



Kevin Mattheus Moerman

Biomechanical & Design Engineer

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Open-source projects



GIBBON

The Geometry and Image-Based Bioengineering add-on

Programming

MATLAB ★★★★★

LABVIEW ★★★★★

Python ★★★★★

Julia ★★★★★

CAD & FEA

FEBio ★★★★★

ABAQUS ★★★★★

PTC/Creo ★★★★★

SolidWorks ★★★★★

Robotics Design



References

Prof. Hugh Herr

Dr. Ciaran Simms

Dr. Aart Nederveen

Experience

April. 17 - Now	Research Scientist	Biomechatronics, MIT Media Lab, Cambridge, MA, USA
	Leader of the <i>mechanical interfaces</i> research track which focusses on the design and development of novel biomechanical interfaces (such as prosthetic sockets). Co-supervisor of undergraduate and PhD students.	
Sept. 15 - April. 17	Post Doctoral Associate	Biomechatronics, MIT Media Lab, Cambridge, MA, USA
	Development of a framework for automated design and optimization of subject-specific, 3D printable prosthetic sockets. Leader of the <i>mechanical interfaces</i> research track. Co-supervisor of undergraduate and PhD students.	
April 13 - Now	Visiting Research Fellow	University of Dublin, Trinity College, Dublin, Ireland
	A collaborative position through which I advise researchers on soft tissue biomechanics and teach them to use GIBBON for inverse finite element analysis.	
Jan. 15 - Sept. 15	Research Affiliate	Biomechatronics, MIT Media Lab, Cambridge, MA, USA
	Development of computational design methods for prosthetic devices. Co-supervisor and co-promotor for a PhD student.	
2011 - 2015	Post Doctoral Research Fellow	Academic Medical Centre, Amsterdam, The Netherlands
	Development of novel methods for understanding and early detection of pressure ulcer development based on Magnetic Resonance Elastography, SPAMM tagged MRI and inverse finite element analysis.	
2006 - 2008	Teaching Assistant	University of Dublin, Trinity College, Dublin, Ireland
	Part-time teaching assistant position (during PhD) on MATLAB for undergraduate mechanical engineering students.	
2003 - 2006	Design Engineer	Lely Technologies N.V., Maassluis, The Netherlands
	Design and development of agricultural robotic systems, e.g. a robotic feed pusher and a solar energy powered mobile feeding robot.	

Education

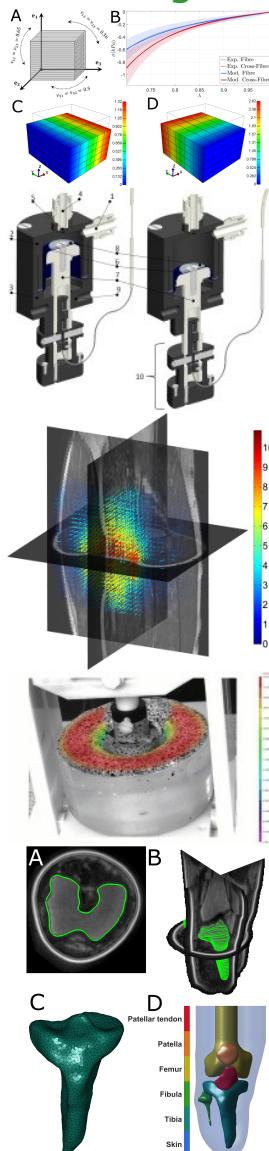
May. 17 - June 17	Kaufman Teaching Certificate Program	MIT, Cambridge, USA
Jan. 13 - April 13	Course: Advanced MR Physics	Universiteit Utrecht, Utrecht, The Netherlands
Aug. 06 - Feb. 12	PhD in Bioengineering	University of Dublin, Trinity College, Dublin, Ireland
	Thesis: <i>An Improved Framework for the Inverse Analysis of Skeletal Muscle Tissue In-vivo</i> . Non-invasive assessment of the mechanical properties of skeletal muscle in-vivo based on dynamic MRI and inverse finite element analysis.	
Aug. 08 - Aug. 09	Postgraduate Diploma in Statistics	University of Dublin, Trinity College, Dublin, Ireland
Sep. 06	Course: Advances in Continuum Mechanics	Durham University, Durham, UK
	Mathematics for Engineers EPSRC Summer School: <i>Advances in Continuum Mechanics, The Nonlinear Deformation of Solids</i> .	
2004 - 2005	MSc in Bioengineering	University of Dublin, Trinity College, Dublin, Ireland
	Thesis: <i>A Finite Element Model of the Human Head to Predict and Analyse Brain Injury due to Blast-Induced Acceleration</i>	
2000 - 2004	BEng in Mechanical Engineering	The Hague University of Appl. Sciences, The Hague, NL
	Major: Product Design. Final Project: <i>"The Design and Development of an Autonomous Solar Powered, Mobile Concentrate Feeding Robot for Cows"</i> .	

Patents



A feeding installation:
EP1683411,
AU2005101010,
NZ544606,
NL1028069,
NL1029454

Publication figures



Awards

2010

Engineers Ireland Biomedical Research Medal 2010

Engineers Ireland

Awarded at the 16th Annual Bioengineering in Ireland Conference. Paper: *Towards the Non-Invasive Determination of the Mechanical Properties of Living Human Soft Tissue.*

2009

Bioengineering in Ireland Bronze Medal

Royal Academy of Medicine Ireland

1st Prize for best overall paper at the 15th Bioengineering in Ireland Conference, awarded by the Royal Academy of Medicine Ireland. Paper: *A validation method for motion tracking techniques based on tagged MRI.*

2005

KIVI Dutch Bachelor Thesis Prize

The Royal Netherlands Society of Engineers, KIVI

The 3rd prize for best Dutch bachelor thesis. Thesis: *The Design and Development of Autonomic Solar Powered, Mobile Concentrate Feeding Robot for the Australian Dairy Industry.*

2004

VSBfonds international student scholarship

VSBfonds

€ 7000 Scholarship for education or research outside the Netherlands. Awarded to a single shortlisted candidate per university by the VSBfonds organisation.

Selected publications

Full list →

- Moerman KM, Simms CK, Nagel T. **Control of tension-compression asymmetry in Ogden hyperelasticity with application to soft tissue modelling** *J Mech Behav Biomed Mater.* 2016;56:218–28.
- Moerman KM, Sprengers AMJ, Nederveen AJ, Simms CK. **A novel MRI compatible soft tissue indentor and fibre Bragg grating force sensor** *Med Eng Phys.* 2013; (4):486–99.
- Moerman KM, Sprengers AMJ, Simms CK, Lamerichs RM, Stoker J, Nederveen AJ. **Validation of continuously tagged MRI for the measurement of dynamic 3D skeletal muscle tissue deformation** *Medical Physics.* 2012; 39(4):1793.
- Moerman KM, Holt CA, Evans SL, Simms CK. **Digital image correlation and finite element modelling as a method to determine mechanical properties of human soft tissue in vivo** *Journal of Biomechanics* 2009; 42(8):1150–3.

Conference and editorial board experience

April 2017-Now

Section Editor

The Journal of Open Hardware

June 2016-Now

Co-founder, steering committee member

EngrXiv: The Engineering Archive

March 2016-Now

Editor

The Journal of Open-Engineering

Feb 2016-Now

Co-founder, editor

The Journal of Open-Source Software

Dec 2015-Now

Subject Editor

The RIO Journal

2014

Organizer/chair for special sessions

World Congress of Biomechanics 2014

2014

Committee member, chair special sessions, workshop

CMBBE 2014

2013

Organizer/chair for special session

CMBBE 2013

Extra-curricular activities

2014-2015

Youth Judo instructor

Baambrugge, Netherlands

2008-2009

Vice-Captain

Dublin University Judo Club

2007-2009

Travel Officer

Dublin University Photography Association

2007-2009

Ju-Jutsu Instructor

Dublin University Judo Club

Languages

English	★★★★★
Dutch	★★★★★
German	★★★★★