABILIZATION FOR PLANAR BIPED ROBOTS USING ENERGETIC REGULATION**
N K M'SIRDI, N KHRAIEF, O LICER
- 15.00 15.20 **DEVELOPMENT OF THE LIGHT-WEIGHT HUMAN SIZE HUMANOID ROBOT RH-0**
L CABAS, S DE TORRE, I PRIETO, M ARBULU, C BALAGUER
- 15.20 15.40 **USER FRIENDLY GRAPHICAL ENVIRONMENT FOR GAIT OPTIMIZATION OF THE HUMANOID ROBOT RH-0**
M ARBULU, I PRIETO, D GUTIERREZ, L CABAS, P STAROVEROV, C BALAGUER
- 15.40 16.00 **HUMAN MACHINE INTERFACE FOR HUMANOID ROBOT RH-0**
I PRIETO, C PÉREZ, C BALAGUER

16.00 16.15	Coffee Break
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Session 13	PASSIVE WALKING AND LOCOMOTION	Chairman M WISSE Room A
16.15 16.35	ANKLE JOINTS AND FLAT FEET IN DYNAMIC WALKING <i>D G E HOBBELEN, M WISSE</i>	
16.35 16.55	THE TANGO OF A LOAD BALANCING BIPED <i>E D VAUGHAN, E DI PAOLO, I R HARVEY</i>	
16.55 17.15	STABILIZING DYNAMIC WALKING WITH PHYSICAL TRICKS <i>N M MAYER, A A FOROUGH-NASSIRAEI, T CHRISTALLER</i>	
17.15 17.35	STABILITY OF A SIMPLE 3D WALKING MODEL <i>J E SEIPEL</i>	
17.35 17.55	LOCOMOTION MODES OF AN HYBRID WHEEL-LEGGED ROBOT <i>G BESSERON, C GRAND, F BENAMAR, F PLUMET, P BIDAUD</i>	
17.55 18.15	ROBOTIC WALKING AIDS FOR DISABLED PERSONS <i>G S VIRK, S C GHAROOEI, S K BAG, M O TOKHI, R I TYLOR, S BRADSHAW, F JAMIL, I D SWAIN, P H CHAPPLE, R A ALLEN</i>	
Session 14	CLIMBING	Chairman K BERNS Room B
16.15 16.35	SIMULATION OF CLIMBING ROBOTS USING UNDERPRESSURE FOR ADHESION <i>C HILLENBRAND, J WETTACH, K BERNS</i>	
16.35 16.55	INVERSE KINEMATIC AND DYNAMIC ANALYSIS OF A NEW 4- DOF HYBRID (SERIAL-PARALLEL) MANIPULATOR FOR POLE CLIMBING ROBOT <i>M TAVAKOLI, M R ZAKERZADEH, G R VOSOUGHI, S BAGHERI</i>	
16.55 17.15	CLIMBING WITHOUT A VACUUM PUMP <i>W BROCKMANN, F MÖSCH</i>	
17.15 17.35	TOWARDS PENETRATION-BASED CLAWED CLIMBING <i>W R PROVANCHER, J E CLARK, B GEISLER, M R CUTKOSKY</i>	
17.35 17.55	DEVELOPING CLIMBING ROBOTS FOR EDUCATION <i>K BERNS, T BRAUN, T LUKSCH</i>	
17.55 18.15	ROBUST LOCALIZATION OF A CLIMBING PLATFORM <i>A MARTINS, L MARQUES, A T DE ALMEIDA</i>	
Session 15	HOPPING, BIPED AND HUMANOID ROBOTS 3	Chairman T AKINFIEV Room C
16.15 16.35	HEIGHT CONTROL OF A RESONANCE HOPPING ROBOT <i>R FERNANDEZ, T AKINFIEV, M ARMADA</i>	
16.35 16.55	ZERO MOMENT POINT MODELING USING HARMONIC BALANCE <i>R CABALLERO, M ARMADA</i>	
16.55 17.15	HUMANOID ROBOT KINEMATICS MODELING USING LIE GROUPS <i>J M PARDOS, C BALAGUER</i>	

- 17.15 17.35 CONTROL ARCHITECTURE OF LUCY, A BIPED WITH PNEUMATIC ARTIFICIAL MUSCLES**
B VANDERBORGHT, B VERRELST, R VAN HAM, J VERMEULEN, J NAUDET, D LEFEBER
- 17.35 17.55 TRAJECTORY PLANNING FOR THE WALKING BIPED "LUCY"**
J VERMEULEN, D LEFEBER, B VERRELST, B VANDERBORGHT
- 17.55 18.15 FORCE FEEDBACK CONTROL IMPLEMENTATION FOR SMART NON-LINEAR ACTUATOR**
H MONTES, L PEDRAZA, M ARMADA, T AKINFIEV
- 18.15 18.35 AN INTRODUCTORY REVISION TO HUMANOID ROBOT HANDS**
D ALBA, M ARMADA, R PONTICELLI
- 18.35 19.15** Robot Exhibition and Video, Climbing Robot Competition
- 21.00** *Conference Dinner*

Friday 24 September 2004

Plenary Session V

Chairman E GARCIA
Room A

09.00 09.45

Prof. M XIE
ROBOT VISION: A HOLISTIC VIEW

09.45 10.00

Coffee Break

Session 16

INNOVATIVE SYSTEMS

Chairman A T ALMEIDA
Room A

10.00 10.20

ROBUST PLATFORM FOR HUMANITARIAN DEMINING
L MARQUES, S LARIONOVA, A T DE ALMEIDA

10.20 10.40

DESIGN AND CONTROL OF A MANIPULATOR FOR LANDMINE DETECTION
E GARCIA, P GONZALEZ DE SANTOS

10.40 11.00

**INTERACTIONS BETWEEN HUMAN AND ROBOT – CASE STUDY:
WORKPARTNER-ROBOT IN THE ISR 2004 EXHIBITION**
S YLÖNEN, M HEIKKILÄ, P VIREKOSKI

11.00 11.20

SIT TO STAND TRANSFER ASSISTING BY AN INTELLIGENT WALKING-AID
P MEDERIC, V PASQUI, F PLUMET, P BIDAUD

11.20 11.40

CO-OPERATIVE SMELL-BASED NAVIGATION FOR MOBILE ROBOTS
C LYTRIDIS, G S VIRK, E E KADAR

11.00 12.00

**A LOCALIZATION ALGORITHM FOR OUTDOOR TRAJECTORY TRACKING WITH
LEGGED ROBOTS**
J A COBANO, J ESTREMER, P GONZALEZ DE SANTOS

Session 17

LOCOMOTION 2

Chairman R D QUINN
Room B

10.00 10.20

**A CLAWAR THAT BENEFITS FROM ABSTRACTED COCKROACH LOCOMOTION
PRINCIPLES**
T E WEI, R D QUINN, R E RITZMANN

10.20 10.40

ISPRAWL : AUTONOMY, AND THE EFFECTS OF POWER TRANSMISSION
S KIM, J E CLARK, M R CUTKOSKY

10.40 11.00

**LOCOMOTION OF A MODULAR WORM-LIKE ROBOT USING A FPGA-BASED
EMBEDDED MICROBLAZE SOFT-PROCESSOR**
J GONZALEZ-GOMEZ, E AGUAYO, E BOEMO

11.00 11.20

LEGGED LOCOMOTION – WHAT CAN BE LEARNED FROM ROBOTICS?
A SEYFARTH, H GEYER, F IIDA, J RUMMEL

11.20 11.40

**EVOLUTIONARY DESIGN FOR STRUCTURE/CONTROL SYNTHESIS OF
LOCOMOTION SYSTEMS**
N BRENER, P BIDAUD, O CHOCRON, F B AMAR

11.00 12.00

**KINEMATIC MODEL AND ABSOLUTE GAIT SIMULATION OF A SIX-LEGGED
WALKING ROBOT**
G FIGLIOLINI, V RIPA

Session 18**CLIMBING AND NAVIGATION****Chairman R MOLFINO
Room C****10.00 10.20****ROBOCLIMBER: PROPOSAL FOR ON-LINE GAIT PLANNING**
*M MORONTI, M SANGUINETI, M ZOPPI, R M MOLFINO***10.20 10.40****ADHESION CONTROL FOR THE ALICIA3 CLIMBING ROBOT**
*D LONGO, G MUSCATO***10.40 11.00****ROBOCLIMBER: CONTROL SYSTEM ARCHITECTURE**
*S NABULSI, H MONTES, M ARMADA***11.00 11.20****TECHNIQUE FOR A SIX-LEGGED WALKER CLIMBING A HIGH SHELF BY USING A VERTICAL COLUMN**
*Y F GOLUBEV, V V KORIANOV***11.20 11.40****NAVIGATION OF WALKING ROBOTS: LOCALIZATION BY ODOMETRY**
*B GABMANN, J M ZÖLLNER, R DILLMANN***11.00 12.00****MOTION PLANNING FOR A LEGGED VEHICLE BASED ON OPTICAL SENSOR INFORMATION**
*R BADE, ANDRÉ HERMS, T IHME***12.15 13.00****Close of Conference****Chairman
Room A****13.00 14.00***Lunch*