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SDU UAS Center
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Employment

The Maersk Mc-Kinney Moller Institute
SDU
Odense M
21. Nov 2023 → present

Associate Professor

SDU UAS Center
SDU
Odense M, Denmark
21. Nov 2023 → present

Research outputs

ASSESSMENT OF GAIT AND SIT-TO-STAND PERFORMANCE IN MODERATE-TO-SEVERELY DISABLED STROKE-AFFECTED INDIVIDUALS USING DYNAMIC ROBOT-ASSISTED BODY WEIGHT UNLOADING: ESOC2026LB93

Jensen, J. S., Skov, C. D., Baddoo, D. R., Sørensen, A. S., Nielsen, H. H., Kruuse, C., Lambertsen, K. L., Bojsen-Møller, J. & Holsgaard-Larsen, A., 6. May 2026, In: *European Stroke Journal*. 11, p. i1045–i1046

Oh no! She is Flying! Interaction Analysis of Therapist-Robot Collaboration in Gait Rehabilitation

Gutierrez, J. P. D. L. R., Silva, T. R., Sørensen, A. S. & Rasmussen, G., Dec 2025, In: *International Journal of Human-Computer Studies*. 206, 28 p., 103620.

Kinematic and kinetic analysis of sit-to-stand and stair-walking with dynamic robot-assisted body weight unloading

Skovgaard Jensen, J., Nielsen, J. L., Sørensen, A. S., Aagaard, P., Holsgaard-Larsen, A. & Bojsen-Møller, J., Oct 2025, In: *Journal of Biomechanics*. 191, 9 p., 112891.

Kinematics and kinetics during sit-to-stand and stair-walking in healthy individuals using robot-assisted body weight unloading

Jensen, J. S., Nielsen, J. L., Sørensen, A. S., Aagaard, P., Holsgaard-Larsen, A. & Bojsen-Møller, J., Aug 2025, In: *Gait & Posture*. 121, Suppl., p. 228-229

A gesture-based behaviour-driven development approach for end-user cobot programming

Silahji, A., Rosa, J. P. D. L., Solis, J., Ricardez, G. A. G., Hafi, L. E., Håkansson, J., Sørensen, A. S. & Silva, T. R., Jun 2025, In: *Robotica*. 43, 6, p. 2046-2080

The effect of robot-assisted versus standard training on motor function following subacute rehabilitation after ischemic stroke - protocol for a randomised controlled trial nested in a prospective cohort (RoboRehab)

Skovgaard Jensen, J., Sørensen, A. S., Kruuse, C., Nielsen, H. H., Skov, C. D., Jensen, H. B., Buckwalter, M. S., Bojsen-Møller, J., Lambertsen, K. L. & Holsgaard-Larsen, A., 4. Jul 2024, In: *BMC Neurology*. 24, 12 p., 233.

Design Goals for End-User Development of Robot-Assisted Physical Training Activities: A Participatory Design Study

Gutierrez, J. P. D. L. R., Silva, T. R., Dittrich, Y. & Sørensen, A. S., Jun 2024, In: *Proceedings of the ACM on Human-Computer Interaction*. 8, EICS, 31 p., 258.

End-User Programming of Robot-Assisted Physical Training Activities through Behaviour-Driven Development

Gutierrez, J. P. D. L., Silva, T. R. & Sørensen, A. S., 11. Mar 2024, *HRI 2024 Companion - Companion of the 2024 ACM/IEEE International Conference on Human-Robot Interaction*. Association for Computing Machinery, p. 387-391

Acute effects of robot-assisted body weight unloading on biomechanical movement patterns during overground walking
Skovgaard Jensen, J., Holsgaard-Larsen, A., Stengaard Sørensen, A., Aagaard, P. & Bojsen-Møller, J., 2024, In: *Journal of Biomechanics*. 162, 111862.

From Gestures to Behaviours: An Empirical Study on Behaviour-Driven Development Scenarios to Support End-User Programming of Collaborative Robots

Rosa, J. P. D. L., Solis, J., Nakamori, K., Ricardez, G. A. G., Håkansson, J., Sørensen, A. S. & Silva, T. R., 2024, *Robotics and Mechatronics: Proceedings of ISRM 2024*. Romdhane, L., Mlika, A., Zegloul, S., Chaker, A. & Laribi, M. A. (eds.). Springer, Vol. 158. p. 369-381 11 p. (Mechanisms and Machine Science).

Towards a Low-Code Programming Environment for Robot-Assisted Physical Training Activities

Rosa, J. P. D. L., Sørensen, A. S. & Rocha Silva, T., 3. Oct 2023, *2023 IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC)*. IEEE, p. 287-289 (IEEE Symposium on Visual Languages and Human-Centric Computing Proceedings).

The impact of robot assisted modulated body weight support on overground gait kinematics in young adults with neurological disorders

Pedersen, M. B., Aagaard, P., Sørensen, A. S., Rasmussen, G. & Holsgaard-Larsen, A., Sept 2023, In: *Gait & Posture*. 106, Suppl. 1, p. 161-162

PLATYPUS: An Environment for End-User Development of Robot-Assisted Physical Training

De La Rosa Gutierrez, J. P. & Sørensen, A. S., 13. Mar 2023, *HRI 2023: Companion of the 2023 ACM/IEEE International Conference on Human-Robot Interaction*. Association for Computing Machinery, p. 342-346

Time-continuous motion analysis of overground walking at varying levels of robot-assisted modulated body weight unloading: ESMAC 2023 Abstracts

Jensen, J. S., Holsgaard-Larsen, A., Sørensen, A. S., Aagaard, P. & Bojsen-Møller, J., 2023, In: *Gait & Posture*. 106, Suppl. 1, p. S90-S91

Data Visualization Dashboards in Robotic Rehabilitation

Liakopoulou, C., Mansourvar, M., Bøglid, A., Naemi, A. & Stengaard Sørensen, A., 27. May 2021, *Public Health and Informatics*. Mantas, J., Stoicu-Tivadar, L., Chronaki, C., Hasman, A., Weber, P., Gallos, P., Crişan-Vida, M., Zoulias, E. & Chirila, O. S. (eds.). IOS Press, Vol. 281. p. 278-282 (Studies in Health Technology and Informatics).

ROS-Enabled Hardware Framework for Experimental Robotics

Steckhahn-Strohmer, B., Bøgild, A., Sørensen, A. S. & Larsen, L. B., Dec 2019, *Proceedings of International Conference on Reconfigurable Computing and FPGAs*. Andrews, D., Cumplido, R., Feregrino, C. & Platzner, M. (eds.). IEEE, 2 p.

Bodily Human Robot Interaction

Solis, J., Sørensen, A. S. & Rasmussen, G., 22. Mar 2019, *14th ACM/IEEE International Conference on Human-Robot Interaction (HRI)*. IEEE, p. 683-684

RoBody Interaction: A New Approach at Kinesthetic Human Robot Interaction

Sørensen, A. S. & Rasmussen, G., Nov 2018, *Proceedings of the 27th IEEE International Symposium on Robot and Human Interactive Communication: RO-MAN*. IEEE, p. 893-900 (Proceedings - IEEE International Workshop on Robot and Human Communication (ROMAN)).

Individualised and adaptive upper limb rehabilitation with industrial robot using dynamic movement primitives

Nielsen, J., Sørensen, A. S., Christensen, T. S., Savarimuthu, T. R. & Kulvicius, T., 2017. 4 p.

Natural Kinesthetic Interaction and Social Relations Between Training-Robots and Their Users

Sørensen, A. S., Nielsen, J., Maagaard, J., Nielsen, J. L., Rasmussen, G. & Day, D., 2017. 1 p.

Student to student teaching in a robot electronics course

Skriver, M. & Sørensen, A. S., 2017, *Exploring Teaching for Active Learning in Engineering Education: Book of Abstracts*. p. 121 1 p.

New exercise-integrated technology can monitor the dosage and quality of exercise performed against an elastic resistance band by adolescents with patellofemoral pain: an observational study

Rathleff, M. S., Bandholm, T., McGirr, K. A., Haring, S. I., Sørensen, A. S. & Thorborg, K., Jul 2016, In: *Journal of Physiotherapy*. 62, 3, p. 159-163

Low-cost modular robotic system for neurological rehabilitative training

Sørensen, A. S., Nielsen, J., Maagaard, J., Skriver, M., Lin, C.-C. & Schultz, U. P., 19. May 2016, *Proceedings - 2016 IEEE International Conference on Industrial Technology, ICIT 2016*. IEEE Press, p. 1585-1591

Adherence to commonly prescribed, home-based strength training exercises for the lower extremity can be objectively monitored using the Bandcizer

Rathleff, M. S., Thorborg, K., Rode, L. A., McGirr, K., Sørensen, A. S., Bøgild, A. & Bandholm, T., Mar 2015, In: *Journal of Strength and Conditioning Research*. 29, 3, p. 627-636

Designing of low-cost 1-DOF Robot Device

Sørensen, A. S. & Maagaard, J., 2014, Syddansk Universitet. Mærsk Mc-Kinney Møller Institutet. 5 p. (Technical Reports - Maersk Mc-Kinney Møller Institute, University of Southern Denmark, Vol. 2014-1).

Detection of needle insertion point for phlebotomy in human forearms

Savarimuthu, T. R. & Sørensen, A. S., 2014, In: *International Journal of Mechanics and Control*. 15, 1, p. 61-67

Kinesthetic human/robot coordination: The coordination of movements for interaction

Sørensen, A. S., Rasmussen, G. & Day, D., 2014, *HRI 2014 - Proceedings of the 2014 ACM/IEEE International Conference on Human-Robot Interaction*. Association for Computing Machinery, p. 292-293

Towards Using a Generic Robot as Training Partner: Off-the-shelf robots as a platform for flexible and affordable rehabilitation

Sørensen, A. S., Savarimuthu, T. R., Nielsen, J. & Schultz, U. P., 2014, *Proceedings of the 9th ACM/IEEE International Conference on Human-Robot Interaction*. Association for Computing Machinery, p. 294-295

Towards Automatic Migration of ROS Components from Software to Hardware

Lange, A. B., Schultz, U. P. & Sørensen, A. S., 8. Nov 2013, *Proceedings of the Fourth International Workshop on Domain-Specific Languages and Models for Robotic Systems*. 4 p.

Unity-Link: A Software-Gateway Interface for Rapid Prototyping of Experimental Robot Controllers on FPGAs

Lange, A. B., Schultz, U. P. & Sørensen, A. S., 3. Nov 2013, *Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems*. IEEE, p. 3899-3906

Sensorenhed til kvantificering af fysisk træning med elastik

Sørensen, A. S. (Inventor), Nov 2013, IPC No. pa2012 00312, 7. May 2012

Unity: A Unified Software/Hardware Framework for Rapid Prototyping of Experimental Robot Controllers using FPGAs

Lange, A. B., Schultz, U. P. & Sørensen, A. S., 6. May 2013. 4 p.

A Doppler RADAR sensor for trampoline jumping

Sørensen, A. S. (Inventor), 2013, Patent No. PA 2013 70134, 8. Mar 2013

HartOS - A hardware implemented RTOS for hard real-time applications

Lange, A. B., Andersen, K. H., Schultz, U. P. & Sørensen, A. S., 23. May 2012. 6 p.

An FPGA based approach to increased flexibility, modularity and integration of low level control in robotics research
Falsig, S. & Sørensen, A. S., 2011, *International Conference on Intelligent Robots and Systems (IROS), 2010 IEEE/RSJ . IEEE*, p. 6119-6124

Real-time medical video processing, enabled by hardware accelerated correlations
Savarimuthu, T. R., Kjaer-Nielsen, A. & Sorensen, A. S., 2011, In: *Journal of Real-Time Image Processing*. 6, 3, p. 187-197 11 p.

A System on Chip approach to enhanced learning in interdisciplinary robotics
Sørensen, A. S. & Falsig, S., 22. Oct 2010, *2010 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*. IEEE, p. 4050-4056

Velfærdsteknologi i rugekassen: Hvad er velfærdsteknologi
Sørensen, A. S., 7. May 2010, In: *Mandag Morgen*. p. 14-17 4 p.

An FPGA based Node-on-Chip Architecture, for Rapid Robotics Research
Falsig, S. & Sørensen, A. S., 2010.

A step toward 'plug and play' robotics with SoC technology
Sørensen, A. S., Falsig, S. & Ugilt, R., 2010. 4 p.

Improving the quality of near-infrared imaging of in vivo blood vessels using image fusion methods
Jensen, A. K., Savarimuthu, T. R. & Sorensen, A. S., 1. Dec 2009, *Proceedings of the IASTED International Conference on Modelling, Simulation, and Identification, MSI 2009*.

TosNet: An easy-to-use, real-time communications protocol for modular, distributed robot controllers
Falsig, S. & Sørensen, A. S., 2009, *Proceedings*. Robocomm, p. 1-6 6 p.

A Real-Time Embedded System for Stereo Vision Preprocessing Using an FPGA
Kjær-Nielsen, A., Jensen, L. B. W., Sørensen, A. S. & Krüger, N., 2008, *Reconfigurable Computing and FPGAs, 2008. ReConFig '08. International Conference on . IEEE*, p. 37-42

DETECTION OF VESSELS IN HUMAN FOREARMS USING 2D MATCHED FILTERING
Savarimuthu, T. R. & Sørensen, A. S., 2008, *Signal and Image Processing 2008*. Cristea, P. D. (ed.). ACTA Press, p. 294-299 6 p.

Tactile Sensing Methods for Automated Blood Samples On Humans
Sørensen, A. S. & Savarimuthu, T. R., 2008, *Advances in mobile robotics: Proceedings of the Eleventh International Conference on Climbing and Walking Robots and the Support Technologies for Mobile Machines*. USA: World Scientific, Vol. 1. p. 875-889 15 p.

Automated production of one-of-a-kind fiber compositepreforms
Sørensen, A. S. & Dalgaard, L., 2006, *Proceedings of the 12th IASTED International Conference: Robots And Applications*. ACTA Press, p. 73-78 6 p.

Implementation of a practical reconfigurable manipulator system based on hybrid parallel and sequential elements
Sørensen, A. S., Jakobsen, O. G., Favrholt, P., Petersen, H. G., Jacobsen, N. J. & Steinicke, J., 2004, *International Conference on Intelligent Manipulation and Grasping (IMG04)*. p. 404-409

A development of parallel robotic modules for long reach applications
Sørensen, A. S., Petersen, H. G., Jacobsen, N. J. & Jakobsen, O. G., 2001

Experiments in ergonomic robot-guided manipulation

Sørensen, A., Liu, C., Kim, S. M., Lynch, K. M. & Peshkin, M. A., 2000

Towards a generic controller for arbitrary robotic manipulators

Joosen, W., Jørgensen, B. N., Linder, S. M., Olsen, M. M., Perram, J. W., Petersen, H. G., Ruhoff, P. T., Sørensen, A., Sørensen, A. S. & Wagenaar, J. M., 2000, *Proceedings of IASTED International Conference on Robotics and Applications*. p. 34-40

Activities

Video-analysis of interaction for the purpose of improving the development of robot platforms.

Rasmussen, G. (Participant), Gutierrez, J. P. D. L. (Organizer), Dittrich, Y. (Chairman), Jensen, J. S. (Participant), Holsgaard-Larsen, A. (Participant), Pedersen, M. B. (Participant), Rocha Silva, T. (Participant) & Sørensen, A. S. (Participant)

15. Nov 2023

Partnerskabet Space Exploration Danmark (External organisation)

Iversen, N. (Member) & Sørensen, A. S. (Member)

Dec 2020 → Dec 2022

Trauma recovery

Sørensen, A. S. (Participant)

4. Mar 2020

A future with robotics: Components in bodily interaction

Sørensen, A. S. (Guest lecturer)

21. Nov 2019

RoBody interaction: Integrating embodied social practices in training robots

Sørensen, A. S. (Guest lecturer)

15. Nov 2019

Adfærdsregulering gennem biofeedback

Sørensen, A. S. (Guest lecturer)

9. Oct 2019

welfare technologies and the laboratory for robot-assisted training

Sørensen, A. S. (Guest lecturer)

3. Apr 2019

Augmented Gravity: Robotassisteret træning

Sørensen, A. S. (Guest lecturer)

2. Apr 2019

14th Annual ACM/IEEE International Conference on Human-Robot Interaction, HRI 2019

Sørensen, A. S. (Participant), Rasmussen, G. (Participant) & Solis, J. (Participant)

11. Mar 2019

Social intelligence in Kinesthetic, Personalized, Adaptive Human-Robot Interaction

Solis, J. (Organizer), Sørensen, A. S. (Organizer) & Rasmussen, G. (Organizer)

27. Aug 2018 → 29. Aug 2018

The resistance training sensor

Sørensen, A. S. (Lecturer)

4. Dec 2014

Robotten som genoptræningsmakker

Sørensen, A. S. (Lecturer)

20. Nov 2014

Versatile but accurate biofeedback and tele-training, rooted in resistance bands

Sørensen, A. S. (Lecturer)

28. Oct 2014

Velfærdsteknologi i dag og i morgen: Perspektiver og scenarier over fremtidens velfærdsteknologier

Sørensen, A. S. (Lecturer)

11. May 2010

University of Southern Denmark (External organisation)

Sørensen, A. S. (Member)

29. Apr 2010 → 1. May 2010

University Technology Matchmaking Biotechnology and Medico-technology

Sørensen, A. S. (Participant)

27. Apr 2010

University of Southern Denmark (External organisation)

Sørensen, A. S. (Member)

5. Apr 2010 → 21. Apr 2010

Design of the masters education in welfare technology: The curriculum of the education

Sørensen, A. S. (Advisor)

2. Dec 2008 → 30. Jun 2009

Technology forecast - Cognition and robotics: Working report about robot technology research in Denmark

Sørensen, A. S. (Advisor)

10. Mar 2005 → 30. May 2005

Press/Media**Astronauter og sengeliggende patienter har meget til fælles**

Sørensen, A. S.

17/02/2021

1 Media contribution

Astronauter og sengeliggende patienter har meget til fælles

Sørensen, A. S.

16/02/2021

1 Media contribution

Astronauter og sengeliggende patienter har meget til fælles

Sørensen, A. S.

16/02/2021

1 Media contribution

Danish Aerospace Company ApS skal bygge nyt multifunktion træningsudstyr til astronauter

Sørensen, A. S.

15/09/2018
1 Media contribution

Demokratiseret teknologi har forvandlet DTU robocup

Ravn, O. & Sørensen, A. S.

08/04/2017
1 Media contribution

Din træningsmakker er en robot: Millionbevilling til SDU-projekt om genoptræning efter sygdom eller ulykke

Holsgaard-Larsen, A., Sørensen, A. S., Rasmussen, G. & Nielsen, J.

19/06/2022
1 Media contribution

Elastikbåndet sladrer til fysioterapeuten

Sørensen, A. S.

01/09/2012
1 item of Media coverage

TV2 News: Fell Down 26 Metres Is Now Able to Walk and Run

Sørensen, A. S.

08/12/2009
1 Media contribution

Forskere trodser tyngdekraften for at få folk med nerveskader til at gå

Sørensen, A. S.

16/12/2024
1 Media contribution

Forskere trodser tyngdekraften for at få folk med nerveskader til at gå

Sørensen, A. S.

17/12/2024
1 Media contribution

Forskere trodser tyngdekraften for at få folk med nerveskader til at gå

Holsgaard-Larsen, A., Sørensen, A. S., Jørgensen, B. J. S., Jensen, J. S. & Pedersen, M. L.

16/12/2024
1 Media contribution

Forskere trodser tyngdekraften for at få folk med nerveskader til at gå

Sørensen, A. S.

16/12/2024
1 Media contribution

Historien om skibsbyggeren, der endte med at bygge maskiner til mennesket

Sørensen, A. S.

28/02/2016
1 Media contribution

KORT NYT

Sørensen, A. S.

26/09/2013
1 item of Media coverage

Lindørobot på museum i Odense

Sørensen, A. S.

26/06/2014

1 item of Media coverage

Mennesker minder om robotter -når vi træner. Vi laver den samme bevægelse igen og igen

Sørensen, A. S.

28/08/2015

1 item of Media coverage

Musik som biofeedback - en træningsmetode til hjerneskadede

Sørensen, A. S.

26/02/2019

1 Media contribution

Opstartsfirma sidder fast i patentstrid med SDU - truet af konkurs

Sørensen, A. S.

28/08/2019

1 Media contribution

Opstartsfirma sidder fast i patentstrid med SDU - truet af konkurs

Sørensen, A. S.

29/08/2019

1 Media contribution

Personlig værdighed gennem teknologi

Sørensen, A. S.

26/04/2018

1 Media contribution

PRM / Astronauter og sengeliggende patienter har meget til fælles

Sørensen, A. S.

16/02/2021

1 Media contribution

PRM / Dansk Handicap Forbund og Syddansk Universitet tester robotteknologi som ny genoptræningsform

Sørensen, A. S.

17/06/2022

1 Media contribution

PRM / Dansk Handicap Forbund og Syddansk Universitet tester robotteknologi som ny genoptræningsform

Sørensen, A. S.

17/06/2022

1 Media contribution

Robotforskere på udkig efter samarbejdspartnere

Sørensen, A. S.

28/08/2015

1 item of Media coverage

ROBOTTEN Menneskets nye bedste ven

Sørensen, A. S. & Hansen, M.

25/08/2013

1 item of Media coverage

Robotten Robert kan give førlighed tilbage og spare penge

Sørensen, A. S.

27/09/2024

1 Media contribution

Robotten Robert kan give førlighed tilbage og spare penge

Sørensen, A. S.

27/09/2024

1 Media contribution

Robotter i genoptræningen kan lette livet for kommunerne

Sørensen, A. S.

04/12/2015

1 Media contribution

Robottræning kan vække lamme muskler

Sørensen, A. S.

01/06/2013

1 item of Media coverage

Samarbejde giver styr på robotstandarderne

Sørensen, A. S.

03/10/2013

1 item of Media coverage

SDU er flyvende: Her laver de træningsudstyr til astronauter

Sørensen, A. S.

13/03/2017

1 Media contribution

Serieopfinder parat med elastiksensoren

Sørensen, A. S.

30/09/2013

1 item of Media coverage

Teknologiske løsninger øger motivationen til at genoptræne

Sørensen, A. S.

21/01/2020

1 Media contribution

Teknologiske løsninger øger motivationen til at genoptræne

Sørensen, A. S.

21/01/2020

1 Media contribution

Træningsrobot modvirker tyngdekraften

Sørensen, A. S.

19/11/2015

1 item of Media coverage

Universitet åbner klinik for genoptræning med robotarme

Sørensen, A. S.

09/01/2020

1 Media contribution

Velfærdsteknologi skal øge motivationen for genoptræning

Sørensen, A. S.

21/01/2020

1 Media contribution

Bijob

Nightingale Cybernetics & Anders Stengaard Holding ApS

Rolle: Ejer

Formål: Kommercialisering - inklusiv rådgivning - af opfindelser indberettet og returneret fra SDU, herunder: Berøringsfri elasticitets sensor, Gleipner, RoboTrainer, RoboTrainer Light, Wire sensor for physical training, Wireless pneumatic sensor for monitoring physical training, Doppler Walk Sensor, Trampolinsensor, RADAR sleep sensor, Penposition, 3D vision adapter for smartphones and tablets, Exercise Machine Sensor, App til aflæsning af LCD displays på medicodevices, Waterski Sensor, Inclination sensor for resistance bands.