

Winnie Jensen  
Professor, Leder  
Institut for Medicin og Sundhedsteknologi  
Det Sundhedsvidenskabelige Fakultet  
Neural Engineering and Neurophysiology  
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## Forskningsprofil

### RESEARCH VISION AND MISSION

I believe in improving quality of life for people with impaired sensory or motor capabilities through development of innovative, implantable technological solutions that are inspired by human biology. I work towards bridging animal and human research to create unique knowledge and novel rehabilitation systems.

### RESEARCH STRATEGY AND EXAMPLE RESEARCH PROJECTS

My research was initiated within animal work, and most of my work has been carried out in animal models – however since 2013, my work also taken a translational step towards clinical work. All my work is ultimately dedicated to the development of future clinical sensory and motor rehabilitation devices and therapies for use in human patients.

Example research projects: Animal model of ischemic stroke, Animal models of neuropathic and phantom limb pain, Direct sensory feedback to alleviate phantom limb pain, Invasive brain computer interfacing.

### RESEARCH EXPERTISE

Specialist knowledge within the area of neural engineering, including new implantable technologies to assess, understand and modulate neuroplasticity for treatment of diseased or damaged neural system.

Experience with development and test of medical device equipment in collaboration with national and international companies.

Experience with development and test of medical equipment (invasive and non-invasive) at multi-national level (approvals obtained at the national ethical committee systems and national competent authorities for human tests, knowledge of performing animal and human tests to comply with the EU medical device directive).

Broad knowledge of national and international policies, strategies, mega-trends ect. within health.

## Ansættelse

### Professor, Leder

Professor, Leder  
Institut for Medicin og Sundhedsteknologi  
Det Sundhedsvidenskabelige Fakultet  
Gistrup, Danmark  
1 jan. 2000 → 31 dec. 4712

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## **Neural Engineering and Neurophysiology**

Det Sundhedsvidenskabelige Fakultet  
Gistrup, Danmark  
1 dec. 2015 → present

## **Professor, Leder**

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Neural Engineering and Neurophysiology  
Det Sundhedsvidenskabelige Fakultet  
Gistrup, Danmark  
1 jan. 2000 → 31 dec. 4712

## **Center for Neuroplasticity and Pain**

Det Sundhedsvidenskabelige Fakultet  
Aalborg East, Danmark  
1 feb. 2015 → present

**Undervisnings og forskningsministeriet. Medlem af referencegruppen for SUNDHED (EU cluster 1)**  
(<https://ufm.dk/forskning-og-innovation/internationalt-samarbejde/europaeiske-samarbejder/horizon-europe-programmet/medlemmer-af-referencegruppen-for-sundhed>)

1 jan. 2022 → present

**Medlem af ATV (<https://atv.dk/>)**

1 jan. 2016 → present

## **Publikationer**

**High-frequency electrical stimulation increases cortical excitability and mechanical sensitivity in a chronic large animal model**

Meijs, S., Andreis, F. R., Janjua, T. A. M., Graven-Nielsen, T. & Jensen, W., 13 aug. 2024, (E-pub ahead of print) I: Pain.

**Porcine Model of Cerebral Ischemic Stroke Utilizing Intracortical Recordings for the Continuous Monitoring of the Ischemic Area**

Nielsen, T. G. N. D. S., Dancause, N., Janjua, T. A. M., Andreis, F. R., Kjærgaard, B. & Jensen, W., 7 maj 2024, I: Sensors. 24, 10, 2967.

**Non-Invasive Sensory Input Results in Changes in Non-Painful and Painful Sensations in Two Upper-Limb Amputees**

Lontis, E. R., Yoshida, K. & Jensen, W., feb. 2024, I: Prosthesis. 6, 1, s. 1-23 23 s.

**Morphology and morphometry of the ulnar nerve in the forelimb of pigs**

Andreis, F. R., Metcalfe, B., Janjua, T. A. M., Fazan, V. P. S., Jensen, W., Meijs, S. & Nielsen, T. G. N. D. S., jan. 2024, I: Anatomia, histologia, embryologia. 53, 1, e12972.

**Differences in intracortical responses following non-noxious and noxious stimulation in anaesthetized rats**

Lykholt, L. E. D., Mørch, C. D. & Jensen, W., 15 dec. 2023, I: Brain Research. 1821, 148564.

**Bringing sensation to prosthetic hands—chronic assessment of implanted thin-film electrodes in humans**

Čvančara, P., Valle, G., Müller, M., Bartels, I., Guiho, T., Hiairassary, A., Petrini, F., Raspopovic, S., Strauss, I., Granata, G., Fernandez, E., Rossini, P. M., Barbaro, M., Yoshida, K., Jensen, W., Divoux, J. L., Guiraud, D., Micera, S. & Stieglitz, T., dec. 2023, I: npj Flexible Electronics. 7, 1, 51.

**From pulse width modulated TENS to cortical modulation: based on EEG functional connectivity analysis**

Jadidi, A. F., Jensen, W., Zarei, A. A., Lontis, E. R. & Atashzar, S. F., 2 aug. 2023, I: Frontiers in Neuroscience. 17, 1239068.

#### **Referred Sensation Areas in Bilateral Upper Limb Amputees**

Lontis, R. & Jensen, W., 1 jul. 2023, *45th Annual International Conference of the IEEE Engineering in Medicine and Biology Society 2023*. IEEE, Bind 2023. s. 1-4 4 s. 10340833. (I E E E Engineering in Medicine and Biology Society. Conference Proceedings).

#### **Spatio-Temporal Analysis of LTP-like Neuroplasticity in Pigs**

Danyar, M. B., Clark, H. F., Atchuthan, N. A., Daugbjerg, L. K., Andersen, A. K., Janjua, T. A. M. & Jensen, W., 19 maj 2023, *11th International IEEE/EMBS Conference on Neural Engineering, NER 2023 - Proceedings*. IEEE, 4 s. (International IEEE/EMBS Conference on Neural Engineering, NER).

#### **On determining the mechanical nociceptive threshold in pigs: a reliability study**

Andreis, F. R., Mørch, C. D., Jensen, W. & Meijs, S., 17 maj 2023, I: *Frontiers in Pain Research*. 4, 1191786.

#### **First Demonstration of Nociceptive and Non-Nociceptive Responses from Spinal Neurons in a Porcine Model**

Meijs, S., Bjarkam, C. R., Andreis, F. R. & Jensen, W., 24 apr. 2023, *11th International IEEE/EMBS Conference on Neural Engineering, NER 2023 - Proceedings*. IEEE, 10123833. (International IEEE/EMBS Conference on Neural Engineering, NER).

#### **Modulation of Intracortical S1 Responses Following Peripheral Nerve High-Frequency Electrical Stimulation in Danish Landrace Pigs**

Janjua, T. A. M., Nielsen, T. G. N. D. S., Andreis, F. R., Meijs, S. & Jensen, W., 24 apr. 2023, *11th International IEEE/EMBS Conference on Neural Engineering, NER 2023 - Proceedings*. IEEE, 10123841. (International IEEE/EMBS Conference on Neural Engineering, NER).

#### **On the Relationship Between Fascicle Diameter and Perineurium Thickness in the Ulnar Nerve of Pigs**

Andreis, F. R., Metcalfe, B., Janjua, T. A. M., Fazan, V. P. S., Jensen, W., Meijs, S. & Nielsen, T. G. N. D. S., 24 apr. 2023, *11th International IEEE/EMBS Conference on Neural Engineering, NER 2023 - Proceedings*. IEEE, 10123782. (International IEEE/EMBS Conference on Neural Engineering, NER).

#### **Alteration in Cortical Activity and Perceived Sensation Following Modulated TENS**

Jadidi, A. F., Jensen, W., Zarei, A. A. & Lontis, R., 2023, I: *IEEE Transactions on Neural Systems and Rehabilitation Engineering*. 31, s. 875-883 9 s.

#### **Simultaneous Modulation of Cortical Activity and Phantom Pain in a Patient with Brachial Plexus Injury**

Zarei, A. A., Atashzar, S. F., Jensen, W., Jadidi, A. F. & Lontis, R., 2023, *11th International IEEE/EMBS Conference on Neural Engineering, NER 2023 - Proceedings*. IEEE, 10123824. (International IEEE/EMBS Conference on Neural Engineering, NER).

#### **AAU Forskningsindikator: Til fremme af AAU's Videnskabelige Publicering og Impact, Samarbejde, Synlighed, Åbenhed og Innovation**

Stoustrup, J., Jensen, W., Kristensen, T. N., Larsen, B., Müller, C., Nielsen, T., Albretsen, J., Bjerg Bennike, K., Melchiorson, P. M., Sivertsen, G. & Stehouwer Øgaard, L. (Oversætter), 2023, Aalborg Universitet.

#### **A novel technique combining transcutaneous electrical nerve stimulation with external tocography for automated and personalized labor pain control – a feasibility study**

Thuvarakan, K., Prentow Lorentzen, I., Zimmermann, H., Hammer, A., Jensen, W. & Gazerani, P., okt. 2022, I: *Neuromodulation: Technology at the Neural Interface*. 25, Suppl. 7, s. S82-S83

#### **Spared ulnar nerve injury results in increased layer III-VI excitability in the pig primary somatosensory cortex**

Meijs, S., Hayward, A., Bjarkam, C., Nielsen, T. G. N. D. S. & Jensen, W., 21 sep. 2022.

#### **Towards implementing an LTP-like pain model in pigs – a pilot study**

Janjua, T., Nielsen, T. G. N. D. S., Rettore Andreis, F., Meijs, S. & Jensen, W., 20 sep. 2022.

**Geometric Characterization of Local Changes in Tungsten Microneedle Tips after In-Vivo Insertion into Peripheral Nerves**  
Sergi, P. N., Jensen, W. & Yoshida, K., 6 sep. 2022, I: *Applied Sciences (Switzerland)*. 12, 18, 8938.

**A Comparison of Delay-and-Add and Maximum Likelihood Estimation for Velocity-Selective Recording Using Multi-Electrode Cuffs**

Andreis, F. R., Metcalfe, B., Al Muhamadee Janjua, T., Meijs, S., Favretto, M. A., Jensen, W. & Dos Santos Nielsen, T. G. N., jul. 2022, *2022 44th Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC)*. IEEE, Bind 2022. s. 4127-4130 4 s. (I E E E Engineering in Medicine and Biology Society. Conference Proceedings).

**Gamma-band Enhancement of Functional Brain Connectivity Following Transcutaneous Electrical Nerve Stimulation**

Zarei, A. A., Jensen, W., Faghani Jadidi, A., Lontis, R. & Atashzar, S. F., apr. 2022, I: *Journal of Neural Engineering*. 19, 2, 12 s., 026020.

**Effect of Modulated TENS on Corticospinal Excitability in Healthy Subjects**

Jadidi, A. F., Stevenson, A. J. T., Zarei, A. A., Jensen, W. & Lontis, R., 1 mar. 2022, I: *Neuroscience*. 485, s. 53-64 12 s.

**The Use of the Velocity Selective Recording Technique to Reveal the Excitation Properties of the Ulnar Nerve in Pigs**

Andreis, F. R., Metcalfe, B., Janjua, T. A. M., Jensen, W., Meijs, S. & Nielsen, T. G. N. D. S., 1 jan. 2022, I: *Sensors*. 22, 1, 58.

**The effect of peripheral high-frequency electrical stimulation on the primary somatosensory cortex in pigs**

Janjua, T. A. M., Nielsen, T. G. N. D. S., Andreis, F. R., Meijs, S. & Jensen, W., dec. 2021, I: *IBRO neuroscience reports*. 11, s. 112-118 7 s.

**A systematic review of porcine models in translational pain research**

Meijs, S., Schmelz, M., Meilin, S. & Jensen, W., nov. 2021, I: *Lab Animal*. 50, s. 313-326

**Effect of Pulse-width Modulated Sensory Feedback on Cortical Excitability**

Jadidi, A. F., Zarei, A. A., Lontis, R. & Jensen, W., 31 aug. 2021.

**Sensory Feedback to Investigate and Drive Cortical Plasticity**

Zarei, A. A., Jadidi, A. F., Lontis, R. & Jensen, W., 31 aug. 2021.

**Short-term Suppression of Somatosensory Evoked Potentials and Perceived Sensations in Healthy Subjects Following TENS**

Zarei, A. A., Jadidi, A. F., Lontis, R. & Jensen, W., jul. 2021, I: *IEEE Transactions on Biomedical Engineering*. 68, 7, s. 2261-2269 9 s., 9321509.

**Correlation between Anesthesia Level and Cortical Oscillations: The Problem with Anesthetized Animal Studies**

Tøttrup, L. & Jensen, W., 27 jun. 2021, *Proceedings for the IASP World Congress on Pain 2021*. 2 s.

**Porcine models in pain research**

Meijs, S. & Jensen, W., jun. 2021.

**Altered evoked low-frequency connectivity from SI to ACC following nerve injury in rats**

Tøttrup, L., Atashzar, S. F., Farina, D., Kamavuako, E. N. & Jensen, W., 24 maj 2021, I: *Journal of Neural Engineering*. 18, 4, 046063.

**Modulation of SI and ACC response to noxious and non-noxious electrical stimuli after the spared nerve injury model of neuropathic pain**

Tøttrup, L., Diaz-Valencia, G., Kamavuako, E. N. & Jensen, W., mar. 2021, I: *European Journal of Pain*. 25, 3, s. 612-623 12 s.

**Online Closed-Loop Control Using Tactile Feedback Delivered Through Surface and Subdermal Electrotactile Stimulation**  
Dong, J., Jensen, W., Geng, B., Kamavuako, E. N. & Dosen, S., 2021, I: *Frontiers in Neuroscience*. 15, 580385.

**Ethical Assessment and Reflection in Research and Development of Non-Conformité Européene Marked Medical Devices**  
Telléus, P. K. & Jensen, W., okt. 2020, I: *Cambridge Quarterly of Healthcare Ethics*. 29, 4, s. 592-606 15 s.

**Modulation of Corticospinal Excitability by Two Different Somatosensory Stimulation Patterns: A Pilot Study**

Jadidi, A. F., Zarei, A. A., Lontis, R. & Jensen, W., 20 jul. 2020, *2020 42nd Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC)*. IEEE, s. 3573-3576 4 s. 9175393. (I E E E Engineering in Medicine and Biology Society. Conference Proceedings).

**Transcutaneous Electrical Stimulation Influences the Time-Frequency Map of Cortical Activity - A Pilot Study**

Zarei, A. A., Faghani Jadidi, A., Lontis, R. & Jensen, W., 20 jul. 2020, *2020 42nd Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC): Enabling Innovative Technologies for Global Healthcare, EMBC 2020*. IEEE, s. 3905-3908 4 s. 9176023. (I E E E Engineering in Medicine and Biology Society. Conference Proceedings).

**Stability of flexible thin-film metallization stimulation electrodes: analysis of explants after first-in-human study and improvement of *in vivo* performance**

Čvančara, P., Boretius, T., López-Álvarez, V. M., Maciejasz, P., Andreu, D., Raspopovic, S., Petrini, F. M., Micera, S., Granata, G., Fernandez, E., Rossini, P. M., Yoshida, K., Jensen, W., Divoux, J-L., Guiraud, D., Navarro, X. & Stieglitz, T., 8 jul. 2020, I: *Journal of Neural Engineering*. 17, 4, 1 s., 046006.

**Referred Sensation Areas in a Bilateral Toes Amputee**

Lontis, E. R., Yoshida, K. & Jensen, W., jul. 2020, *2020 42nd Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC)*. IEEE, s. 3569-3572 4 s. (I E E E Engineering in Medicine and Biology Society. Conference Proceedings).

**A Multiday Evaluation of Real-Time Intramuscular EMG Usability with ANN**

Waris, A., Zia Ur Rehman, M., Niazi, I. K., Jochumsen, M., Englehart, K., Jensen, W., Haavik, H. & Kamavuako, E. N., 15 jun. 2020, I: *Sensors (Basel, Switzerland)*. 20, 12, s. 1-13 13 s., 3385.

**The Short-Term Repeatability of Subdermal Electrical Stimulation for Sensory Feedback**

Dong, J., Kamavuako, E. N., Dosen, S., Jensen, W. & Geng, B., 1 jan. 2020, I: *IEEE Access*. 8, s. 63983-63992 10 s., 9051664.

**The Variability of Psychophysical Parameters following Surface and Subdermal Stimulation: A Multiday Study in Amputees**

Dong, J., Geng, B., Niazi, I. K., Amjad, I., Dosen, S., Jensen, W. & Kamavuako, E. N., jan. 2020, I: *IEEE Transactions on Neural Systems and Rehabilitation Engineering*. 28, 1, s. 174-180 7 s., 8918067.

**Nerve Injury Decreases Hyperacute Resting-State Connectivity Between the Anterior Cingulate and Primary Somatosensory Cortex in Anesthetized Rats**

Tøttrup, L., Atashzar, S. F., Farina, D., Kamavuako, E. N. & Jensen, W., 2020, I: *IEEE Transactions on Neural Systems and Rehabilitation Engineering*. 28, 12, s. 2691-2698 8 s.

**A New Treatment for Phantom Limb Pain Based on Restoration of Somatosensory Feedback Through Intraneural Electrical Stimulation**

Granata, G., Jensen, W., Divoux, J-L., Guiraud, D., Micera, S., Navarro, X., Stieglitz, T., Yoshida, K. & Rossini, P. M., dec. 2019, *Direct Nerve Stimulation for Induction of Sensation and Treatment of Phantom Limb Pain*. River Publishers, s. 233-253 (River Publishers Series in Biomedical Engineering ).

**Biocompatibility of the TIME Implantable Nerve Electrode**

Badia, J., Kundu, A., Harreby, K. R., Boretius, T., Stieglitz, T., Jensen, W. & Navarro, X., dec. 2019, *Direct Nerve Stimulation for Induction of Sensation and Treatment of Phantom Limb Pain*. River Publishers, s. 155-169 (River Publishers Series in Biomedical Engineering ).

### **Computerized "Psychophysical Testing Platform" to Control and Evaluate Multichannel Electrical Stimulation-Based Sensory Feedback**

Geng, B., Yoshida, K., Guiraud, D., Andreu, D., Divoux, J-L. & Jensen, W., dec. 2019, *Direct Nerve Stimulation for Induction of Sensation and Treatment of Phantom Limb Pain*. River Publishers, s. 217-231 (River Publishers Series in Biomedical Engineering ).

### **Direct Nerve Stimulation for Induction of Sensation and Treatment of Phantom Limb Pain**

Jensen, W. (red.), dec. 2019, River Publishers. 262 s. (River Publishers Series in Biomedical Engineering ).

#### **Introduction**

Jensen, W., dec. 2019, *Direct Nerve Stimulation for Induction of Sensation and Treatment of Phantom Limb Pain*. River Publishers, s. 1-6 (River Publishers Series in Biomedical Engineering ).

### **Selectivity of the TIME Implantable Nerve Electrode**

Badia, J., Harreby, K. R., Kundu, A., Boretius, T., Stieglitz, T., Jensen, W. & Navarro, X., dec. 2019, *Direct Nerve Stimulation for Induction of Sensation and Treatment of Phantom Limb Pain*. River Publishers, s. 171-191 (River Publishers Series in Biomedical Engineering ).

### **Multiday Evaluation of Techniques for EMG Based Classification of Hand Motions**

Waris, M. A., Niazi, I. K., Jamil, M., Englehart, K., Jensen, W. & Kamavuako, E. N., jul. 2019, I: *IEEE Journal of Biomedical and Health Informatics*. 23, 4, s. 1526-1534 9 s., 8429072.

#### **Introduction**

Jensen, W., 15 apr. 2019, *Direct Nerve Stimulation for Induction of Sensation and Treatment of Phantom Limb Pain*. River Publishers, s. 1-6 6 s.

### **Latency of ACC and SI processing of noxious and non-noxious electrical stimulation**

Tøttrup, L., Valencia, G. D., Lykholt, L. E. D. & Jensen, W., apr. 2019, I: *Scandinavian Journal of Pain*. 19, Suppl. 1, s. S21

### **Latency of ACC and SI processing of noxious and non-noxious electrical stimuli**

Tøttrup, L., Valencia, G. A. D., Lykholt, L. E. D. & Jensen, W., apr. 2019.

### **Hybrid and fast: A novel in silico approach with reduced computational cost to predict failures of in vivo needle-based implantations**

Sergi, P. N., Jensen, W., Yoshida, K. & Micera, S., 1 jan. 2019, *Converging Clinical and Engineering Research on Neurorehabilitation III: Proceedings of the 4th International Conference on NeuroRehabilitation (ICNR2018)*. Springer Publishing Company, s. 127-131 5 s. (Biosystems and Biorobotics, Bind 21).

### **Keep Track of your Publications and Citations (HST): HST and the VBN Team Recommend**

Melchiorson, P. M., Pedersen, D. & Jensen, W., 2019, 1 s.

### **Modulation of cortical activity by selective steady-state somatosensory stimulation**

Zarei, A., Lontis, R. & Jensen, W., 2019, *2019 41st Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*. IEEE, s. 421-424 4 s. 8856443. (Conference proceedings : ... Annual International Conference of the IEEE Engineering in Medicine and Biology Society. IEEE Engineering in Medicine and Biology Society. Conference).

### **On the robustness of real-time myoelectric control investigations: A multiday Fitts' law approach**

Waris, A., Mendez, I., Englehart, K., Jensen, W. & Kamavuako, E. N., 2019, I: *Journal of Neural Engineering*. 16, 2, 10 s., 026003.

### **Referred Sensation Areas in Transpelvic Amputee**

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**Patient care for postamputation pain and the complexity of therapies: living experiences**

Flahaut, M., Laurent, N. L., Michetti, M., Hirt-Burri, N., Jensen, W., Lontis, R., Applegate, L. A. & Raffoul, W., 1 nov. 2018, I: *Pain Management*. 8, 6, s. 441-453 13 s.

**Features of Referred Sensation Areas for Artificially Generated Sensory Feedback - A Case Study**

Eugen Lontis, R., Yoshida, K. & Jensen, W., jul. 2018, I: *Conference proceedings : ... Annual International Conference of the IEEE Engineering in Medicine and Biology Society. IEEE Engineering in Medicine and Biology Society. Conference*. 2018, s. 3533-3536 4 s.

**A new rat model of seizures suitable for screening antiepileptic electrical stimulation therapies**

Sevcencu, C., Jiao, J., Harreby, K. R. & Jensen, W., jan. 2018, I: *Artificial Organs*. 42, 1, s. 94-99 6 s.

**Does gender affect detection threshold and pain threshold in subdermal electrical stimulation?**

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**Phantom somatosensory evoked potentials following selective intraneural electrical stimulation in two amputees**

Granata, G., Di Iorio, R., Romanello, R., Iodice, F., Raspopovic, S., Petrini, F., Strauss, I., Valle, G., Stieglitz, T., Čvančara, P., Andreu, D., Divoux, J. L., Giraud, D., Wauters, L., Hiairassary, A., Jensen, W., Micera, S. & Rossini, P. M., 2018, I: *Clinical Neurophysiology*. 129, 6, s. 1117-1120

**Psychophysical Evaluation of Subdermal Electrical Stimulation in Relation to Prosthesis Sensory Feedback**

Geng, B., Dong, J., Jensen, W., Dosen, S., Farina, D. & Kamavuako, E. N., 2018, I: *IEEE Transactions on Neural Systems and Rehabilitation Engineering*. 26, 3, s. 709-715 7 s.

**The effect of time on EMG classification of hand motions in able-bodied and transradial amputees**

Waris, A., Niazi, I. K., Jamil, M., Gilani, O., Englehart, K., Jensen, W., Shafique, M. & Kamavuako, E. N., 2018, I: *Journal of Electromyography & Kinesiology*. 40, s. 72-80 9 s.

**Low-Frequency Intracortical Electrical Stimulation Decreases Sensorimotor Cortex Hyperexcitability in the Acute Phase of Ischemic Stroke**

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**Advanced 56 channels stimulation system to drive intrafascicular electrodes**

Guiho, T., Andreu, D., López-Alvarez, V. M., Cvancara, P., Hiairassary, A., Granata, G., Wauters, L., Jensen, W., Divoux, J. L., Micera, S., Stieglitz, T., Navarro, X. & Guiraud, D., 2017, *Converging Clinical and Engineering Research on Neurorehabilitation II: Proceedings of the 3rd International Conference on NeuroRehabilitation (ICNR2016), October 18-21, 2016, Segovia, Spain*. Springer, s. 743-747 (Biosystems and Biorobotics; Nr. 15).

**Evaluation of the effect of sensory feedback on phantom limb pain in multi-center clinical trials**

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**Natural sensory feedback for phantom limb pain modulation and therapy**

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**A new rat model of sustained cortical spike-and-wave seizures**

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**Comparison of EMG feature projection techniques for force estimation**

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**Discrimination of spatial and temporal parameters in electrocutaneous stimulation**

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**Interactions among biotic and abiotic factors affect the reliability of tungsten microneedles puncturing in vitro and in vivo peripheral nerves: A hybrid computational approach**

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**Optimal vagus nerve stimulation frequency for suppression of spike-and-wave seizures in rats**

Jiao, J., Harreby, K. R., Sevcencu, C. & Jensen, W., 2016, *I: Artificial Organs*. 40, 6, s. E120-E127

**Sensory and motor thresholds for surface electrical stimulation of median and ulnar nerves at elbow for sensory feedback**

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**Simulation of a real-time brain computer interface for detecting a self-paced hitting task**

Hammad, S. H., Kamavuako, E. N., Farina, D. & Jensen, W., 2016, *I: Neuromodulation: Technology at the Neural Interface*. 19, 8, s. 804-811

**The effect of spinal cord stimulation on epileptic seizures**

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**The influence of vagus nerve and spinal cord stimulation on the ictal fast ripple activity in a spike-and-wave rat model of seizures**

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Yoshida, K., Jensen, W., Norlin, P., Kindlundh, M. & Hofmann, U. G., 2001, *Proc. 35. Jahrestagung der Deutschen Gesellschaft für Biomedizinische Technik e.V. (DGBMT), August 2001, Bochum, Germany*. 2 s.

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**Effect of initial joint position on nerve cuff recordings of muscle afferents in rabbits**

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**First insights on muscle afferent nerve signals for closed-loop control of FES-generated rabbit ankle movements**

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**Measurement of intrafascicular insertion force of a tungsten needle into peripheral nerve**

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**Muscle afferent signals for FES systems**

Jensen, W., 2001, Aalborg: Center for Sensory-Motor Interaction (SMI), Department of Health Science and Technology, Aalborg University.

**Neuro-fuzzy extraction of angular information from muscle afferents for ankle control during standing in paraplegic subjects: an animal model**

Micera, S., Jensen, W., Sepulveda, F., Riso, R. R. & Sinkjær, T., 2001, *I: IEEE Transactions on Biomedical Engineering*. 48, 7, s. 787-794

**The rabbit model and LIFE as a neural interface**

Jensen, W. & Yoshida, K., 2001, *Scandinavian Society for Laboratory Animal Science, Scand-LAS, 13-15 May 2001, Aarhus, Denmark*. s. 100, No. A76

**Using nerve signals from muscle afferent electrodes to control FES-based ankle motion in a rabbit**

Sepulveda, F., Jensen, W. & Sinkjær, T., 2001, *23rd Annual International Conference of the IEEE Engineering in Medicine and Biology Society, EMBC 2001, 25-28 October 2001, Istanbul, Turkey*. Bind 23. s. 1290-1292

**Effect of intertrial delay on whole nerve cuff recordings of muscle afferents in rabbits**

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**Nerve cuff recordings of muscle afferent activity from tibial and peroneal nerves in rabbit during passive ankle motion**

Riso, R. R., Mosallai, F. K., Jensen, W. & Sinkjær, T., 2000, I: *IEEE transactions on rehabilitation engineering*. 8, 2, s. 244-258

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**Nerve cuff recordings of muscle afferents during electrical stimulation of agonist-antagonist muscle pain**

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**Effect of initial position on nerve cuff recordings of muscle afferents during passive rotation of the ankle joint in rabbit**

Jensen, W., Riso, R. R. & Sinkjær, T., 1998, *Abstract Book, 4th International Congress, INS/IFESS, 16-20 September 1998, Lucerne, Switzerland*. s. 252, No. PP19

**Position information in whole nerve cuff recordings of muscle afferents in a rabbit model of normal and paraplegic standing**

Jensen, W., Riso, R. R. & Sinkjær, T., 1998, *Proceedings of the 20th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, Vol. 20, No. 5, 29 October-1 November 1998, Hong Kong*. s. 2528-2531

**Causal probabilistic network and power spectral estimation used in sleep stage classification**

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**Nerve cuff recordings of muscle afferent activity during passive joint motion in a rabbit**

Sinkjær, T., Riso, R. R., Mosallai, F., Jensen, W. & Lawrence, S., 1997, *IFESS 97, Proceedings of the 2nd Annual Conference, International Functional Electrical Stimulation Society and the 5th Triennial Conference: Neural Prostheses Motor Systems (NP 97), 16-21 August 1997, Burnaby, Canada*. s. 219-220

**Causal probabilistic network and power spectral estimation used for sleep classification**

Nielsen, K. D., Andersen, J. M., Andreasen, L. N. S., Dyrby, T., Jensen, W., Kjær, A. G. & Andreassen, S., 1996, *Proceedings of the 2nd IFMBE-IMIA International Workshop on Biosignal Interpretation, International Federation for Medical and Biomedical Engineering (IFMBE), 1996*. s. 211-214

**Identification of the relationship between center of pressure and ankle angle during standing of normal subjects**

Jensen, W., Struijk, L. N. S. A., Veltink, P. H. & Mayagoitia, R., 1996, *Proceedings of the 18th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, 31 October-3 November 1996, Amsterdam, the Netherlands*. Bind 2. s. 575-576

**Natural sensory feedback for control of standing**

Struijk, L. N. S. A., Jensen, W., Veltink, P. H. & Struijk, J. J., 1996, *Proceedings of the 18th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, 31 October-3 November 1996, Amsterdam, the Netherlands*. Bind 1. s. 441-442

## Aktiviteter

### Udvalget til konstruktion af forskningsindikator på AAU (Begivenhed)

Jakob Stoustrup (Forperson), Winnie Jensen (Medlem), Torsten Nygård Kristensen (Medlem), Birger Larsen (Medlem), Jørgen Albrechtsen (Medlem), Christian Müller (Medlem), Tommy Nielsen (Medlem), Kathrine Bjerg Bennike (Medlem), Poul Meier Melchiorson (Medlem) & Gunnar Sivertsen (Medlem)  
sep. 2022 → feb. 2023

### Opponent on Ph.D-defense (Ekstern organisation)

Winnie Jensen (Medlem)  
30 mar. 2012

## Priser

### 3rd Best Paper Award

Rettore Andreis, Felipe (Modtager), Jensen, Winnie (Modtager), Janjua, Taha (Modtager), Meijs, Suzan (Modtager) & Nielsen, Thomas Gomes Nørgaard dos Santos (Modtager), okt. 2023

### Vanførefondens forskningspris

Jensen, Winnie (Modtager), 2016

## Presse/medie

### 10 teknologiske tendenser, du bør kende: #4. Trådløse signaler mellem hjerne og muskel erstatter ødelagt rygmarv

Winnie Jensen

03/05/2017

1 element af Mediedækning

### Banebrydende metode kan hjælpe amputerede

Winnie Jensen & Preben Sørensen

23/02/2016

1 element af Mediedækning

### Behandling af fantomsmerter hos amputerede

Romulus Lontis & Winnie Jensen

20/02/2024

1 element af Mediedækning

### Bionisk protese

Winnie Jensen

26/02/2015

1 element af Mediedækning

### Commentary: Geometric Characterisation of Local Changes in Tungsten Microneedle Tips after In-Vivo Insertion into Peripheral Nerves

Winnie Jensen

06/09/2022

1 element af Mediedækning

### Danske forsøgspersoner skal have elektroder opereret ind i nerverne

Winnie Jensen

25/03/2014

6 elementer af Mediedækning

**Dansker med fingerprotese føler teksturer for første gang i verden**

Winnie Jensen

09/03/2016

1 element af Mediedækning

**Det hele kommer fra hjernen af**

Winnie Jensen

30/11/2013

1 element af Mediedækning

**Elektroniske nerver**

Winnie Jensen

12/12/2008

1 element af Mediedækning

**En robotarm og to bioniske øjne, tak!**

Winnie Jensen

18/10/2015

1 element af Mediedækning

**En robotarm og to bioniske øjne, tak!**

Winnie Jensen

19/10/2015

2 elementer af Mediedækning

**En underlig "kriblen-krablen"**

Winnie Jensen

01/11/2008

1 element af Mediedækning

**Forskere vil manipulere med fantomsmerter**

Winnie Jensen

22/02/2008

1 element af Mediedækning

**Forskere vil snyde kroppens fantomsmerter**

Winnie Jensen

13/12/2013

50 elementer af Mediedækning

**Forskning i fantomsmerter**

Winnie Jensen

22/02/2008

1 element af Mediedækning

**Forskning i fantomsmerter**

Winnie Jensen

22/02/2008

2 elementer af Mediedækning

**Forskning i neuroteknologi giver store muligheder**

Johannes Struijk, Nico Rijkhoff, Winnie Jensen & Thomas Sinkjær

12/12/2008

1 element af Mediedækning

**Forsøgsdyr i forskningens tjeneste**

Winnie Jensen

01/12/2007

1 element af Mediedækning

**Fremtidens menneske kan trække på to typer reservedele**

Winnie Jensen

10/04/2015

2 elementer af Mediedækning

**Grise hjælper forskere med at bekæmpe fantomsmerter**

Winnie Jensen

17/03/2016

2 elementer af Mediedækning

**Hjerne-Madsen underholder fuld AAU-sal**

Hans Hüttel, Kim Toft Hansen & Winnie Jensen

04/11/2014

2 elementer af Mediedækning

**Implantat i hjernen viser vej til helbredelse**

Winnie Jensen

16/06/2011

1 element af Mediedækning

**Jagten på supermennesket**

Winnie Jensen & Klavs Birkholm

06/02/2015

4 elementer af Mediedækning

**Lam teenager i robotdragt skal sparke VM i gang**

Winnie Jensen

12/06/2014

1 element af Mediedækning

**Medicinske muligheder**

Winnie Jensen

25/08/2015

1 element af Mediedækning

**Moderne mirakler**

Lotte N. S. Andreasen Struijk, Bo Bentsen, Winnie Jensen & Eugen Romulus Lontis

27/03/2017

1 Mediebidrag

**Navnenyt**

Thomas Graven-Nielsen, Lars Arendt-Nielsen, Ole Kæseler Andersen & Winnie Jensen

21/10/2014

1 element af Mediedækning

**Nye medlemmer af ATV**

Winnie Jensen & Anne Marie Kanstrup

07/05/2014

5 elementer af Mediedækning

**Nye medlemmer af ATV**

Anne Marie Kanstrup & Winnie Jensen

28/05/2014

1 element af Mediedækning

**Nyt forskningsprojekt skal komme fantomsmerter til livs**

Winnie Jensen

13/12/2013

1 element af Mediedækning

**Nyt forskningsprojekt skal komme fantomsmerter til livs**

Winnie Jensen

25/03/2014

1 element af Mediedækning

**Ny viden om nerverne kan genskabe organer og sanser**

Nico Rijkhoff, Johannes Struijk, Winnie Jensen & Thomas Sinkjær

13/12/2008

2 elementer af Mediedækning

**Når de lamme skal gå**

Winnie Jensen

24/06/2014

1 element af Mediedækning

**Robotteknologi: Dansker føler med kunstig hånd**

Winnie Jensen

05/02/2014

13 elementer af Mediedækning

**Rotter skal løse blodprop-gåde**

Winnie Jensen

16/06/2011

2 elementer af Mediedækning

**Spørg Scientariat: Hvor meget elektricitet kan menneskekroppen holde til?**

Winnie Jensen

06/05/2017

1 element af Mediedækning

**Stor bevilling skal mindske antallet af invalide efter slagtilfælde**

Ole Kæseler Andersen & Winnie Jensen

24/06/2014

10 elementer af Mediedækning

**Sundhedsteknologi: Så tæt er vi på at være cyborgs**

Winnie Jensen

16/10/2012

2 elementer af Mediedækning

**Supermennesker**

Winnie Jensen

24/10/2014

1 element af Mediedækning

**Vanførefondens Forskerpris til AAU forsker**

Winnie Jensen

15/06/2016

3 elementer af Mediedækning

**Vanførefondens Forskerpris til AAU-professor**

Winnie Jensen

24/05/2016

12 elementer af Mediedækning

**Winnie Jensen**

Winnie Jensen

05/10/2011

2 elementer af Mediedækning

**Winnie Jensen - returned associate professor at Aalborg University**

Winnie Jensen

05/02/2009

1 element af Mediedækning

**Aalborg-forskere fjerner fantomsmerter med strøm**

Winnie Jensen

14/11/2016

2 elementer af Mediedækning

**Aalborg Universitet vil behandle fantomsmerter**

Winnie Jensen

01/02/2016

2 elementer af Mediedækning

**Projekter****Advancing Peripheral Nerve Interfaces in a Large Animal Model**

Rettore Andreis, F., Jensen, W. & Nielsen, T. G. N. D. S.

01/04/2019 → 01/07/2022

**Bevica Center for NeuroEngineering Solutions in Stroke Rehabilitation**

Andersen, O. K., Jensen, W., Jørgensen, H. R. M., Moeslund, T. B., Mrachacz-Kersting, N., Nielsen, J. F., Petrini, L., Spaich, E. G., Modrau, B., Svaneborg, N., Larsen, B. & Knudsen, G. H.

01/09/2014 → 31/08/2019

**Konstruktion af forskningsindikator til AAU**

Stoustrup, J., Jensen, W., Kristensen, T. N., Larsen, B., Müller, C., Nielsen, T., Albrechtsen, J., Bjerg Bennike, K., Melchiorsen, P. M. & Sivertsen, G.

Aalborg University

14/09/2022 → 31/12/2023

**TIME: Transverse, Intrafascicular Multichannel Electrode system for Induction of sensation and treatment of phantom limb pain in amputees**

Jensen, W.

01/05/2008 → 30/04/2012

**TEST**

TEXT SECTION can be added.