

Konstantinos Nizamis  
Assistant Professor in Multidisciplinary Design  
Design, Production and Management



## Personal profile

My name is Kostas Nizamis (1988 Kavala, Greece) and I am an Assistant Professor in Multidisciplinary Design at the University of Twente. I graduated as electrical and computer engineer (M.Eng) from the Democritus University of Thrace in Xanthi, Greece, with a thesis on the study and development of an electronic system for creating an adaptive railroad network using methods inspired by nature. After that, I acquired my degree in Biomedical Engineering (MSc.) at the University of Twente working on the EMG control of active arm supports for people with Duchenne Muscular Dystrophy (DMD). Between November 2014 and February 2019, I performed my Ph.D. research in the department of Biomechanical Engineering, at the University of Twente, in Symbionics 1.3: Intention Amplifying in Hand Orthoses. In this project, we developed and tested a myocontrolled hand exoskeleton for people with Duchenne Muscular Dystrophy (<https://www.youtube.com/watch?v=jpHjIFM0t3Y>). My current research interests involve the application of multidisciplinary design approaches in high impact societal problems.

## Qualifications

PhD

3 Nov 2014 → 28 Feb 2019

Master, University of Twente

Master, Democritus University of Thrace

## Employment

**Assistant Professor**

Design Engineering

University of Twente

1 Mar 2019 → present

## Research output

**Evaluation of the cognitive-motor performance of adults with Duchenne Muscular Dystrophy in a hand-related task**

Nizamis, K., Schutte, W., Grutters, J. J., Goseling, J., Rijken, N. H. M. & Koopman, B. F. J. M., 31 Jan 2020, In : PLoS ONE. 15, 1, p. 1-17 17 p.

**A case study with SymbiHand: An sEMG-controlled electrohydraulic hand orthosis for individuals with Duchenne muscular dystrophy**

Bos, R. A., Nizamis, K., Koopman, B. F. J. M., Herder, J. L., Sartori, M. & Plettenburg, D. H., 6 Dec 2019, In : IEEE transactions on neural systems and rehabilitation engineering.

**Neurorobotics: Review of Underlying Technologies, Current Developments and Future Directions**

Dimitrousis, C., Almpiani, S., Stefanias, P., Veneman, J., Nizamis, K. & Astaras, A., 30 Jun 2019, (Accepted/In press) *Neurotechnology: Methods, advances and applications (Healthcare Technologies)*. Athanasiou, A., De Albuquerque, V. H. & Ribeiro, S. (eds.). 1st ed. The Institution of Engineering and Technology

**Hand Neuro-Motor Characterization and Motor Intention Decoding in Duchenne Muscular Dystrophy**

Nizamis, K., 28 May 2019, 1st ed. Enschede: University of Twente. 230 p.

**A Novel Setup and Protocol to Measure the Range of Motion of the Wrist and the Hand**

Nizamis, K., Rijken, N., Mendes, A., Janssen, M., Bergsma, A. & Koopman, B., 22 May 2019, p. 143-143. 1 p.

**Transferrable Expertise From Bionic Arms to Robotic Exoskeletons: Perspectives for Stroke and Duchenne Muscular Dystrophy**

Nizamis, K., Stienen, A. H. A., Kamper, D. G., Keller, T., Plettenburg, D. H., Rouse, E. J., Farina, D., Koopman, B. F. J. M. & Sartori, M., May 2019, In : *IEEE Transactions on Medical Robotics and Bionics*. 1, 2, p. 88-96

**A Novel Setup and Protocol to Measure the Range of Motion of the Wrist and the Hand**

Nizamis, K., Rijken, N. H. M., Mendes, A., Janssen, M. M. H. P., Bergsma, A. & Koopman, B. F. J. M., 25 Sep 2018, In : *Sensors (Switzerland)*. 18, 10, 14 p., 3230.

**Design of an Electrohydraulic Hand Orthosis for People with Duchenne Muscular Dystrophy Using Commercially Available Components**

Bos, R., Nizamis, K., Plettenburg, D. & Herder, J. L., Aug 2018, *2018 7th IEEE International Conference on Biomedical Robotics and Biomechatronics (Biorob)*. IEEE

**Quantification of Information Transfer Rate of the Human Hand during a Mouse Clicking Task with Healthy Adults and One Adult with Duchenne Muscular Dystrophy**

Nizamis, K., Schutte, W., Goseling, J. & Koopman, H. F. J. M., 15 Aug 2017, *2017 International Conference on Rehabilitation Robotics (ICORR)*. IEEE

**Comparison between sEMG and force as control interfaces to support planar arm movements in adults with Duchenne: a feasibility study**

Lobo Prat, J., Nizamis, K., Janssen, M. M. H. P., Keemink, A. Q. L., Veltink, P. H., Koopman, H. F. J. M. & Stienen, A., 12 Jul 2017, In : *Journal of neuroengineering and rehabilitation*. 14, 73.

**Towards the control of an active hand orthosis for people with Duchenne muscular dystrophy: Comparison of intuitive to non-intuitive SEMG control**

Nizamis, K., Voss, S. & Koopman, H. F. J. M., 27 Jan 2017.

**Towards the control of an active hand orthosis for people with Duchenne muscular dystrophy: Design and Validation of a wireless sEMG sleeve**

Nizamis, K., Ganseij, M. & Koopman, H. F. J. M., 27 Jan 2017.

**Towards Intuitive Control of Active Arm Supports for Men with Duchenne Muscular Dystrophy: A Hybrid sEMG-Torque Control Interface**

Nizamis, K., Lobo Prat, J., Keemink, A. Q. L., Janssen, M., Carloni, R., Stienen, A. & Koopman, H. F. J. M., 10 Jun 2016, p. -.

**A Structured overview of trends and technologies used in dynamic hand orthoses**

Bos, R. A., Haarman, C. J. W., Stortelder, T., Nizamis, K., Herder, J. L., Stienen, A. & Plettenburg, D. H., 2016, In : *Journal of neuroengineering and rehabilitation*. 13, 1, p. 62-62 1 p.

**Towards Intuitive Control of Active Arm Supports for Men with Duchenne Muscular Dystrophy: A Hybrid sEMG-Torque Control Interface**

Nizamis, K., Lobo-Prat, J., Keemink, A. Q. L., Janssen, M. M. H. P., Carloni, R., Stienen, A. H. A. & Koopman, B. F. J. M., 14 Sep 2015.

**Switching Proportional EMG Control of a 3D Endpoint Arm Support for People with Duchenne Muscular Dystrophy**

Nizamis, K., Lobo Prat, J., Keemink, A. Q. L., Carloni, R., Stienen, A. & Koopman, H. F. J. M., Aug 2015, *IEEE International Conference on Rehabilitation Robotics*. USA: IEEE ROBOTICS AND AUTOMATION SOCIETY, p. 235-240 6 p.

**Switching Proportional EMG Control of a 3D Endpoint Arm Support for People with Duchenne Muscular Dystrophy**

Nizamis, K., Lobo Prat, J., Keemink, A. Q. L., Carloni, R., Stienen, A. & Koopman, H. F. J. M., 21 May 2015.

### **Towards Intuitive Control of Active Arm Supports for Men with Duchenne Muscular Dystrophy: A Hybrid sEMG-Torque Control Interface**

Nizamis, K., Lobo Prat, J., Stienen, A., Carloni, R., Janssen, M., Keemink, A. & Koopman, B., 15 May 2015. 2 p.

### **State-of-the-art overview of hand assistive devices**

Bos, R. A., Haarman, C. J. W., Stortelder, T., Nizamis, K., Beckers, N. W. M., Herder, J. L., Stienen, A. & Plettenburg, D. H., 22 Jan 2015, p. -.

### **Symbiotic Hand Orthosis for People with Duchenne Muscular Dystrophy**

Nizamis, K., Bos, R. A., Haarman, C. J. W., de Imelda, J. M., Paalman, M. I., Harlaar, J., Veltink, P. H., Herder, J. L., Koopman, H. F. J. M., Plettenburg, D. H. & Stienen, A., 22 Jan 2015, p. -.

## **Activities**

### **3rd Duchenne Patient Academy 2019 (Event)**

Konstantinos Nizamis (Member)  
6 Dec 2019 → 8 Dec 2019

### **Working Groups meetings of COST Action CA16116 2019**

Konstantinos Nizamis (Participant)  
22 Oct 2019 → 23 Oct 2019

### **INCOSE EMEA Workshop 2019**

Konstantinos Nizamis (Participant)  
10 Oct 2019 → 11 Oct 2019

### **A proposal for extending STEP for supporting the Integrated Network Approach**

Ian Gibson (Examiner), Marco Wilhelm Groll (Examiner), Marcus Vinicius Pereira Pessoa (Examiner), Konstantinos Nizamis (Examiner)  
19 Sep 2019

### **A product development success? Providing insights in improvement of industry's product development maturity.**

Diederick Lutters (Examiner), Roy Gerhardus Johannes Damgrave (Examiner), Konstantinos Nizamis (Examiner)  
30 Aug 2019

### **Sofia Almpani**

Konstantinos Nizamis (Host)  
28 Aug 2019 → 3 Sep 2019

### **Performance Analysis of a Textile-Based Soft Robotic Glove in Spinal Cord Injury**

Bart F.J.M. Koopman (Examiner), Arvid Quintijn Léon Keemink (Examiner), Konstantinos Nizamis (Examiner)  
17 Jul 2019

### **Creating material for the effective education of engineers towards the ethical, legal and societal aspects of wearable robotics**

Konstantinos Nizamis (Speaker)  
10 Jul 2019

### **National Technical University of Athens**

Konstantinos Nizamis (Visiting researcher)  
8 Jul 2019 → 15 Jul 2019

### **IEEE transactions on neural systems and rehabilitation engineering (Journal)**

Konstantinos Nizamis (Reviewer)  
19 Jun 2019 → ...

**Third Congress on NeuroRehabilitation and Neural Repair**

Konstantinos Nizamis (Participant)  
22 May 2019 → 24 May 2019

**European COST action 16116 on Wearable Robotics for augmentation, assistance or substitution of human motor functions**

Konstantinos Nizamis (Participant)  
18 Mar 2019 → 19 Mar 2019

**7th Dutch Bio-Medical Engineering Conference, BME 2019**

Konstantinos Nizamis (Participant)  
24 Jan 2019 → 25 Jan 2019

**ISPO Netherlands Annual Congress 2018**

Konstantinos Nizamis (Participant)  
5 Oct 2018

**COST ACTION CA16116 Wearable robots for augmentation, assistance or substitution of human motor functions**

Edwin H.F. van Asseldonk (Organiser), Kostas Nizamis (Organiser)  
29 Aug 2018 → 30 Aug 2018

**7th IEEE RAS & EMBS International Conference on Biomedical Robotics and Biomechanics, BioRob 2018**

Konstantinos Nizamis (Participant)  
26 Aug 2018 → 29 Aug 2018

**Use it or Lose it: Improving Robotics-Assisted Stroke Rehabilitation**

Konstantinos Nizamis (Organiser), Noortje Henrica Rijken (Member of programme committee), Arno Stienen (Panel member), Jaap Hilbert Buurke (Panel member), Lena Ting (Panel member), Geert Verheyden (Panel member), Agnès Roby-Brami (Panel member), Heike Schmidt-Felzmann (Panel member)  
26 Aug 2018

**IEEE Transactions on Human-Machine Systems (Journal)**

Konstantinos Nizamis (Reviewer)  
16 May 2018 → ...

**A Real-Time Comparison Between sEMG Sequential Direct and Pattern Recognition Control.**

J.S. Rietman (Examiner), Konstantinos Nizamis (Examiner), Bernhard J.F. van Beijnum (Examiner)  
8 Mar 2018

**European COST action 16116 on Wearable Robotics for augmentation, assistance or substitution of human motor functions**

Konstantinos Nizamis (Participant)  
5 Mar 2018 → 6 Mar 2018

**A comparison of measuring methods for hand kinematics: Leap sensor and goniometer.**

Bart F.J.M. Koopman (Examiner), Konstantinos Nizamis (Examiner), Noortje Henrica Rijken (Examiner)  
22 Jan 2018

**Enabling Technologies: Between the needs for assistance and acceptance**

Michael H. Nagenborg (Examiner), Marianne Boenink (Examiner), Konstantinos Nizamis (Examiner)  
3 Nov 2017

**PLoS ONE (Journal)**

Konstantinos Nizamis (Reviewer)

20 Sep 2017 → ...

**EU Cost action CA16116 Wearable Robotics (External organisation)**

Konstantinos Nizamis (Member)

22 Jul 2017 → ...

**IEEE 15th International Conference on Rehabilitation Robotics, ICORR 2017**

Konstantinos Nizamis (Participant)

17 Jul 2017 → 20 Jul 2017

**Muscle Activation Map of the Forearm for Seven Different Gestures in Healthy Subjects**

Bart F.J.M. Koopman (Examiner), Konstantinos Nizamis (Examiner), Erik Maartens (Examiner)

7 Jul 2017

**Design of a Real-Time Low Level and EMG Admittance for DC Micromotors Used in a Hand Orthosis**

Bart F.J.M. Koopman (Examiner), Konstantinos Nizamis (Examiner), Jan R. Buitenweg (Examiner)

6 Jul 2017

**Influence of Prolonged Training on the Information Transfer Rate and Workload of Healthy Young Adults**

Bart F.J.M. Koopman (Examiner), Konstantinos Nizamis (Examiner), Bernhard J.F. van Beijnum (Examiner)

6 Jul 2017

**Comparison of the Real-Time Classification Performance of Hand Gestures for Healthy People and One Adult with Duchenne Muscular Dystrophy**

Bart F.J.M. Koopman (Examiner), Konstantinos Nizamis (Examiner), F. van Beijnum (Examiner)

29 Jun 2017

**Create a novel setup and protocol for measurement of kinematics of the Duchenne hand.**

Bart F.J.M. Koopman (Examiner), Konstantinos Nizamis (Examiner), Akshita Akshita (Examiner)

28 Jun 2017

**Ethics and Policy of Robots in Healthcare Workshop**

Aimee A.L. van Wynsberghe (Organiser), Konstantinos Nizamis (Participant), Eduard Fosch Villaronga (Participant), Cristina Zaga (Participant), Shannon Vallor (Participant), Emily Collins (Participant), Marianne Andersen (Participant), Marcelo Ienca (Participant), Vanessa Rampton (Participant), Giovanni Paziienza (Participant), Li Wang Long (Participant), Monique van der Linde (Participant), Lina Emilsson (Participant), Guglielmo Tamburini (Participant)

26 Jun 2017

**6th Dutch Bio-Medical Engineering Conference 2017**

Konstantinos Nizamis (Participant)

26 Jan 2017 → 27 Jan 2017

**Basics of EMG Control**

Konstantinos Nizamis (Speaker), J. Lobo Prat (Speaker)

6 Oct 2016

**Prosthetics and orthotics international (Journal)**

Konstantinos Nizamis (Reviewer)

5 Oct 2016 → ...

**International Society of Electrophysiology and Kinesiology (ISEK) (External organisation)**

Konstantinos Nizamis (Member)

1 Oct 2016 → 30 Sep 2018

### **Quantifications Of Information Transfer Rate In Humans**

Arno Stienen (Examiner), Konstantinos Nizamis (Examiner), Jan Johannes de Jong (Examiner)  
24 Aug 2016

### **Prototype Of The 3-DOF A-Arm: A Passive Arm Support For Men With Duchenne Muscular Dystrophy**

Konstantinos Nizamis (Examiner)  
22 Aug 2016

### **Design and Validation of a Wireless EMG-Sleeve for Gesture Classification**

Arno Stienen (Examiner), Konstantinos Nizamis (Examiner), Andries de Boer (Examiner)  
11 Jul 2016

### **XXI ISEK Congress 2016**

Konstantinos Nizamis (Organiser), Arno Stienen (Chair), Derek Kamper (Panel member), Dario Farina (Panel member), Thierry Keller (Panel member), Dick Plettenburg (Panel member), Elliott Rouse (Panel member)  
8 Jul 2016

### **XXI ISEK Congress 2016**

Konstantinos Nizamis (Participant)  
5 Jul 2016 → 8 Jul 2016

### **Exploring the Viability of Non-Intuitive sEMG Control for a Virtual Hand**

Konstantinos Nizamis (Examiner)  
10 Jun 2016

### **Muscles2Meet Young Talent Neuromuscular Meeting**

Konstantinos Nizamis (Participant)  
10 Jun 2016 → 11 Jun 2016

### **Don't hand it over**

Konstantinos Nizamis (Speaker)  
19 May 2016

### **EMG Gesture Classification**

Konstantinos Nizamis (Speaker)  
21 Apr 2016

### **Low-costs EMG sleeve**

Konstantinos Nizamis (Speaker)  
16 Apr 2016

### **IEEE 14th International Conference on Rehabilitation Robotics, ICORR 2015**

Konstantinos Nizamis (Participant)  
11 Aug 2015 → 15 Aug 2015

### **Fine-Tuning of Artificial Neural Networks to Improve EMG to Force Mapping**

Bart F.J.M. Koopman (Examiner), J. Lobo Prat (Examiner), Konstantinos Nizamis (Examiner), Benjamin Bolte (Examiner)  
21 Jun 2015

### **2015 Neurorehabilitation and Neural Repair Congress**

Konstantinos Nizamis (Participant)  
21 May 2015 → 22 May 2015

### **Intention Amplifying in Hand Orthosis**

Konstantinos Nizamis (Speaker)

18 Apr 2015

**Hands on anatomy workshop for the upper limb**

Konstantinos Nizamis (Organiser), Enrico Marani (Chair), Joan Lobo Prat (Participant), Claudia Josephina Wilhelmina Haarman (Participant), Victor IJzebrand Sluiter (Participant), Arjen Bergsma (Participant), Arno Stienen (Participant), Laura Cornelia Smulders (Participant), Ronald Bos (Participant), Jilske Huijben (Participant), Lotte Heutinck (Participant)  
20 Feb 2015

**4th Dutch Bio-Medical Engineering Conference, BME 2013**

Konstantinos Nizamis (Participant)  
22 Jan 2015 → 23 Jan 2015

**Erasmus University Rotterdam**

Konstantinos Nizamis (Visiting lecturer)  
17 Nov 2014

**Monte VeritàCSF Conference: Hand, Brain & Technology 2014**

Konstantinos Nizamis (Participant)  
7 Sep 2014 → 12 Sep 2014