Benjamin **Johansen**

PhD Candidate · Data Driven User Experience

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Summary

Being a hybrid of mechanical design engineering and computer science, I'm passionate about fusing aspect of design thinking with how we can learn behavioral patterns from user generated data. Currently developing a pervasive computing platform combining behavioral and clinical user feedback related to cochlear implant patients with Oticon Medical as an intern. Associated since 2016 with the Technical University of Denmark (DTU) in collaboration with the Augmented Hearing research group at Eriksholm Research Centre, as a PhD student. 3+ years experience in data driven UX methodologies, focused on personalized medicine in respect to hearing health care apps. Rapid prototyping tools includes business canvas modelling, user story mapping, interactive storyboards, and digital assistants including chat bots and voice user interfaces. Motivated by exploring and analysing data using python, including pandas and scikit learn, combined with R. Applied deep learning for auditory scene classification using TensorFlow and Keras.

Research interests: Data driven & quantitative UX, wearables, ubiquitous and pervasive computing, applied machine learning & deep learning, augmented hearing, and mobile health.

Education

Technical University of Denmark (DTU), DTU Compute

Kgs. Lyngby, Denmark

PhD: Personalizing Hearing Care and Enhancing User Experience by Adapting Devices to the Changing Mobile Context

April 2016 - Exp. March 2019

- Investigating everyday usage of hearing aids, coupled with cognitive modelling and quantitative data analysis. Hearing aids as IoT and wearable devices.
- Course work including: Deep Learning, Computational Tools for Big Data, Machine Learning, Computational Interaction (HCI), Empirical Research in Interactive Systems and Technical Audiology (including human experiments).
- Research interests: Data driven & quantitative UX, augmented hearing, user experience, interaction design, HCI, clinical research, digital health care, mobile health, wearables, ubiquitous and pervasive computing, applied machine learning and deep learning, cognitive modelling.
- Supervised by: Associate Professor J. E. Larsen, M.K Petersen, Senior Scientist, N. H. Pontoppidan.

Technical University of Denmark

Kgs. Lyngby, Denmark

MSc. Design and Innovation

Aug. 2013 - Jan. 2016

- Focus on user experience engineering and prototyping, biomarkers in UX using facial gestures and eye tracking.
- Thesis on ***UX in health care****(thesis|short presentation)*, focus on heart failure patients. Collaboration between DTU, Herlev & Glostrup hospital, and Apple.
- Visiting student at KAIST (Korean Institute of Science and Technology), focus on Human-Robot Interaction and ubiquitous and pervasive computing.

Technical University of Denmark

Kgs. Lyngby, Denmark

BSc. Design and Innovation

Aug. 2010 - Jun. 2013

- Focus on human centred design, including mechatronics, mechanical engineering, participatory design, co-creation, industrial design and CAD.
- Thesis on medical polymer needle design inspired by nature. Including dynamical modelling, material science, 3D prototyping, and mechanical testing.

Skills

Programming	Python, Tensorflow, Keras, R, LaTeX.
Quantitative UX	Hypotheses driven, data analysis, behavioral patterns modelling, data visualization.
Experimental work	Hearing impaired human subjects. HCI experiments. Cognitive science experiments.
Biometric markers	Eye tracking, facial gesture recognition, heart rate variability, and electroencephalography (EEG).
Languages	Danish, English, Swedish.

Publications

Full list, chronologically

Access through publication title

2018	**Modeling User Intents as Context in Smartphone-connected Hearing Aids *(paper)*,** Maciej Jan Korzepa, Benjamin Johansen, Michael Kai Petersen, Jan Larsen, Jakob Eg Larsen, Niels Henrik Pontoppidan	*UMAP Workshop*
2018	**Mapping auditory percepts into visual interfaces for hearing impaired users *(paper | presentation)*,** Benjamin Johansen, Maciej Jan Korzepa, Michael Kai Petersen, Niels Henrik Pontoppidan, Jakob Eg Larsen	*CHI Workshop*
2018	**Learning preferences and soundscapes for augmented hearing *(paper)*,** Maciej Jan Korzepa, Benjamin Johansen, Michael Kai Petersen, Jan Larsen, Jakob Eg Larsen, Niels Henrik Pontoppidan	*IUI Workshop*
2018	**Data-driven hearing care with time-stamped data-logging *(paper)*,** Niels Henrik Pontoppidan, Xi Li, Lars Bramsløw, Benjamin Johansen, Claus Nielsen, Atefeh Hafez, Michael Kai Petersen	*ISAAR proceedings*
2017	**Personalizing the Fitting of Hearing Aids by Learning Contextual Preferences From Internet of Things Data *(paper)*,** Benjamin Johansen, Michael Kai Petersen, Maciej Jan Korzepa, Jan Larsen, Niels Henrik Pontoppidan, Jakob Eg Larsen	*MDPI Computers article*
2017	**Hearables in Hearing Care: Discovering Usage Patterns Through IoT Devices *(paper | poster)*,** Benjamin Johansen, Yannis Paul Raymond Flet-Berliac, Maciej Jan Korzepa, Per Sandholm, Niels Henrik Pontoppidan, Michael Kai Petersen, Jakob Eg Larsen	*CHI proceedings*
2017	**Rethinking Hearing Aid Fitting by Learning From Behavioral Patterns *(paper | presentation)*,** Benjamin Johansen, Michael Kai Petersen, Niels Henrik Pontoppidan, Per Sandholm, Jakob Eg Larsen	*HCII Proceedings*
2016	**Obtaining data on hearing experience through self-tracking *(paper)*,** Benjamin Johansen, Michael Kai Petersen, Jakob Eg Larsen	*UbiComp proceedings*

Presentations

2018	**Mapping auditory percepts into visual interfaces for hearing impaired users,** CHI 2018	*Montreal, CA*
2018	**Demo of Alternative Interface for Hearing Aids,** Eriksholm Research Centre	*Snekkersten, DK*
2016-2018	**Behavioral Patterns from Hearing Aids, Eriksholm Symposium,** Eriksholm Research Centre	*Snekkersten, DK*
2017	**Hearables in Hearing Care,** HCII full paper presentation	*Vancourver, CA*
2017	**Visual Interfaces for Hearing Aids,** Cognitive Systems, DTU Compute	*Kgs. Lyngby, DK*
2016	**Hearing aids as wearables,** Workshop: New frontiers of Quantified Self 2: Going Beyond Numbers	*Heidelberg, DE*

Experience

Technical University of Denmark, DTU Compute

Kgs. Lyngby, Denmark

PhD candidate — *Jan. 2016 - present*

- Development and design of human experiments and research protocols.
- Analysis of results from human experiments.
- Dissemination of research results at conferences and symposia.
- Teaching assistance, including lecturing (apple watch interfaces, google material design, user story boading), project supervision and grading.
- Supervision of graduate and undergraduate students engineering projects.

Oticon Medical

Smørum, Denmark

Internship: Experimental and behavioral knowledge transfer — *May 2018 - present*

- Making cochlear implant user interactions understandable and interpretable. Building a data-information toolbox.
- Data visualisation and data analysis in Python and R, including exploratory analysis using machine learning models.
- Collaboration between Oticon Medical and Hanover Medical School.

DTU Management and DTU Compute

Kgs. Lyngby, Denmark

Teaching assistant — *May. 2013 - Jan. 2016*

- Teaching assistant in the courses, User Experience Engineering, User Experience Prototyping and Innovation Management.
- Teaching assistance, supervising student projects.

International Affairs and Relations (DTU)

Kgs. Lyngby, Denmark

Student Assistant in funding — *June 2014 - Jan. 2016*

- Supporting building new international affairs database, including graphical design and user experience.
- Supporting staff with grant application for international affairs.
- Pre-assessing student application for university funding.