JOHANNES KRUSE

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Summary: I specialize in machine learning, natural language processing, and recommender systems. My academic pursuits, coupled with my active participation in volunteer projects and professional roles, have cultivated my skills in strategic planning, proactive problem-solving, and efficient structuring of complex tasks. I am a disciplined learner (Kaggle and Python enthusiast) who thrives being challenged and explore opportunities to continuously expand my competences.

PUBLICATION

- Johannes Kruse, Kasper Lindskow, Michael Riis Andersen, and Jes Frellsen. 2023. *Creating the next generation of news experience on ekstrabladet.dk with recommender systems*. In Proceedings of the 17th ACM Conference on Recommender Systems (RecSys '23). Association for Computing Machinery, New York, NY, USA, 1067–1070. https://doi.org/10.1145/3604915.3610248
- Sanne Vrijenhoek, Lien Michiels, Johannes Kruse, Alain Starke, Nava Tintarev, and Jordi Viader Guerrero. 2023. NORMalize: *The First Workshop on Normative Design and Evaluation of Recommender Systems*. In Proceedings of the 17th ACM Conference on Recommender Systems (RecSys '23). Association for Computing Machinery, New York, NY, USA, 1252–1254. https://doi.org/10.1145/3604915.3608757
- Johannes Kruse and Lars Kai Hansen. 2019. *Det Etiske Råd – Redegørelse om sundhedswearables og big data*. pp. 116–141

EDUCATION

12/2021 – Present **Technical University of Denmark & Ekstra Bladet** | **Industrial Ph.D. Student** **Kgs. Lyngby & Copenhagen, DK**

- Project title: Responsible Recommender Systems for Danish News Publishing (RRS-DK)
- Courses: Deep Learning, Reinforcement Learning, Machine Learning Summer School, Advanced Topics in Machine Learning, Entrepreneurship in Technical Science
- Developed and implemented the core recommendation system for EkstraBladet.dk, improving user engagement and driving significant traffic growth for the site

03/2024 – 11/2024 **University of California San Diego** | **Visiting Scholar** **San Diego, California, USA**

- Visiting scholar at Prof. McAuley's research lab, focusing on the development of innovative recommender system architectures and advancing the explainability of such systems

09/2018 – 04/2021 **Technical University of Denmark** | **MSc Mathematical Modelling & Computation** **Kgs. Lyngby, DK**

- Courses: Machine Learning, Advanced Modelling, Time Series Analysis, Computational Data Analysis, Constrained Optimisation, Computational Data Analysis
- Involved in the Danish research project WriteReader by evaluating machine generated captions with Deep Learning using Deep Residual Networks and Convolutional Neural Networks
- Thesis: Deep learning for Natural Language Processing. Exploring the use of Knowledge Graph technologies with the objective of enriching word embeddings. Grade: 12

09/2019 – 01/2020 **Barcelona School of Informatics** | **Exchange Student** **Barcelona, ES**

- Courses: Deep Learning, Kernel-based Machine Learning and Multivariate Modelling, Human Language Engineering, and Data Warehousing

09/2015 – 06/2018 **Technical University of Denmark** | **BSc Biomedical Engineering** **Kgs. Lyngby, DK**

- Courses: Advanced Engineering Mathematics, Physics, General Chemistry, Human Biology, Human Diseases for Non-Clinicians, Cell and Tissue Biology, Medical Imaging
- Thesis: Computational Neuroimaging. Investigation of transcranial magnetic stimulation variability in defined brain states by applying data analysis using Python programming. Grade: 12

08/2017 – 12/2017 **Rensselaer Polytechnic Institute** | **Exchange Student** **New York, US**

- Courses: Biomechanics, Biomedical Product Development, Skilled Performance & Training
- Gained a valuable insight in the process and procedures of budgeting, fundraising, and meeting deadlines, as well as quickly learning how to adjust to new environments, cultures, and teaching styles

STUDENTS

- Zhijian Feng, 2023, Technical University of Denmark & Ekstra Bladet
  MSc thesis: *Using Image Information in Deep Learning-Based Recommender Systems for News*
- Magnus Waldemar Hoff Harder & Nikolaj Bach Meineche, 2023, Technical University of Denmark & Ekstra Bladet
  BSc thesis: *Transformer-based News Recommendations: Leveraging User Click-History with Deep Learning*

WORK EXPERIENCE

04/2021 – 12/2021 **Ekstra Bladet** | **Machine Learning Engineer** **Copenhagen, DK**

- Conducted comprehensive literature review regarding recommender systems focusing on personalized news recommendation and techniques of modelling and ranking of news and users
- Facilitated multiple workshops with project stakeholders to ensure an understanding of the complex mathematical algorithm being implemented in production and an agreement of the project's goals and progress
- Responsible for model selection, framework development for model training and evaluation, and employing state-of-the-art recommendation systems for productions use at ekstrabladet.dk

07/2020 – 09/2020 **Infosys Limited** | **InStep Intern** **Bangalore, IND**

- Developed a framework for a conversational search component to existing enterprise search engine
- Build an Artificial Intelligence driven application for Question Answering and Question Generation modules utilizing state-of-the-art machine learning algorithms

01/2020 – 09/2020 **Implement Consultant Group** | **Junior Consultant** **Copenhagen, DK**

- Part of the Data & Analytics team that supports various companies to become more data-driven by optimizing their value chain
- Code contributor to multiple text mining projects utilizing machine learning algorithms to extract and visualize topics within survey data and reduce the number of organizational documents

09/2018 – 09/2019 **AudienceProject** | **Data Analyst** **Copenhagen, DK**

- Programmed software in Python for structural sentences recognition enabling categorizing a document of more than 3.500 sentences in less than two seconds
- Working independently with clients and as part of a team that collaborates with two of the major departments

03/2018 – 09/2018 **The Danish Ethics Committee** | **External Consultant** **Copenhagen, DK**

- Developed a working paper titled 'Privacy-by-Design' which examines the possibilities of enabling a citizen to secure complete control of their personal data stored in public spaces via technical means
- Facilitated constructive discussions with leading scientists in the field of cryptography and academically communicated relevant information in a comprehensive format for the members of the Ethics Committee

08/2016 – 06/2018 **Technical University of Denmark** | **Teaching Assistant** **Kgs. Lyngby, DK**

- Clarify learning objectives and promote discussions of the syllabus. Courses: Calculus and Algebra 1 and 2
- Assisted professors in evaluating and grading mathematical assignments

02/2016 – 05/2018 **Novozymes** | **Student Assistant** **Bagsvaerd, DK**

- Calibrated and maintained laboratory equipment while identifying and implementing new ideas for optimization of calibration routines and procedures
- Optimized and enhanced the work process of the full-size washing machine program in the Household Care division by implementing and streamlining the calibration routine from four to six washing machines

08/2017 – 12/2017 **Rensselaer Polytechnic Institute** | **Research Assistant** **New York, US**

- Performed population studies for the Cognitive Science Department, following rigorous scientific protocols and instructing subjects in the processes of the experiments

VOLUNTEER

06/2018 – 08/2018 **Engineering World Health** | **Expatriate Volunteer** **Dolakha District, NP**

- Stationed as an engineer in a remote hospital in the Himalayas, Nepal, for a duration of six weeks
- Cooperated with the Ministry of Health of Nepal and the local hospital to contribute to FN's 2030 development goals of ensuring universal health benefits to all people around the world

OTHER

IT Skills	Python, Git, R, Microsoft Office, SQL
Languages	Danish (Native) – English (Fluent) – Spanish (Intermediate)
Interests	Culture (Lived abroad in Greenland, Australia, United States), Climbing (certified rock-climbing instructor), Freediving (Completed an open-sea dive to 28 meters), Hiking (Almost hugged a wild bear)