

30th International Conference

RAAD Poitiers | Robotics 
 Alpe
 Adria
 Danube
 Region
2021
Futuroscope-Poitiers, France
June 21-23, 2021

RAAD 2021, PROGRAM OVERVIEW

The 30th International Conference on Robotics in Alpe-Adria-Danube Region (RAAD 2021)

Program

Hour	Monday	Tuesday	Wednesday
	21 / 06 / 2021	22 / 06 / 2021	23 / 06 / 2021
8:30			
9:00 - 9:20	Opening	S5: RAAD 2020 <small>ID: 033-0, 035-0, 037-0, 047-0</small>	S10: RAAD 2020 <small>ID: 009-0, 046-0, 048-0, 055-0, 059-0</small>
9:20 - 10:10	Keynote Lecture <i>Kosta Jovanović</i>		
10:10 - 10:40	Coffee-break		
10:40 - 12:40	S1: Industry Robotics <small>ID: 001, 005, 007, 017, 026, 029</small>	S6: Mechanical Design and Kinematics <small>ID: 021, 022, 030, 003, 019, 025</small>	S11: RAAD 2020 <small>ID: 022-0, 041-0, 045-0, 028-0, 063-0</small>
12:40 - 14:00	Lunch		Award Ceremony Closing session
14:00 - 15:20	S2: Learning and Vision <small>ID: 004, 008, 010, 024</small>	Keynote Lecture <i>Carl Nelson</i>	
15:20 - 15:40	Coffee-break		
15:40 - 17:00	S3: Control <small>ID: 002, 006, 011, 012</small>	S7: Rehabilitation Robotics and <small>ID: 014, 018, 020, 023</small>	
17:00 - 17:20	Coffee-break		
17:20 - 18:20	S4: Control <small>ID: 009, 015, 016</small>	S8: Rehabilitation Robotics and <small>ID: 027, 028, 031</small>	
18:20 - 19:20	Meeting of the RAAD ISC	S9: RAAD 2020 <small>ID: 039-0, 025-0, 036-0</small>	

RAAD 2021, DETAILED PROGRAM

MONDAY 21.06.2021

9:20 – 10:10 ■ KEYNOTE LECTURE

CHAired BY: MED AMINE LARIBI

PROFESSOR. KOSTA JOVANOVIĆ,

TITLE: **ROBOTIC INNOVATIONS IN SUPPORT OF THE HEALTHCARE WORKERS AGAINST COVID-19 – DIH-HERO PERSPECTIVE**

10:40 – 12:40 ■ SESSION 1: INDUSTRY ROBOTICS

CHAired BY: LEON ŽLAJPAH

- 001 **EXTENDED STATE AUTOMATA FOR INTUITIVE ROBOT PROGRAMMING**
LUKAS SAUER, DOMINIK HENRICH
- 005 **IDENTIFICATION OF A UR5 COLLABORATIVE ROBOT DYNAMIC PARAMETERS**
ANDREA RAVIOLA, ANDREA DE MARTIN, ROBERTO GUIDA, STEFANO PASTORELLI, STEFANO MAURO, MASSIMO SORLI
- 007 **QUALITY INSPECTION OF HOUSEHOLD MACHINES USING COLLABORATIVE ROBOT**
LEON ŽLAJPAH, SAMO GAZVODA
- 017 **DEVELOPMENT OF A FRANKA EMIKA COBOT SIMULATOR PLATFORM (CSP) DEDICATED TO MEDICAL APPLICATIONS**
AMIR TRABELSI, JUAN SANDOVAL, MONCEF GHISS, MED AMINE LARIBI
- 026 **ASSESSMENT OF UNIVERSAL ROBOT FORCE CONTROL AND EXTERNAL FORCE COMPLIANCE DEVICE FOR SURFACE TREATMENT**
STEFAN GADRINGER, HUBERT GATRINGER, ANDREAS MUELLER
- 029 **KINEMATIC AND DYNAMIC ASSESSMENT OF TRUNK EXOSKELETON**
ELISA PANERO, MARGHERITA SEGAGLIARI, STEFANO PASTORELLI, LAURA GASTALDI

14:00 – 15:20 ■ SESSION 2: LEARNING AND VISION

CHAired BY: BERNS KARSTEN

- 004 **ANGULAR DEPENDENCY OF THE ZERO MOMENT POINT**
TILEN BRECELJ, TADEJ PETRIC
- 008 **MARKER-BASED AUTOMATIC DATASET COLLECTION FOR ROBOTIC VISION SYSTEM**
DENIS CHIKURTEV, KALOYAN YOVCHEV
- 010 **ACCELERATING ROBOT REINFORCEMENT LEARNING WITH ACCUMULATION OF KNOWLEDGE**
ZVEZDAN LONCAREVIC, ANDREJ GAMS
- 024 **DETECTION OF FUNGUS IN GLADIOLUS FIELDS USING A QUADCOPTER**
MUHAMMAD HASSAN ZAHEER, SYED ATIF MEHDI, HANNAN KEEN, BERNS KARSTEN

15:40 – 17:00 ■ SESSION 3: CONTROL

CHAired BY: ALEKSANDAR RODIĆ

- 002 **ADAPTING BEHAVIOUR OF SOCIALLY INTERACTIVE ROBOT BASED ON TEXT SENTIMENT**
SARWAR HUSSAIN PAPLU, MOHAMMED NAZRUL ISLAM ARIF, KARSTEN BERNS
- 006 **MODULAR REAL-TIME SYSTEM FOR UPPER-BODY MOTION IMITATION ON HUMANOID ROBOT TALOS**
KRISTINA SAVEVSKA, MIHAEL SIMONIČ, ALES UDE
- 011 **MULTI-OBJECTIVE TRAJECTORY TRACKING OPTIMIZATION FOR ROBOTS WITH ELASTIC JOINTS**
WERNER AINHAUSER, ANDREA GIUSTI, JOHANNES GERSTMAYR
- 012 **STABILIZATION OF MOBILE WEAPON AIMING**
KAROL DOBROVODSKÝ, PAVEL ANDRIS

17:20 – 18:20 ■ SESSION 4: CONTROL

CHAired BY: ANDREAS MUELLER

- 009 **CLOUD-ENABLED BI-MANUAL COLLABORATIVE ROBOT WITH ENHANCED VERSATILITY FOR CUSTOMIZED PRODUCTION**
ALEKSANDAR RODIĆ, MILOŠ JOVANOVIĆ, ILIJA STEVANOVIĆ, JOVAN ŠUMARAC

- 015 USING THE DIGITAL TWIN CONCEPT TO DESIGN AND VALIDATE A ROBOTIZED BIN PICKING PROCESS**
SILVIU RAILEANU, FLORIN DANIEL ANTON, THEODOR BORANGIU, SILVIA ANTON
- 016 PRELIMINARY STUDY OF SELF-ADAPTIVE CONSTRAINED OUTPUT ITERATIVE LEARNING CONTROL FOR ROBOTIC MANIPULATORS**
KALOYAN YOVCHEV, LYUBOMIRA MITEVA

TUESDAY 22.06.2021

8:30 – 10:10 ■ SESSION 5: RAAD 2020

CHAIRER BY: CARLO FERRARESI

- 033-0 ANALYSIS OF DIFFERENT METHODS TO CLOSE THE REALITY GAP FOR INSTANCE SEGMENTATION IN A FLEXIBLE ASSEMBLY CELL**
HAFEZ NAWAL, VINCENT DIETRICH, STEFAN ROEHL
- 035-0 DATA-DRIVEN SYNTHESIS OF PERCEPTION PIPELINES VIA HIERARCHICAL PLANNING**
VINCENT DIETRICH, BERND KAST, SEBASTIAN ALBRECHT, MICHAEL BEETZ
- 037-0 MAXIMIZING THE END-EFFECTOR CARTESIAN STIFFNESS RANGE FOR KINEMATIC REDUNDANT ROBOT WITH COMPLIANCE**
BRANKO LUKIĆ, KOSTA JOVANOVIĆ, NIKOLA KNEZEVIĆ, LEON ŽLAJPAH, TADEJ PETRIČ
- 047-0 MINIMUM-ENERGY TRAJECTORY PLANNING FOR INDUSTRIAL ROBOTIC APPLICATIONS: ANALYTICAL MODEL AND EXPERIMENTAL RESULTS**
LORENZO SCALERA, GIOVANNI CARABIN, RENATO VIDONI, ALESSANDRO GASPARETTO

10:40 – 12:40 ■ SESSION 6: MECHANICAL DESIGN AND KINEMATICS

CHAIRER BY: ALESSANDRO GASPARETTO

- 021 THE STIFFNESS MODEL OF THE COMPLIANT POSITIONING MECHANISM WITH WATT'S LINKAGE**
JAROSLAV HRICKO, STEFAN HAVLIK
- 022 WORKSPACE AND SINGULARITY ZONES ANALYSIS OF A ROBOTIC SYSTEM FOR BIOSAMPLES ALIQUOTING**
DMITRY MALYSHEV, LARISA RYBAK, GIUSEPPE CARBONE, TATIANA SEMENENKO, ANNA NOZDRACHEVA
- 030 PRELIMINARY OBSERVATIONS FOR FUNCTIONAL DESIGN OF A MOBILE ROBOTIC MANIPULATOR**
LUCA CARBONARI, LUIGI TAGLIAVINI, ANDREA BOTTA, PARIDE CAVALLONE, GIUSEPPE QUAGLIA
- 003 DESIGN AND ANALYSIS OF 2 DOF ELBOW PROSTHESIS**
RAMSÉS HERNÁNDEZ-CERERO, CHRISTOPHER TORRES SAN MIGUEL, JOSÉ ALFREDO LEAL-NARANJO, MARCO CECCARELLI
- 019 DESIGN AND PRELIMINARY TESTING OF A NOVEL SEMI-AUTOMATIC SAFFRON HARVESTING DEVICE**
ALESSANDRO DENARDA, ANDREA MANUELLO BERTETTO, DOINA PISLA, GIUSEPPE CARBONE
- 025 DEVELOPMENT OF A LOW-COST FORCE SENSORY SYSTEM FOR FORCE CONTROL VIA SMALL GRIPPERS OF COOPERATIVE MOBILE ROBOTS USED FOR FABRIC MANIPULATION**
IOANNIS DADIOTIS, JOHN SAKELLARIOU, PANAGIOTIS KOUSTOUMPARDIS

14:00 – 15:20 ■ KEYNOTE LECTURE

CHAIRER BY: MED AMINE LARIBI

PROFESSOR CARL NELSON,
 TITLE: PERSPECTIVES ON 15 YEARS OF MEDICAL ROBOTICS RESEARCH

15:40 – 17:20 ■ SESSION 7: REHABILITATION ROBOTICS AND EXOSKELETONS

CHAIRER BY: GIUSEPPE CARBONE

- 023 ROBOTIC-ASSISTED PLATFORM FOR SPINAL SURGERY: A PRELIMINARY STUDY**
TERENCE ESSOMBA, MED AMINE LARIBI, JUAN SANDOVAL, CHIEH-TSAI WU, SAID ZEGHLOUL
- 025-0 STATIC BALANCING OF A 5-DOF MECHANISM WITH MANUAL RECONFIGURATION FEATURE**
TERENCE ESSOMBA
- 014 DESIGN OF A CABLE-DRIVEN PARALLEL ROBOT FOR THE CERVICAL SPINE MOTION TRAINING**
ALIZÉE KOSZULINSKI, ELIOT STANTINAT, LEA OLLIVIER, JUAN SANDOVAL, MED AMINE LARIBI
- 018 DESIGN OF A CABLE-DRIVEN ROBOT FOR ELBOW AND WRIST REHABILITATION**
AXEL FORT, OCTAVIE SOMOZA, MED AMINE LARIBI, JUAN SANDOVAL, MARCO CECCARELLI
- 020 USING A ROBOT CALIBRATION APPROACH TOWARD FITTING A HUMAN ARM MODEL**
VALERIO CORNAGLIOTTO, ELISA DIGO, STEFANO PASTORELLI

17:20 – 18:20 ■ SESSION 8: REHABILITATION ROBOTICS AND EXOSKELETONS

CHAired BY: JUAN SANDOVAL

- 027 FEASIBILITY STUDY OF A PASSIVE PNEUMATIC EXOSKELETON FOR UPPER LIMBS BASED ON A MCKIBBEN ARTIFICIAL MUSCLE**
STEFANIA MAGNETTI GISOLO, GIOVANNI GERARDO MUSCOLO, MARIA PATERNA, CARLO DE BENEDECTIS, CARLO FERRARESI
- 028 CONTROLLABLE PASSIVE TRANSTIBIAL PROSTHESIS – DESIGN**
IONEL CRISTIAN VLADU, CRISTINA PANA, CRISTIAN COPILUSI, IULIAN PETRISOR, ILEANA VLADU, NICU BÎZDOACĂ
- 031 A STUDY OF FEASIBILITY FOR A NOVEL CABLE-DRIVEN UPPER-LIMB EXOSKELETON WITH MAGNETIC BALANCING**
JHON FREDDY LEON, DANIELE CAFOLLA, BRANDON SUAREZ, EDUARDO CASTILLO, GIUSEPPE CARBONE

18:20 – 19:20 ■ SESSION 9: RAAD 2020

CHAired BY: EDUARDO CASTILLO

- 039-0 NOVEL SAFETY CRITERION FOR SYNTHESIS OF CABLE DRIVEN PARALLEL ROBOTS**
INES BEN HAMIDA, MED AMINE LARIBI, ABDELFAH MLIKA, LOTFI ROMDHANE, SAÏD ZEGHLOUL, GIUSEPPE CARBONE
- 036-0 DESIGN OF ROBOTIC BRACES FOR PATIENTS WITH SCOLIOSIS**
RAHUL RAY, LAURENCE NOUAILLE, BRIAC COLOBERT, GÉRARD POISSON

WEDNESDAY 23.06.2021

8:30 – 10:10 ■ SESSION 10: RAAD 2020

CHAired BY: VASSILIS MOULIANITIS

- 009-0 COMBINING THE ROBOT OPERATING SYSTEM WITH BUILDING INFORMATION MODELING FOR ROBOTIC APPLICATIONS IN CONSTRUCTION LOGISTICS**
CAMILLA FOLLINI, MICHAEL TERZER, CARMEN MARCHER, ANDREA GIUSTI, DOMINIK TOBIAS MATT
- 046-0 MOTION SICKNESS MINIMISATION IN AUTONOMOUS VEHICLES USING OPTIMAL CONTROL**
ZAW HTIKE, GEORGIOS PAPAIOANNOU, EfstATHIOS SIAMPIS, EfstATHIOS VELENIS, STEFANO LONGO
- 048-0 VISION-WAY TESTING IN DESIGN OF SMALL COMPLIANT MECHANISMS**
JAROSLAV HRICKO, STEFAN HAVLIK
- 055-0 DESIGN OF SERIAL LINK STRUCTURE-PARALLEL WIRE SYSTEM FOR VIRTUAL REALITY REHABILITATION AND ASSESSMENT**
VISHAL RAMADOSS, MOHAMED SADIQ IKBAL, DIMITER ZLATANOV, MATTEO ZOPPI
- 059-0 SOME QUALITY MEASURES IN DESIGNING COMPLIANT MECHANISMS FOR ROBOTIC DEVICES**
STEFAN HAVLIK, JAROSLAV HRICKO

10:40 – 12:40 ■ SESSION 11: RAAD 2020

CHAired BY: MED AMINE LARIBI

- 022-0 ITERATIVE LEARNING CONTROL OF HARD CONSTRAINED ROBOTIC MANIPULATORS**
KALOYAN YOVCHEV, LYUBOMIRA MITEVA, KAMEN DELCHEV, EVGENIY KRASTEV
- 041-0 DETERMINATION OF OBJECT LOCATION FOR ROBOTIC GRASPING USING DEPTH VISION SENSOR**
DENIS CHIKURTEV, KALOYAN YOVCHEV, AVA CHIKURTEVA, NAYDEN CHIVAROV
- 045-0 COMPARISON OF MODEL-BASED SIMULTANEOUS POSITION AND STIFFNESS CONTROL TECHNIQUES FOR PNEUMATIC SOFT ROBOTS**
MAJA TRUMIC, KOSTA JOVANOVIC, ADRIANO FAGIOLINI
- 028-0 CRITERIA FOR THE DESIGN AND APPLICATION OF SOCIALLY ASSISTIVE ROBOTS IN INTERVENTIONS FOR CHILDREN WITH AUTISM**
ILIAS KATSANIS, VASSILIS MOULIANITIS
- 063-0 EVALUATION OF SERIAL METAMORPHIC MANIPULATOR STRUCTURES CONSIDERING INERTIA CHARACTERISTICS**
STRAVOPODIS NIKOLAOS, LEFTERIS KATRANTZIS, VASSILIS MOULIANITIS, CHARALAMPOS VALSAMOS, NIKOS ASPRAGATHOS

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