

Joakim Holmberg

Curriculum Vitae

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Experience

Academic

- Jan 13–present **Associate Professor,**
Division of Mechanics, Linköping University, Linköping, Sweden.
Teaching duties in various undergraduate and graduate mechanics classes.
Research in computational and musculoskeletal biomechanics in sports.
- Jun 12–Dec 12 **Acting Associate Professor,**
Division of Mechanics, Linköping University, Linköping, Sweden.
Teaching duties in various undergraduate and graduate mechanics classes.
Research in computational and musculoskeletal biomechanics in sports.
- May 11–May 12 **Lecturer,** *Division of Mechanics, Linköping University, Linköping, Sweden.*
Teaching duties in various undergraduate mechanics classes.
- Feb 09–May 12 **Research Assistant & PhD Student,**
Division of Mechanics, Linköping University, Linköping, Sweden.
Research in computational and musculoskeletal biomechanics in sports. Grant No. 168/09 from the Swedish National Centre for Research in Sports.
- Aug 09–Dec 09 **Guest Researcher/Engineer,** *IFSTTAR—formerly INRETS—Institut français des sciences et technologies des transports, de l'aménagement et des réseaux, Laboratoire de Biomécanique et Mécanique des Chocs—unité mixte avec l'université de Lyon, Bron, France.*
Modeling and Simulation for Musculoskeletal Biomechanics & Ergonomics
- Oct 98–Dec 07 **Assistant Lecturer & Teaching Assistant,**
Mid Sweden University, Östersund, Sweden.
Course development, teaching and examination within the subjects of: Biomechanics, Design Optimization, Finite Element Analysis, Product Development, Solid Modeling.
Master and Bachelor Thesis Supervision.
Program Development, Marketing and Web Editor for the Sports Technology Program.

Vocational

- Summers 88–90 & 94–96 **Mechanics Technician**, *Erasteel Kloster AB*, Söderfors, Sweden.
Mechanical drawings, lathe & general repair work.
- Summer 92 **Electronics Technician**, *Tierps Kretsteknik AB*, Tierp, Sweden.
Electronics & cable assembly.

Miscellaneous

- Dec 07–Nov 12 **Technical Consultant**, *Sockertoppen Labs (private enterprise)*, Frösön/Linköping, Sweden.
Product Development, Finite Element Analysis, Biomechanics & Ergonomics.

Education

- May 12 **Degree of Doctor of Philosophy – Engineering Mechanics**, *Linköping University*, Linköping, Sweden.
title *Musculoskeletal Biomechanics in Cross-country Skiing*
supervisor Professor Anders Klarbring
- Feb 08 **Degree of Licentiate of Engineering – Engineering Mechanics**, *Linköping University*, Linköping, Sweden.
title *Computational Biomechanics in Cross-country Skiing*
supervisor Professor Anders Klarbring
- Jan 99 **Master of Science – Mechanical Engineering**, *Blekinge Institute of Technology (formerly University College of Karlskrona/Ronneby)*, Karlskrona, Sweden.
title *Static and Dynamic Behaviour of Bolt-channel Joints in Aluminium Structures*
supervisor Professor Göran Broman
- Sep 92–May 93 **Exchange Student**, *Sheridan College*, Sheridan, WY, USA.

Publications

- L. Joakim Holmberg. Biomekanisk simulering av längdskidåkning. *Svensk Idrottsmedicin*, 31(3):11–13, September 2012. In Swedish.
- L. Joakim Holmberg and Anders Klarbring. Muscle decomposition and recruitment criteria influence muscle force estimates. *Multibody System Dynamics*, 28(3):283–289, 2012.
- L. Joakim Holmberg. *Musculoskeletal Biomechanics in Cross-country Skiing*. PhD thesis, Linköping University, May 2012. ISBN: 978-91-7519-931-3.
- L. Joakim Holmberg, Marie Lund Ohlsson, and Jonas Danvind. Musculoskeletal simulations: a complementary tool for classification of athletes with physical impairments. *Prosthetics and Orthotics International*, 36(3):396–397, September 2012.
- L. Joakim Holmberg, Marie Lund Ohlsson, Matej Supej, and Hans-Christer Holmberg. Skiing efficiency versus performance in double-poling ergometry. *Computer Methods in Biomechanics and Biomedical Engineering*, 2012. To appear in print, available online.
- John Rasmussen, L. Joakim Holmberg, Kasper Sørensen, Maxine Kwan, Michael S. Andersen, and Mark de Zee. Erratum: Performance optimization by musculoskeletal simulation. *Move-*

- ment & Sport Sciences – Science & Motricité*, 76(1):75, 2012. Erratum of: *Movement & Sport Sciences – Science & Motricité* 75, 73–83 (2012), DOI: 10.1051/sm/2011122.
- John Rasmussen, L. Joakim Holmberg, Kasper Sørensen, Maxine Kwan, Michael S. Andersen, and Mark de Zee. Performance optimization by musculoskeletal simulation. *Movement & Sport Sciences – Science & Motricité*, 75(1):73–83, 2012.
- Romain Pannetier, Thomas Robert, Joakim Holmberg, and Xuguang Wang. Optimization-based muscle force scaling for subject specific maximum isometric torque estimation. In *Proceedings of the XXIIIth Congress of the International Society of Biomechanics*, Brussels, Belgium, July 3–7 2011.
- L. Joakim Holmberg and Marie Lund Ohlsson. Biomekaniska simuleringar adderar insikt om längdskidåkning. *Svensk Idrottsforskning*, 19(1):38–40, 2010. In Swedish.
- L. Joakim Holmberg. *Computational biomechanics in cross-country skiing*. Number 1346 in Linköping Studies in Science and Technology. Thesis, ISSN 0280-7971. Department of Management and Engineering, Linköping University, 2008. ISBN: 978-91-7393-986-7.
- L. Joakim Holmberg and A. Marie Lund. A musculoskeletal full-body simulation of cross-country skiing. *Proceedings of the Institution of Mechanical Engineers, Part P: Journal of Sports Engineering and Technology*, 222(1):11–22, 2008.
- Joakim Holmberg. Simulera med mera. *CAD & ritnytt*, (4):27–28, November 2008. In Swedish.
- L. Joakim Holmberg and A. Marie Lund. Using double-poling simulations to study the load distribution between teres major and latissimus dorsi. In Vesa Linnamo, Paavo V. Komi, and Erich Müller, editors, *Science and Nordic Skiing*, pages 81–89. Meyer & Meyer Sport, Oxford, UK, 2007.
- L. Joakim Holmberg. Cross-country Skiing Biomechanics using the AnyBody Modeling System. In *Conference Proceedings, ANSYS Conference & 25. CADFEM Users' Meeting. CADFEM GmbH*, Dresden, Germany, November 21–23 2007. ISBN 3-937523-04-9.
- L. Joakim Holmberg and Hans-Christer Holmberg. The role of triceps in double-poling biomechanics, an introductory study. In *Proceedings of the 4th International Congress on Science and Skiing*, St. Christoph am Aarlbberg, Austria, December 14–20 2007.
- A. Marie Lund and L. Joakim Holmberg. Which are the antagonists to the pectoralis major muscle in 4th gear free-style technique, cross-country skiing? In Vesa Linnamo, Paavo V. Komi, and Erich Müller, editors, *Science and Nordic Skiing*, pages 112–118. Meyer & Meyer Sport, Oxford, UK, 2007.
- Mats Tinnsten, Leon Dahlén, Joakim Holmberg, and Hans-Christer Holmberg. Projekt Davos: hjälper längdlandslaget att åka fortare. *Svensk Idrottsforskning*, 13(1):25–27, 2004. In Swedish.
- Joakim Holmberg and Paul Wagenius. A biomechanical model of a double-poling skier. In Peter Milburn, editor, *International Society of Biomechanics XIXth Congress on The human body in motion, CD Rom Abstracts and Proceedings*. University of Otago, Dunedin, New Zealand, July, 6–11 2003.
- Joakim Holmberg and Lars-Erik Rännar. Versatile Optimization. In *Nordic MATLAB Conference Proceedings Oslo, Norway, October 17–18, 2001*.

Invited talks

- Joakim Holmberg. *Some thoughts on force-scaling of musculoskeletal models*. LBMC – reunion inter-equipe, Université de Lyon (UCBL – Mécanique), Villeurbanne, France, Dec 17, 2009.
- Joakim Holmberg. *Cross-country skiing biomechanics using measurement driven full-body simulations*. Public webcast via AnyBody Technology A/S, Aalborg, Denmark, Feb 18, 2008.
- Joakim Holmberg & Marie Lund. *Kroppens mekanik*. Public lecture (in Swedish), Mid Sweden University, Östersund, Sweden, Dec 7, 2006.

Guest researcher (unpaid visiting scholar)

May 2004 The AnyBody Project (Professor John Rasmussen), Aalborg University, Aalborg, Denmark.

Editor – scientific journals

- American Journal of Biomedical Engineering
- Central European Journal of Engineering

Reviewer – scientific journals

- Computer Methods in Biomechanics and Biomedical Engineering
- Disability and Rehabilitation
- Journal of Anatomy
- Scandinavian Journal of Medicine and Science in Sports
- Sports Biomechanics

Research interests

- Computational Modeling and Simulation in Biomechanics
- Sports Science

Professional/Research affiliations and networks

- International Society of Biomechanics
- International Society of Biomechanics in Sports
- Swedish Winter Sports Research Centre, Östersund, Sweden
- European Mechanics Society

Computer skills

CAD	Rhinoceros, SolidWorks	Computations	MATLAB
FEM	ALGOR, COSMOS	Musculoskeletal	The AnyBody Modeling System
Office tools	MS Office, L ^A T _E X	OS	Un*x, Windows

Laboratory experience

- Experienced in designing and building test rigs for various purposes.
- Proficient user of load cells, displacement measurement devices, the Spider8/Catman measurement system (HBM, Germany).
- Working knowledge of the VICON movement data acquisition and analysis system.

Languages

Swedish	Native
English	Fluent
German	Elementary
French	Elementary

References

- Professor Anders Klarbring, Linköping University, Sweden.
+ Correspondence: anders.klarbring@liu.se, +4613281117.
- Professor John Rasmussen, Aalborg University, Denmark.
+ Correspondence: jr@m-tech.aau.dk, +4598116847.