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Aalborg Robotics Challenge
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Research profile

Elizabeth Johum is an Associate Professor in the RELATE Research Laboratory for Art and Technology. Her research uses the visual and performing arts as catalysts for re-thinking how we design and implement robots and other assistive technologies. From industrial robots to exoskeletons, Dr. Jochum's work involves transdisciplinary collaboration in human-robot interaction, health, and engineering to develop creative, value-sensitive, and human-centered approaches to ensure the technologies we build address the real needs of people. She coordinates the European ABRA project on Artificial Biology, Robotics and Art, and the ImprovAlze project on machine learning, dance improvisation, and wearables for artistic practice and rehabilitation. She was named one of the top 50 Women in Robotics by Robohub in 2021.

Publications

Towards Embodied AI: Design Approaches for Robots in Opera

Jochum, E., Hopkins, T., Kiefer, C. & Ficarra, E., 1 Jan 2025, *Cultural Technologies: Robots and Artificial Intelligence in the Performing Arts*. Sone, Y. & Savery, R. (eds.). Routledge, p. 113-128 16 p.

Creative Applications for Socially Assistive Robots to Support Mental-Health: A Participatory Pilot Study

Jochum, E., Hansen, A. K. & Cubero, C. G., 2025, *Social Robotics : 16th International Conference, ICSR + AI 2024, Odense, Denmark, October 23–26, 2024, Proceedings, Part III*. Palinko, O., Bodenhagen, L., Cabibihan, J.-J., Fischer, K., Šabanović, S., Winkle, K., Behera, L., Ge, S. S., Chrysostomou, D., Jiang, W. & He, H. (eds.). Springer, p. 225-238 14 p. (Lecture Notes in Computer Science, Vol. 15563 LNAI).

The Effects of Folk-Dance in Schools on Physical and Mental Health for At-Risk Adolescents: A Pilot Intervention Study

Jochum, E., Egholm, D., Oliveira, A. S. & Jacobsen, S. L., 4 Sept 2024, In: *Frontiers in Sports and Active Living*. 6, 1434661.

Improper Bodies: Robots, Prosthetics, and Disability in Contemporary Performance

Jochum, E. & Donnarumma, M., 2024, (Submitted) *Robot Theatre*. Bergen, H. & Mullis, E. (eds.). Routledge Taylor & Francis Group

Interview with Ulrike Quade

Jochum, E., 2024, (Accepted/In press) *Theatre of Ulrike Quade*. Bleeker, M. (ed.).

Robots on Stage in Contemporary Performance

Jochum, E., 29 Apr 2026, *Routledge Companion on Performance and Technology*. Bleeker, M. & Zuniga Shaw, N. (eds.). Routledge

Drawing Robots for Rehabilitation

Jochum, E., Hansen, A. K. & Murphey, T. D., 2023, (Submitted) *Ergonomics in Robotics: Advances and Innovations (ERGOROB)*. Springer

Tonight We Improvise! Real-time tracking for human-robot improvisational dance

Jochum, E. & Derks, J., Oct 2019, *MOCO '19: Proceedings of the 6th International Conference on Movement and Computing*. Association for Computing Machinery (ACM), 11 p. 7

Review: The Robotic Imaginary: The Human and the Price of Dehumanized Labor

Jochum, E., 1 Jun 2019, In: *Screen Bodies*. 4, 1, p. 103-113

Designing for Inclusive AI

Jochum, E. & Schoux Casey, C., 2019. 1 p.

Becoming Cyborg: Interdisciplinary approaches for exoskeleton research

Jochum, E. A., Demers, L.-P., Vorn, B., Vlachos, E., McIlvenny, P. B. & Raudaskoski, P. L., 17 May 2018, *EVA Copenhagen 2018 - Politics of the Machines - Art and After*. British Computer Society (BCS), p. 1-9 40. (Electronic Workshops in Computing; No. 2018, Vol. EVA Copenhagen).

Computation as Medium: Agency and Motion in Interactive Art

Jochum, E. A. & Putnam, L., Dec 2017, In: *Akademisk Kvarter*. 16, p. 9-21 12 p.

Sequence and Chance: Design and control methods for entertainment robots

Jochum, E. A., Millar, P. & Nuñez, D., 2017, In: *Robotics and Autonomous Systems*. 87, January, p. 372-380 8 p.

Robot Choreography: Performance Paradigms for Experimental HRI Setups

Jochum, E. A. & Heath, D., 17 Oct 2016, *Proceedings of Robophilosophy/TRANSOR 2016*. IOS Press, p. 86-88

Using theatre to study interaction with care robots

Jochum, E. A., Vlachos, E., Christoffersen, A., Grindsted Nielsen, S., Hameed, I. & Tan, Z.-H., 30 Jun 2016, In: *International Journal of Social Robotics*. 8, 4, p. 457-470

Cultivating the Uncanny: The Telegarden and Other Oddities

Jochum, E. & Goldberg, K., 2016, *Robots and Art: Exploring an Unlikely Symbiosis*. Kroos, C., Herath, D. & S. (eds.). Springer, p. 149-175 26 p. (Cognitive Science and Technology).

Techno-Animal Effigies: Robots and Telepresence in Non-Human Performance

Jochum, E. A., 2016.

Robot Aesthetics: Practice-Based Research in Robotic Art and Performance

Jochum, E. A. & Putnam, L. J., 2015. 2 p.

Robots and Art: Interactive Art and Robotics Education Program in the Humanities

Jochum, E. A. & Putnam, L. J., 2015, *The 3rd AAU Workshop on Robotics: Proceedings*. Tan, Z.-H., Bai, S., Bak, T., Rehm, M. & Jochum, E. A. (eds.). Aalborg Universitetsforlag, p. 32-37 6 p. 5

Robot Actors, Robot Dramaturgies

Jochum, E., 20 Nov 2014. 10 p.

Rehearsal for the Robot Revolution

Jochum, E. & Goldberg, K., 27 Oct 2014. 10 p.

Programming Play: Puppets, Robots, and Engineering

Jochum, E. & Muphey, T., 30 Jun 2014, *Routledge Companion to Puppetry and Material Performance*. Posner, D., Orenstein, C. & Bell, J. (eds.). Routledge, p. 308-321 14 p.

Where Were the Bots? Mobile Robotics in Japan Post-Fukushima

Jochum, E., 25 Mar 2014. 10 p.

Robotic Puppets and the Engineering of Autonomous Theater

Jochum, E., Schultz, J., Murphey, T. & Johnson, E., 1 Jan 2014, *Controls and Art: Inquiries at the Intersection of the Subjective and the Objective*. Springer, p. 107-128 21 p.

Black Swan or Cash Cow? Innovation in mobile robotics Post-Space Age and Post-Fukushima

Jochum, E., 2014, *Innovation in Extreme Scenarios*. V2_

INTERACT: Applying Theory and Methods from the Visual and Performing Arts to Robots

Jochum, E., Borggreen, G. & Murphey, T., 2014. 8 p.

KING KONG

Jochum, E., Dec 2013, In: *Theatre Journal* (Baltimore). 65, 4, p. 580-582 3 p.

Uncanny Aesthetics

Jochum, E., 6 Nov 2013.

Generating Reliable and Affective Choreography through Engineering: (GRACE)

Jochum, E., 2013. 5 p.

Interview with Peter J. Wilson

Jochum, E., 2013, In: *Puppetry International*. 34, p. 20-23 4 p.

Press clippings

Den perfekte kvinde er en robot

Schärfe, H. & Jochum, E.

02/03/2016

1 item of Media coverage

Dukker driver teknologien frem

Jochum, E.

18/07/2015

2 items of Media coverage

Explain the Uncanny Valley in Less Than a Minute

Jochum, E.

20/11/2013

1 item of Media coverage

Folk er faktisk sødere, når de ikke er unge længere

Jochum, E.

04/07/2015

2 items of Media coverage

Public defence from the Department of Art and Media, MFA Jaana Okulov

Jochum, E.

19/04/2024

1 item of Media coverage

Robotterne kommer med fred og pizza

Jochum, E. A.

02/11/2017

1 item of Media coverage

Årets Underviser på humaniora

Jochum, E. A.

16/02/2019

1 item of Media coverage

AAU uddeler priser til årsfest

Heinsen, J., Jochum, E., Silva, F. M. F. D., Raussen, M., Thomsen, L. B. & Frøbert, A. M.

31/05/2019

1 item of Media coverage

Activities

PhD Course: Creative Arts Therapies

Jochum, E. (Organizer) & Jacobsen, S. L. (Organizer)

20 Nov 2023 → 22 Nov 2023

Arts, Health & Humanities - semiannual seminar

Jacobsen, S. L. (Organizer), Glintborg, C. (Organizer) & Jochum, E. (Organizer)

4 Oct 2023

1st Aalborg Robotics Challenge Workshop

Chrysostomou, D. (Organizer), Heshmati-Alamdari, S. (Organizer), Dosen, S. (Organizer), Rehm, M. (Organizer) &

Jochum, E. (Organizer)

26 May 2023

Workshop of the European Robotics Week 2022 (ERW) on Social Scientific and Humanistic Approaches to Social Robotics. Danish Perspectives Workshop on

Krummheuer, A. L. (Organizer) & Jochum, E. (Organizer)

22 Nov 2022

AI and Creativity: Exploring the Future of Music, Opera, and the Performing Arts in the Age of Machine Learning

Jochum, E. (Organizer), Ficarra, E. (Participant), Hopkins, T. (Participant), Kiefer, C. (Participant), Tatar, K. (Participant),

Chrysostomou, D. (Participant) & Li, C. (Participant)

13 Sept 2022 → 15 Sept 2022

ACM 8th International Conference on Movement and Computing (Event)

Jochum, E. (Editor), Carlson, K. (Editor), Rajko, J. (Editor) & Dahl, L. (Editor)

Jun 2022

Politics of the Machines: Rogue Research (Event)

Jochum, E. (Peer reviewer), Coleman, G. (Peer reviewer), Casey, C. S. (Peer reviewer), Donnarumma, M. (Peer reviewer)

& Abramovic, B. (Peer reviewer)

14 Sept 2021 → 17 Sept 2021

Aalborg Robotics Challenge (Organisational unit)

Chrysostomou, D. (Chairperson (Appointed by AAU)), Dosen, S. (Vice chairperson (Appointed by AAU)), Krummheuer, A.

L. (Vice chairperson (Appointed by AAU)), Merritt, T. R. (Vice chairperson (Appointed by AAU)), Heshmati-Alamdari, S.

(Vice chairperson (Appointed by AAU)), Rehm, M. (Member (Appointed by AAU)) & Jochum, E. (Member (Appointed by

AAU))

1 Sept 2021 → ...

Frontiers In The Art of Human-Robot Interaction: Creative Perspectives from Design and the Arts (Journal)

Heath, D. (Editor), Jochum, E. (Editor), Kroos, C. (Editor) & St-Onge, D. (Editor)

2020 → ...

HRI 2020 ACM/IEEE International Conference on Human-Robot Interaction

Jochum, E. (Participant), Duna, C. (Participant), Sandu, C. (Participant) & Hansen, A. K. (Participant)

2020

8th Annual Aalborg U Robotics

Jochum, E. (Organizer)

10 Dec 2019

Faculty of Education, Science, Technology and Mathematics, University of Canberra

Jochum, E. (Visiting researcher)

1 Jan 2019 → 1 Jul 2019

AISB Society for the Study of Artificial Intelligence and Simulation of Behavior (AISB2019)

Jochum, E. (Organizer)

2019

IEEE 28th International Symposium on Robot and Human Interactive Communication (RO-MAN)

Jochum, E. (Organizer)

2018

Interactive Sound and Movement Systems Workshop

Dahl, S. (Other), Jochum, E. (Other) & Jacobsen, S. L. (Other)

31 Aug 2015

Culture Aware Robotics

Jochum, E. (Participant)

6 May 2014

Projects

ABRA: Artificial Biology, Robotics and Art

Jochum, E. (PI), Horvath, A.-S. (Col), Löchtefeld, M. (Col), Rehm, M. (Col), Merritt, T. R. (Col), Chrysostomou, D. (Col) & Pekarik, M. (Col)

ERASMUS+

01/09/2020 → 31/08/2023

AHH: Cluster: Arts, Health and Humanities

Glintborg, C. (Project Participant), Hejlesen, I. (Project Participant), Jacobsen, S. L. (Project Participant), Jochum, E. (PI) & Skov, S. (PI)

24/03/2022 → ...

EH: Cluster: Environmental Humanities

Horvath, A.-S. (Project Participant), Raudaskoski, P. L. (Project Participant), Mølholm, M. (Project Participant), Awad, S. (Project Participant), Andersen, G. (Project Participant), Beck, B. D. (Project Participant), Jochum, E. (Project Participant), Pedersen, D. B. (Project Participant), Sköld, A. (Project Participant), Hansen, F. T. (Project Participant), Magnussen, R. (Project Participant), Eskjær, M. F. (Project Participant), Nielsen, R. K. (Project Participant), Jessen, I. B. (Project Participant), Andersen, P. V. K. (Project Participant), Demuth, C. (Project Participant), Roslyng, M. M. (Project Participant), Lindhardt, S. (Project Participant), Rosenstand, C. A. G. F. (Project Participant), Krogager, S. G. S. (PI) & Horsbøl, A. (PI)

01/01/2021 → ...

Construction and Emergence

Heinrich, F. (Project Manager), Kørnøv, L. (Project Participant), Rosenstand, C. A. G. F. (Project Participant) & Jochum, E. (Project Participant)
01/01/2016 → 30/04/2016

EXACT: Exoskeletons, Art, and Choreographic Training

Jochum, E. (PI), Raudaskoski, P. L. (PI), McIlvenny, P. B. (PI), Vlachos, E. (PI), Demers, L.-P. (Col) & Da Silva, A. (Col)
01/06/2017 → 28/02/2023

Fod på Gulv

Jacobsen, S. L. (PI), Jochum, E. (Col) & Egholm, D. (Col)
01/09/2022 → 01/05/2024

CRERoB: Grant form Louis-Hansen fonden: Center for Rehabilitation Robotics - phase II

Struijk, L. N. S. A. (PI), Moeslund, T. B. (Project Participant), Rasmussen, J. (Project Participant), Jochumsen, M. R. (Project Participant), Jochum, E. (Project Participant), Glinthborg, C. (Project Participant), Gaihede, M. (Project Participant), Blicher, J. U. (Project Participant), Obál, I. (Project Participant), Mohammadi, M. (Project Participant), Kæseler, R. L. (Project Participant), Bengtson, S. H. (Project Participant), Cardoso, A. S. S. (Project Participant), Khan, J. S. (Project Participant), Leerskov, K. (Project Participant), Kirtas, O. (Project Participant) & Bentsen, B. (Project Participant)
01/08/2024 → 01/10/2027

HEART: Health, Engineering, Art, Robots & Technology

Jochum, E. (PI)
01/08/2020 → 31/01/2021

ImprovAlze: Using deep learning to improve real-time motion recognition and affective experiences for human-machine interaction

Jochum, E. (PI), Erkut, C. (PI), Overholt, D. (PI), Dahl, S. (PI), Palamas, G. (PI) & Bai, S. (PI)
01/09/2022 → 31/12/2022

Moving Together - Online Dance Intervention for mental and physical health in older adults

Pessoto Hirata, R. (PI), Hansen, R. K. (Project Coordinator), Jochum, E. (CoPI), Villumsen, M. (Project Participant) & Egholm, D. (Project Participant)
Tryg Foundation
01/09/2022 → 31/08/2023

RAPP Lab: Robots, Art, People and Performance

Jochum, E. (PI), Heath, D. (PI) & Vlachos, E. (Col)
Helsefonden
01/11/2016 → ...