Dynamic Walking 2017

SCHEDULE OF TALKS (updated June 1, 2017) ** *Practice AV in break before your session.* **

Schedule of all activities, besides talks Abstracts of talks Lyceum guest wifi: MGYUI-KIHGE. Cikada wifi: qwert

Coffee at 10:30 (11 on Mon) and 15:00, and lunch at 12:30 daily at the meeting venue. Dinner time and place is different every day.

- = change of program since printed program

SUNDAY 4 JUNE 2017

(All Sunday times, on boat, are Swedish time = GMT + 2)

16:30 Sunday. SESSION 1. 8th floor Ferry Conference Room

#	NAME	Dur.	Abbreviated Title
198	Andy Ruina	15	Meeting Logistics, Intro to the meeting content
388	Art Kuo	30	A truly marvelous result
18:00 Sunday. SESSION 2, on boat			
376	Arend Schwab	30	How do people balance on a Bicycle?
21:00 Sunday. SESSION 3, on boat (weather dependent)			
[POSTPONED 179	Manoj Srinivasan	30	Optimization as a predictor of coordination]
182	Max Donelan	30	How do people optimize energy use?
10:00 Monday. SESSION 4	(All times henceforth are Finnish Times = GMT +3)		
317	Nils Smit-Anseeuw	12	Safe Online Learning Using Barrier Functions
306	Patrick James Clary	12	Predictive Planning Based on Reactive Control (Cassie)
300	Romeo Orsolino	5	Turning Maneuvers Strategy for Quadrupedal Bounding Gait
329	Matthew Sheen	10	QWOP-timization II: Can we make a control policy from unlimited examples?
	~~Tony Asumas,~~	~~3~~	~~Minister of Education and Culture~~
11:30 Monday. SESSION 5			
204	Michael Shepertycky	1	Comparing the Energetic Effects of Different Energy Harvesting Profiles
308	Monica A Daley	15	Does the principle of minimizing energy cost predict steady and transient locomotor dynamics?
192	William Zhiren Peng	1	Energetics of bipedal humans and bipedal battery-powered robots
373	Andrea Calanca	2	Control of Passive Dynamic Walkers based on Internal Energy
13:20 Monday. SESSION 6			
324	Kimberly A Ingraham	10	Predicting Energy Cost using Portable Physiological Sensors
273	Fabio Giardina	5	Towards limits of energy efficiency in legged locomotion
281	Uluc Saranli	5	Energy efficient control of a 1D hopper through tunable damping
378	Elco Heijmink	5	Learning an Efficient Walking Trot using Variable Impedance
393	Siyuan Feng	1	Non-fragile control through contacts
386	Scott Kuindersma	1	High-Order Contact-Implicit Trajectory Optimization I
293	Zac Manchester	10	High-Order Contact-Implicit Trajectory Optimization II
216	Will Charles	6	A passive spring-mass model with rolling contact and leg mass to study leg swing dynamics.
175	Robert Griffin	1	Optimization-based dynamic planning for humanoid robots
285	Stylianos Piperakis	3	Cascade Non-Linear State Estimation for Humanoid Robot Locomotion
316	Amos Winter V	13	Biomechanical Performance of Prosthetic Feet: Basic Principles and Passive Devices
223	Kathryn Olesnavage	5	Shape and Size Optimization of a Passive Prosthetic Foot to Replicate the human Lower Leg Trajectory
15:30 Monday. SESSION 7			
341	Murthy Arelekatti	2	Fully Passive Prosthetic Knee
271	Victor Prost	1	Experimental Validation of the Lower Leg Trajectory Error, an Optimization Metric for Prosthetic Feet
190	Qingguo Li	2	Wearable devices - effect on gait
225	Jeffrey Russell Koller	8	Neural Control Versus Mechanically-Intrinsic Control of Powered Ankle Exoskeletons
203	Jun-tian Zhang	3	Passive inter-joint gait-assisting exoskeleton suit
347	Jeremy Gines	5	Mina V2: Exoskeleton for Paraplegic Mobility
336	John EA Bertram	10	The cause of energetic cost differences in walking and running: optimization, modeling and speed-gravity experiments
391	Lotte Lintmeijer	10	Mechanical power output in periodic motions: the frame of reference matters
	*** NEW Behind-schedule 10 minute break ***		
312	Koen Kasper Lemaire	10	Predictions of human metabolic energy expenditure are lower than measured values
72	Shounak Bhattacharya	1	Flexible spine modeling for quadruped robot
229	Delyle T Polet	4	Optimal control describes quadrupedal walking in dogs
236	Yevgeniy Yesilevskiy	10	The Energetic Effect of a Flexible Spine in Quadrupedal Robots
358	William Yang	1	The Effect of Spine Morphology on the Motions and Energetics of Quadrupedal Robots
3507	Saskya van Nouhuys	30	Wasps and Butterflies on Åland
9:00 Tuesday. SESSION 8			
334	Tyson Cobb	4	Mina V2 Powered Exoskeleton
289	Steve Collins	24	Human-in-the-loop Optimization of Exoskeleton Assistance
322	Katherine Poggensee	6	The Mechanisms behind Human-in-the-Loop Optimization Strategies
356	Kirby Ann Witte	6	An Experimental Comparison of Human-In-the-Loop Optimized Ankle Exoskeleton Control Strategies
294	Vincent Chiu	6	Implementing Human-in-the-Loop Optimization on Prosthesis Emulators
319	Rachel Jackson	12	Heuristic-based Adaptive Control of Ankle Exoskeleton Assistance Using Plantarflexor Electromyography
177	Gwen Bryan	3	Design of a Bilateral Lower Limb Exoskeleton Emulator I
374	Patrick Franks	3	Design of a " " " " " II
11:30 Tuesday. SESSION 9			
282	Anne Koelewijn	8	Better safe than sorry: stochastic optimal-control of gait predicts larger foot clearance
400	John Rebula	8	Inverse Optimal Control for a Simple Stepping Task - inference of cost functions from gait data
340	Sabrina Abram	10	Continuous Energy-Optimization Controls Preferred-Step-Width in Human Walking
385	Wouter Wolfslag	10	Learning indirect optimal control for dynamic motion planning with RRT
13:30 Tuesday. SESSION 10			
255	*Torleif Anstensrud	4	Steps in model-based trajectory searching as a tool for biped design
387	Wendy Boehm	1	Stability of control algorithms in models of human walking and standing
380	Patrick Holmes	1	Human Feedback Control to Maintain Trajectories of Task-Relevant Variables During Sit-to-Stand Motion I
269	Shannon Danforth	10	Human Feedback Control … … … … II
292	Seungmoon Song	12	Modeling and exploring elderly walking with neuromechanical simulations

295 Arvid Keemink 10 Adapting the 3D Reflex Based Neuromuscular Gait Model for Gait Assistive Devices
Annette Holmberg-Jansson, Chair of Ålands Hospital; Ingrid Johansson, Ålands Finance and Trades Committee
Hardware Demos

15:40 Tuesday. SESSION 11

195 *Felix Jakob Grimminger 1 Learning to Hop using Guided Policy Search on Real Robot Hardware
234 *Steve Heim 7 Linking Mechanics and Learning
186 *Oezge Drama 8 Legged-robot design choices and control policies - comparison of different hardware leg designs, effect on control
248 *Julian Viereck10 Learning to Hop using Guided Policy Search on Real Robot Hardware
241 Peter Jakubik 2 The inertial lever as a mechanical principle of human walking
265 Vikas Bhandawat 5 A new model for legged locomotion.
401 Berat Denizdurduran 1 The closed-loop motor control in locomotion
252 Matthew Millard 4 A Reduced Gait Model for Motion Prediction in the Clinic
**** New we're-going-late-but-still-need-a-break-now-and-then break ****
242 Wouter Aerts 3 Inclusion of a total angular momentum as a performance criterion improves prediction of healthy gait
305 Alison Sheets-Singer 15 Is maximum-effort acceleration limited by leg force-generation ability?
508 Graham Robbins 30 The 10,000 years on the Åland Islands

9:00 Wednesday. SESSION 12

258 Anne Koelewijn 3 Ramp perturbation tests are too simple to identify a realistic controller in human standing balance
375 Guan Rong Tan 3 Controlled perturbations to study stumble recovery strategies
309 Varun Joshi 15 Finding the human walking controller from perturbed walking. Human-structure interaction: the Millennium Bridge
331 Gregory S. Sawicki 10 Humans falling in holes: Response to a sudden perturbation in substrate height during hopping.
303 Nidhi Seethapathi 12 Human running controller derived from steady-state running variability.
267 Julieth Ochoa 4 Influence of Voluntary Intervention on Gait Entrainment (joint with Megan Huber)
183 Meghan Huber4 Influence of Voluntary Intervention on Gait Entrainment
247 * Raphael Dumas 5 Individual muscle contributions to the position of the centre of pressure
339 * Sayed Thangal 5 Scaling of inertial delays in terrestrial mammals

11:30 Wednesday. SESSION 13

259 Keith William Buffinton 1 Journey of a Dynamic Walker
298 Jessica Lanini 10 Interactive walking pattern generator for mechanically coupled bipedal agents
394 Hansol Ryu 8 An adaptive neural network learns to be a state estimator and **c**entral **p**attern **g**enerator (CPG)
246 Johannes Englsberge 8 How can we achieve versatile and robust robotic walking?: The Divergent Component of Motion
284 Nelson Rosa Jr. 8 Using Equilibria and Virtual Holonomic Constraints to Generate Families of Walking Gaits

13:20 Wednesday. SESSION 14

184 Joo Kim 5 Contact-dependent balance stability of biped systems
330 Carlotta Mummolo 8 Contact-dependent balance stability of biped systems
337 Carlos Bolivar 2 Sensitivity analysis of the balance stability region in legged mechanisms
399 Wolfgang Rampeltshammer 1 Control of mobility assistive robots
198 Andy Ruina 10 Can we make the statement "To balance keep your support under your center of mass" precise?
239 Jean-Paul Martin 8 Is a passive perturbation device assisting medial-lateral balance during walking?
397 Ryan Elandt 1 Diverse control ideas for walking humanoids
384 Kreg Gruben 12 Real-time feedback for training coordination of walking and standing following stroke
251 Mitch Muller 8 Shoulder-mounted gyroscopic prosthesis for assisting arm amputees during walking
396 *Songyan Xin 1 Model-based optimization applied to humanoid robots

15:30 Wednesday. SESSION 15

402 Anton Shiryaev 12 The Butterfly robot. Agile movement with underactuation and unilateral constraints.
240 Salman Faraji 5 A singularity-tolerant inverse kinematics including joint position and velocity limitations.
215 Ross L. Hatton 12 Data-driven Geometric Gait Analysis.
278 Maziar Ahmad Sharbafi 3 Locomotor sub-functions for design and control of locomotion.
187 Sean Mason 1 Control for rough terrain walking.
299 Michele Focchi 5 Viscosity-based Height Reflex for Quadrupedal Locomotion on Rough Terrain.

9:00 Thursday. SESSION 16

398 Chris Richards 30 Frog musculo-robotics.
321 Chris Atkeson 20 Robots should have brakes that work like muscles.
377 Jason Cortell 7 The Tik-Tok robot will work fine with motors that don't work like muscles and have no brakes.

11:30 Thursday. SESSION 17

275 Peter Eckert 5 Measuring agility for legged, terrestrial locomotion.
272 Petr Zaytsev 8 Robust walking with a simple inverted pendulum model.
287 Junhyeok Ahn 3 Fast, Sampling-Based Kinodynamic Bipedal Locomotion Planning with Moving Obstacles.
228 Samuel Pfrommer 5 Key Control Strategies Emerge in Spring Loaded Inverted Pendulum Traversal of Slippery Terrain.
364 Yapeng Shi 4 Bio-inspired Control for Legged Locomotion.
365 Yoshitaka Abe 2 Disturbance Observer Based HZD Control of Biped Walking and Slip Recovery.
390 Twan Koolen 1 Approximate explicit model predictive control for push recovery using mixed-integer convex optimization.
320 Robin Deits 12 Approximate explicit model … II.

13:30 Thursday. SESSION 18

249 Avik De 15 Within-stance symmetry helps mitigate coupling interactions between degrees of freedom
286 Andrew Pace 5 How (de)coupled are Minitaur limbs?
254 Ben Morgan 4 Design of a Passive Prosthetic Foot with a Tension Energy Recovery (TER) System
301 Jerry Pratt 30 High Level Design of a New Hydraulic Humanoid Robot

15:30 Thursday. SESSION 19

327 Thu Nguyen 6 The relationship between step-length asymmetry and metabolic rate in post-stroke walking
395 James Finley 12 Spatiotemporal Asymmetries effect on Energetic Cost and Reactive Balance during Walking
296 Jesper Smith 4 Joint velocity measurement using low-cost high bandwidth MEMS gyroscopes.
180 Andy Berry 10 Gyroscopic balance assistance: First results and remaining challenges
381 In-Hwan Kim 1 Leg-Wheel combined structure in biped robots
379 Amy Wu 5 Low-cost robots
304 Matthew Robertson 5 A low-cost, actuated passive dynamic walker kit for accessible research and education
357 Aaron M. Johnson 15 Three Uses for Springs in Extension in Legged Locomotion
382 Elliott Rouse 8 Estimation of Human Ankle Impedance During Late Stance Phase of Walking
392 Yves Nazon II 1 Control techniques for legged robots and wearable robots

383	Alejandro Azocar	5	An Open-source Robotic Ankle Prosthesis

17:00 Thursday SESSION 20

XXX	Special competition	I	
XXX	Special competition	II	
403	Caroline O'Donnell	7	Zimmer: A walking house.
179	Manoj Srinivasan	12	Another marvelous result.