OpenSim Featured in Talks at ISB 2015

At the 2015 International Symposium on Computer Simulation in Biomechanics (TGCS) and the Congress of the International Society for Biomechanics (ISB), OpenSim was mentioned or used in over 60 of the abstracts. Here's a list of those abstracts.

OpenSim related abstracts were found by searching the TGCS and ISB Abstract book for references to Delp et al., (2007) and uses of OpenSim without direct citation. If your abstract has been either added or omitted in error, please contact James Dunne (james.dunne@stanford.edu). Please also let us know if you'd like to add links to a website or publication for more information.

The XV International Symposium on Computer Simulation in Biomechanics

TASK-LEVEL SIMULATION OF SUBJECT-SPECIFIC MOVEMENT USING OPENSIM
Jeffrey A. Reinbolt

INDIVIDUAL MUSCLE CONTROL OF DYNAMIC BALANCE DURING UNILATERAL TRANSTIBIAL AMPUTEE WALKING
Anne Silverman, Richard Neptune

PRIORITIZED TASK-BASED CONTROL OF MOVEMENT WITH SUPPORTING CONTACTS USING OPENSIM AND MATLAB
Misagh Mansouri, Vincent De Sapio, Jeffrey A. Reinbolt

CAN A WELL-CALIBRATED NEUROMUSCULOSKELETAL MODEL PREDICT KNEE CONTACT FORCES ACCURATELY OVER MULTIPLE WALKING CYCLES?
Gil Serrancoli, Allison Kinney, Benjamin Fregley, Josep Font-Llagunes

ESTIMATION OF SUBJECT-SPECIFIC MUSCLE-TENDON PARAMETERS BASED ON DYNAMIC MOTIONS USING EMG-DRIVEN MUSCULOSKELETAL MODEL AND OPTIMAL CONTROL APPROACH
Antoine Falisse, Sam Van Rossom, Ilse Jonkers, Friedl De Groote

STABILITY ANALYSIS OF A SIMPLE HAND MODEL FOR PROTHESIS CONTROL
Dimitra Blana, Edward Chadwick, Antonie J. Van den Bogert, Wendy Murray

SUBJECT-SPECIFIC CALIBRATION OF GEOMETRIC NEUROMUSCULOSKELETAL MODELS
Andrew Meyer, Carolynn Patten, Benjamin Fregly

ON THE EFFECTS OF EMG NORMALIZATION IN MUSCLE FORCES ESTIMATION WHEN USING A MULTI-DOF EMG-DRIVEN NEUROMUSCULOSKELETAL MODEL
Alice Mantoan, Elena Ceseracciu, Fabiola Spolaor, Zimi Sawacha, Monica Reggiani

CAN A UNILATERAL TRANSTIBIAL AMPUTEE WALK WITH A LOWER METABOLIC COST THAN A NON-AMPUTEE?
Anne Silverman, Richard Neptune

EVALUATION OF DIFFERENT OPTIMAL CONTROL PROBLEM FORMULATIONS FOR SOLVING THE MUSCLE REDUNDANCY PROBLEM
Friedl De Groot, Allison Kinney, Anil Rao, Benjamin J. Fregly

DO MUSCLE SYNERGIES REFLECT OPTIMAL CONTROL DURING GAIT IN UNIMPAIRED INDIVIDUALS AND INDIVIDUALS WITH CEREBRAL PALSY?
Katherine Steele, Michael Schwartz
A VARIABLE CARTILAGE PROPERTY FORMULATION OF THE ELASTIC FOUNDATION MODEL TO PREDICT CONTACT PRESSURES DURING WALKING
Colin Smith, Rachel Lenhart, Darryl Thelen

AN OPEN-SOURCE TOOLBOX FOR SURROGATE MODELING OF JOINT CONTACT MECHANICS
Ilan Eskinazi, Benjamin J. Fregly

Congress of the International Society for Biomechanics

TASK-LEVEL SIMULATION OF SUBJECT-SPECIFIC MOVEMENT USING OPENSIM (Invited Talk at TGCS)
Jeffrey A. Reinbolt

(Correction) Nominated for DAVID WINTER YOUNG INVESTIGATOR AWARD (Neurological and Motor Control)
ALTERED MUSCLE SYNERGIES DURING GAIT IN CEREBRAL PALSY ARE NOT DUE TO ALTERED KINEMATICS OR KINETICS
Katherine M. Steele, Adam Rozumalski, Michael Schwartz

CALCULATION OF STUMP-SOCKET PRESSURE IN TRANSTIBIAL PROSTHESES DURING DYNAMIC GAIT SIMULATIONS.
Wouter Aerts, Friedl De Groote, Luiza Muraru, Louis Peeraer, Ilse Jonkers, Jos Vander Sloten

THE ROLE OF ALTERED PROXIMAL FEMORAL GEOMETRY IN IMPAIRED PELVIS STABILITY AND HIP CONTROL DURING CP GAIT: A SIMULATION STUDY
Lode Bosmans, Karen Jansen, Mariska Wesseling, Guy Molenaers, Lennart Scheys, Kaat Desloovere, Ilse Jonkers

A THREE-DIMENSIONAL MUSCULOSKELETAL MODEL OF THE LABRADOR RETRIEVER (CANIS FAMILIARIS) PELVIS AND HIND LIMBS
Walter Dingemanse, Ilse Jonkers, Lode Bosmans, Magdalena Müller-Gerbl, Jos Vander Sloten, Ingrid Gielen

MRI-BASED GEOMETRICAL DETAIL AFFECTS HIP CONTACT FORCES MORE THAN COST FUNCTION FORMULATION
Mariska Wesseling, Friedl de Groote, Lode Bosmans, Ward Bartels, Christophe Meyer, Kaat Desloovere, Ilse Jonkers

EVALUATING THE EFFECT OF THE STIFFNESS OF AN AFO ON GAIT IN A HEALTHY TEST SUBJECT: EXPERIMENTS VS. PREDICTIVE SIMULATIONS.
Veerle Creylman, Luiza Muraru, Jos Vander Sloten, Ilse Jonkers, Louis Peeraer

THE RELATIVE IMPORTANCE OF INCLUDING PERSONALIZED HIP JOINT CENTER LOCATION AND MUSCLE LINE-OF-ACTION DEFINITION IN MUSCULOSKELETAL MODELS TO ASSESS HIP JOINT LOADING IN CP PATIENTS WITH PROXIMAL FEMORAL DEFORMITY.
Lode Bosmans, Christophe Van Dijck, Mariska Wesseling, Lennart Scheys, Ilse Jonkers

DIFFERENCES IN ANKLE AND KNEE JOINT KINEMATICS AND KINETICS DURING THE FIRST STANCE PHASE OF THE ACCELERATION PHASE DIFFERENTIATE BETWEEN YOUNG AND ADULT HIGH LEVEL SPRINTERs
Jeroen Aeles, Ilse Jonkers, Sofie Debaere, Christophe Delecluse, Benedicte Vanwanseele

A FEEDBACK CONTROLLER TO PREDICT THE POSTURAL CONTROL IN RESPONSE TO A PERTURBATION
Maarten Afschrift, Friedl De Groote, Ilse Jonkers

DO SUBJECT SPECIFIC SIMULATIONS MODIFY GAIT ASSESSMENT OUTPUTS COMPARED TO THOSE FROM TRADITIONAL GAIT ANALYSIS?
Luca Modenese, Hans Kainz, John Walsh, Lee Barber, David Lloyd, Christopher Carty

REAL-TIME ESTIMATION OF KNEE JOINT CONTACT FORCES DURING WALKING USING OPENSIM AND A CALIBRATED EMG-DRIVEN NEUROMUSCULOSKELETAL MODEL
Claudio Pizzolato, Monica Reggiani, Luca Modenese, David G. Lloyd
JOINT KINEMATIC CALCULATIONS BASED ON STANDARD CLINICAL DIRECT KINEMATIC VERSUS CONTEMPORARY INVERSE KINEMATIC APPROACHES: HOW LARGE IS THE DIFFERENCE?
Hans Kainz, Luca Modenese, Lee Barber, John Walsh, Roslyn N Boyd, David G Lloyd, Christopher P Carty

DEDUCING MUSCLE SYNERGIES FROM EXPERIMENTAL JOINT MOMENTS
Anantharaman Gopalakrishnan, Luca Modenese, Andrew Phillips

COMPLETE OPENSIM SUBJECT-SPECIFIC LOWER LIMB JOINT-SKELETAL MRI-BASED MODEL
Simao Brito Da Luz, David Saxby, Luca Modenese, Peter Mills, Belinda Beck, Thor Besier, David Lloyd

A NEW METHOD FOR ESTIMATING MUSCLE-TENDON PARAMETERS FOR SUBJECT SPECIFIC MUSCULOSKELETAL MODELS OF THE LOWER LIMB
Luca Modenese, Elena Ceseracciu, Monica Reggiani, David Lloyd

TIBIOFEMORAL CONTACT LOADING IN ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTED INDIVIDUALS AND HEALTHY CONTROLS DURING A RANGE OF GAIT TASKS.
David J. Saxby, Pauline Gerus, Bryce Killen, Luca Modenese, Tim Wrigley, Adam Bryant, Karine Fortin, Kim Bennell, Flavia Cicuttini, David Lloyd

MRI-BASED PARALLEL MECHANISMS TO MODEL SUBJECT-SPECIFIC JOINT KINEMATICS
Simao Brito Da Luz, Luca Modenese, Nicola Sancisi, Peter Mills, Belinda Beck, Thor Besier, David Lloyd

SMOOTHING OR FILTERING MARKER TRAJECTORIES? THE EFFECTS ON CALCULATED JOINT MOMENTS
Annaclaudia Montanino, Luca Modenese, Anantharaman Gopakrishnan, Nicola Petrone, Andrew T. M. Phillips

JOINT KINEMATIC CALCULATIONS BASED ON STANDARD CLINICAL DIRECT KINEMATIC VERSUS CONTEMPORARY INVERSE KINEMATIC APPROACHES: HOW LARGE IS THE DIFFERENCE?
Hans Kainz, Luca Modenese, Lee Barber, John Walsh, Roslyn N Boyd, David G Lloyd, Christopher P Carty

LOWER LIMB MUSCLE FASCICLE FUNCTION DURING GAIT IN CHILDREN WITH CEREBRAL PALSY
Lee Barber, Chris Carty, Luca Modenese

COMPARISON OF HIP MUSCLE FORCES OBTAINED USING A CALIBRATED EMG-INFORMED MODEL AND STATIC OPTIMIZATION IN A HIP OSTEOARTHRITIC POPULATION
Hoa X. Hoang, Claudio Pizzolato, Luca Modenese, Peter Mills, David Lloyd

CEINMS: AN OPENSIM TOOLBOX TO INVESTIGATE THE INFLUENCE OF DIFFERENT NEURAL SOLUTIONS IN PREDICTING MUSCLE EXCITATIONS AND JOINT MOMENTS DURING DYNAMIC MOTOR TASKS
Claudio Pizzolato, David G. Lloyd, Massimo Sartori, Elena Ceseracciu, Thor F. Besier, Monica Reggiani

MUSCLE AND JOINT CONTACT LOADING DURING ASSISTED UPPER-EXTREMITY MOVEMENTS PERFORMED WITH A ROBOTIC EXOSKELETON
Wen Wu, Justin Fong, Denny Oetomo, David Lloyd, Thor Besier, Mark Halaki, Karen Ginn, Peter Lee, David Ackland

SIMULATING SHORTEST MUSCULOTENDON PATHS ACROSS MULTIPLE BIOLOGICALLY ACCURATE WRAPPING SURFACES IN REAL TIME
Andreas Scholz, Michael Sherman, Ian Stavness, Scott Delp, Andrés Kecskeméthy

FORWARD-DYNAMICS TRACKING WITH REACTION FORCE TARGETS
Benedikt Sagl, Ian Stavness, Rudolf Slavicek

STRETCHING YOUR ENERGETIC BUDGET: THE EFFECT OF TENDON COMPLIANCE ON THE METABOLIC COST OF RUNNING
Thomas Uchida, Jennifer Hicks, Christopher Dembia, Scott Delp
WHICH JOINT TO ASSIST? SIMULATION-BASED GUIDELINES FOR REDUCING THE METABOLIC COST OF WALKING WITH HEAVY LOADS
Christopher L. Dembia, Amy Silder, Thomas Uchida, Jennifer Hicks, Scott Delp

THE MECHANICAL FUNCTION OF THE TIBIALIS POSTERIOR MUSCLE AND ITS TENDON DURING WALKING
Jayishni Maharaj, Andrew Cresswell, Glen Lichtwark

SINERGY-BASED TWO-LEVEL OPTIMIZATION FOR PREDICTING KNEE CONTACT FORCES DURING WALKING
Gil Serrancoli, Allison L. Kinney, Benjamin J. Fregly, Josep M. Font-Llagunes

REVEALING QUADRICEPS INHIBITION IN MALES AND FEMALES WITH KNEE OSTEOARTHRITIS USING A SIMPLE MUSCULOSKELETAL MODEL
Daniel L. Benoit, Heather J. Bigham, Mohammad S. Shourijeh

HYBRID FORWARD INVERSE DYNAMICS FRAMEWORK FOR HUMAN MUSCULOSKELETAL SIMULATIONS
Mohammad S. Shourijeh, Daniel L. Benoit

THE EFFECT OF PROPHYLACTIC KNEE BRACING ON LOWER-LIMB MUSCLE FORCES DURING DOUBLE-LEG DROP LANDING
Katie Ewing, Rezaul Begg, Peter Lee

SUBJECT-SPECIFIC MODELLING OF THE FOOT INTEGRATING FINITE ELEMENT MODELLING, GAIT ANALYSIS AND OPENSIM: PROOF OF CONCEPT IN DIABETIC NEUROPATHIC SUBJECTS
Annamaria Guiotto, Alessandra Scarton, Valentina Camporese, Claudio Cobelli, Zimi Sawacha,

COMPARISON OF TIBIAL AND FEMORAL ACCELERATIONS USING MOTION CAPTURE AND INERTIAL MEASUREMENT UNITS
Sara S. P. Marreiros, Jody Riskowski, Martijn Steultjens

SINGLE LEG TRIPLE HOP TEST INVERSE KINEMATICS WITH DIFFERENT MARKERS WEIGHTS USING OPENSIM
Felipe Alvim, Paulo Lucareli Luciano Menegaldo

IN VIVO ACHILLES TENDON FORCES DURING CYCLING DERIVED FROM ULTRASOUND-BASED MEASURES OF TENDON STRAIN
Taylor Dick, Allison Arnold, James Wakeling

OSTEOARTHRITIS KNEE BRACE ABDUCTION MOMENT DOMINATES INVERSE DYNAMICS AND MUSCLE FORCE CHANGES IN REDUCING MEDIAL KNEE LOADS
Scott Brandon, Marcus Brown, Adam Clansey, Jim Richards, Aaron Campbell, Kevin Deluzio

LOWER-LIMB KINEMATICS AND KINETICS DURING AMPUTEE RUNNING: A NEW APPROACH
Stacey M. Rigney, Anne Simmons, Lauren Kark

HUMAN CENTERED CAD SYSTEM WITH BIOMECHANICAL ANALYSIS
Younguk Kim, Yeoung hun Kim, Sangjun Lee, Dooyoung Lee, Kunwoo Lee

DEVELOPMENT OF A MUSCULOSKELETAL MODEL FOR THE ANALYSIS AND SIMULATION OF CERVICAL SPINE LOADING DURING RUGBY ACTIVITIES
Dario Cazzola, Ezio Preatoni, Timothy Holsgrove, Richie Gill, Grant Trewartha

ESTIMATION OF LOWER LIMB MUSCLE FORCES IN CHILDREN’S GAIT
Filipa Joao, Vera Bagao, Silvia Cabral, Vera Moniz-Pereira, António Veloso
DEVELOPMENT OF A BILATERAL UPPER LIMB MUSCULOSKELETAL MODEL TO INVESTIGATE MUSCLE CONTRIBUTIONS DURING DIFFERENT PUSH-UP VARIATIONS.
Julie Ellis, James Johnston, Jon Farthing, Alison Oates, Joel Lanovaz

FUNCTION OF THE ADDUCTOR MUSCLES DURING MAXIMAL VELOCITY SPRINTING
Yuji Ohshima, Norhisa Fuji

NON-NEUROPATHIC DIABETIC INDIVIDUALS SHOW REDUCED ESTIMATED MUSCLE FORCES AT THE GAIT PUSH-OFF PHASE
Aline A. Gomes, Guilherme Bighetti, Maria Orselli, Marko Ackermann, Isabel Sacco

A PATIENT-SPECIFIC MUSCULOSKELETAL MODELLING PIPELINE APPLIED TO PHALANGEAL LOADING CONDITIONS IN GAIT.
Joe A. I. Prinold, Claudia Mazza, Stefan Wesarg, Roberto Di Marco, Pieter van Diikhuizen, Laura Tanturri De Horatio, Clara Malattia, Marco Viceconti and MD-PAEDIGREE

REGIONAL VARIATION IN FASCICLE STRAIN IS JOINT DEPENDENT IN A BI-ARTICULAR MUSCLE
Emma Hodson-Tole, James Wakeling, Taylor Dick

THE EFFECT OF UPPER ARM MASS ON THE THROWING VELOCITY
Patrick Fasbender, Nicholas P Linthorne, Thomas Korff, Vasilios Baltzopoulos

A LOWER-LIMB AMPUTEE MUSCULOSKELETAL MODEL FOR QUANTIFYING STUMP- SOCKET KINEMATICS AND KINETICS
Ryan Wedge, Andrew LaPre, Frank Sup, Brian Umberger

AN INTEGRATED MULTISCALE ANALYSIS OF INJURY MECHANISMS IN SPORT IMPACTS: AN APPLICATION TO CERVICAL SPINE BIOMECHANICS IN RUGBY UNION SCRUNGMAGING
Ezio Preatoni, Dario Cazzola, Tim P Holsgrove, Sabina Gheduzzi, Anthony W Miles, Keith Stokes, Richie HS Gill, Grant Trewartha

SIMULATION AND PROPHYLACTIC RESEARCH: INTERESTING BEDFELLOWS
Cyril J. Donnelly, Jeff Reinbolt, Gillian Weir, Kristin Morgan, Jacqueline Alderson

DEVELOPMENT OF A LARGE-SCALE SUBJECT-SPECIFIC FINITE ELEMENT MODEL OF HUMAN FOOT COMPLEX
Mohammad Akrami, David Howard, Chris Nester, Zhenmin Zou Lei Ren

CONTROL SIMULATION OF D AND CYLINDRICAL GRASPING BASED ON PCA
Javier Andres, Marta C. Mora, Joaquin L. Sancho

DEVELOPMENT AND IMPLEMENTATION OF A METHOD USING OPENSIM TO CALCULATE GLENOHUMERAL JOINT CONTACT FORCE DURING MANUAL WHEELCHAIR PROPULSION ACCESSIBILITY TASKS
Andrew Symonds, Stephen Taylor, Tatsuto Suzuki, Peter Smitham, Angela Gall, Catherine Holloway