JOHANNES KRUSE, PhD

Location: San Diego, CA, USA | Copenhagen, Denmark
Contacts: +1 (858) 241-1684 | +45 93959556 | Johannes-Kruse@hotmail.com
URL: johanneskruse.github.io | github.com/johanneskruse | linkedin.com/in/johanneskruse

Summary: As a PhD candidate, I specialize in machine learning (ML), natural language processing (NLP), and recommender systems (RS). My expertise includes extensive work in sequential modeling using transformers, recurrent neural networks (RNNs), and convolutional neural networks (CNNs), as well as theoretical studies in reinforcement learning (RL) and multi-armed bandits. Expert in Python, I have applied my skills to solve real-world problems, delivering solutions that serve millions of users. I am a dedicated learner who thrives on challenges and is committed to continuous growth in my field.

PUBLICATIONS

- **Johannes Kruse**, Kasper Lindskow, Saikishore Kalloori, Marco Polignano, Claudio Pomo, Abhishek Srivastava, Anshuk Uppal, Michael Riis Andersen, and Jes Frellsen. 2024. *RecSys Challenge 2024: Balancing Accuracy and Editorial Values in News Recommendations*. In Proceedings of the 18th ACM Conference on Recommender Systems (**RecSys '24**). Association for Computing Machinery, New York, NY, USA, 1195–1199. https://doi.org/10.1145/3640457.3687164
- **Johannes Kruse**, Kasper Lindskow, Saikishore Kalloori, Marco Polignano, Claudio Pomo, Abhishek Srivastava, Anshuk Uppal, Michael Riis Andersen, and Jes Frellsen. 2024. *EB-NeRD a large-scale dataset for news recommendation*. In Proceedings of the Recommender Systems Challenge 2024 (**RecSysChallenge '24**). Association for Computing Machinery, New York, NY, USA, 1–11. https://doi.org/10.1145/3687151.3687152
- Árni Már Einarsson, Elisabetta Petrucci, Jannie Møller Hartley, and **Johannes Kruse**. 2024. *"I must have clicked on something" - Users´ Experiences and Evaluations of Personalized News Recommender Systems.* **Journalism Practice**. (Accepted)
- **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, Jordi Viader Guerrero, and Nava Tintarev. 2023. *Report on NORMalize: The First Workshop on the Normative Design and Evaluation of Recommender Systems*. In Proceedings of CEUR Workshop Proceedings (**CEUR-WS.org**). https://ceur-ws.org/Vol-3639/
- **Johannes Kruse** and Lars Kai Hansen. 2019. *Det Etiske Råd – Redegørelse om sundhedswearables og big data*. pp. 116–141. https://www.ft.dk/samling/20191/almdel/UER/bilag/2/2095890/index.htm

WORKSHOPS, TUTORIALS, DEMOS & OTHERS

- **Johannes Kruse**, Kasper Lindskow, Anshuk Uppal, Michael Riis Andersen, and Jes Frellsen. 2024. *RecSys Challenge 2024: Balancing Accuracy and Editorial Values in News Recommendations*. (**RecSys '24**). Association for Computing Machinery, New York, NY, USA, 1242–1244. https://recsys.eb.dk/
- Alain Starke, Sanne Vrijenhoek, Lien Michiels, **Johannes Kruse**, and Nava Tintarev. 2024. *NORMalize 2024: The Second Workshop on Normative Design and Evaluation of Recommender Systems*. In Proceedings of the 18th ACM Conference on Recommender Systems (**RecSys '24**). Association for Computing Machinery, New York, NY, USA, 1242–1244. https://doi.org/10.1145/3640457.3687103
- Alan Said, Toine Bogers, Christoph Trattner, Simen Eide, Benjamin Kille, Bruce Ferwerda, and **Johannes Kruse**. 2024. *Nordic Personalization Workshop*. https://personalizationday.github.io/2024/
- **Johannes Kruse**, Lien Michiels, Alain Starke, Nava Tintarev, and Sanne Vrijenhoek. 2024. *NORMalize: A Tutorial on the Normative Design and Evaluation of Information Access Systems*. In Proceedings of the 2024 Conference on Human Information Interaction and Retrieval (**CHIIR '24**). Association for Computing Machinery, New York, NY, USA, 422–424. https://doi.org/10.1145/3627508.3638319
- 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

EDUCATION

03/2024 – 06/2025 **University of California San Diego** | **Research Scholar** **San Diego, California, USA**
- Conducting research in Prof. Julian McAuley's lab on innovative recommender system architectures and responsible AI.

12/2021 – 06/2025 **Technical University of Denmark** | **Industrial PhD Student** **Kgs. Lyngby & Copenhagen, DK**
- Project: Responsible Recommender Systems for Danish News Publishing (RRS-DK).
- The project is a collaboration between JP/Politiken Media Group and the Technical University of Denmark.
- Built and deployed the first large-scale recommender system for eb.dk, increasing subscription sales by more than 38%.

09/2018 – 04/2021 **Technical University of Denmark** | **MSc Applied Mathematics** **Kgs. Lyngby, DK**
- Thesis: Deep learning for Natural Language Processing (NLP). Exploring the use of Knowledge Graph technologies with the objective of enriching word embeddings. Grade: 12 (A+).
- Key Courses: Machine Learning, Advanced Modeling, Time Series Analysis, and Constrained Optimization.
- Contributed to Danish research project *WriteReader* by evaluating machine-generated captions using Recurrent Neural Networks and Convolutional Neural Networks.

09/2019 – 01/2020 **Barcelona School of Informatics** | **MSc Exchange Student** **Barcelona, ES**
- Key courses: Deep Learning, Kernel-based Machine Learning and Multivariate Modelling, and Human Language Engineering.

09/2015 – 06/2018 **Technical University of Denmark** | **BSc Biomedical Engineering** **Kgs. Lyngby, DK**
- Thesis: Computational Neuroimaging. Investigation of transcranial magnetic stimulation variability in defined brain states by applying data analysis using Python programming. Grade: 12 (A+).
- Courses: Advanced Engineering Mathematics, Physics, General Chemistry, Human Biology, Medical Imaging.

08/2017 – 12/2017 **Rensselaer Polytechnic Institute** | **BSc Exchange Student** **New York, US**
- Key courses: Biomechanics, Biomedical Product Development, Skilled Performance & Training.

WORK EXPERIENCE

04/2021 – 12/2021 **Ekstra Bladet** | **Machine Learning Engineer** **Copenhagen, DK**
- Facilitated workshops with stakeholders to ensure alignment on complex mathematical algorithms and project goals.
- Part of the team that built and implemented the core recommendation system infrastructure for EkstraBladet.dk.

07/2020 – 09/2020 **Infosys Limited** | **InStep Intern** **Bangalore, IND**
- Developed a scalable framework for a conversational search component integrated into an enterprise search engine.
- Built AI-driven modules for question answering and generation using state-of-the-art machine learning techniques.

01/2020 – 09/2020 **Implement Consultant Group** | **Junior Consultant** **Copenhagen, DK**
- Contributed to the Data & Analytics team by optimizing value chains through advanced machine learning solutions.
- Code contributor to multiple text mining projects, extracting and visualizing topics for document classifcation.

09/2018 – 09/2019 **AudienceProject** | **Data Analyst** **Copenhagen, DK**
- Developed Python-based software for structural sentence recognition, enhancing document categorization workflows.
- Collaborated with cross-functional teams to implement solutions tailored to the needs of major departments.

03/2018 – 09/2018 **The Danish Ethics Committee** | **External Consultant** **Copenhagen, DK**
- Developed a working paper titled *Privacy-by-Design*, exploring technical solutions such as differential privacy, k-anonymity, and multiparty computation to enable citizens to secure full control of their personal data in public spaces.
- Facilitated discussions with leading cryptography experts and summarized findings for the Ethics Committee.

08/2016 – 06/2018 **Technical University of Denmark** | **Teaching Assistant** **Kgs. Lyngby, DK**
- Clarified learning objectives and fostered productive discussions on Calculus and Algebra courses.
- Supported professors by evaluating and grading mathematical assignments to ensure academic standards.

02/2016 – 05/2018 **Novozymes** | **Student Assistant** **Bagsvaerd, DK**
- Calibrated and maintained laboratory equipment to ensure precise experimental results.
- Enhanced calibration workflows in the Household Care division, boosting capacity from four to six washing machines.

08/2017 – 12/2017 **Rensselaer Polytechnic Institute** | **Research Assistant** **New York, US**
- Conducted population studies for the Cognitive Science Department, adhering to rigorous scientific protocols.

VOLUNTEER

06/2018 – 08/2018 **Engineering World Health** | **Expatriate Volunteer** **Dolakha District, NP**
- Stationed as an engineer in a remote Himalayan hospital in Nepal for six weeks, providing technical support and maintenance.
- Collaborated with Nepal's Ministry of Health and local hospital staff to advance the UN's 2030 Sustainable Development Goals, ensuring access to universal health benefits.

SUPERVISION AND MENTORSHIP IN DEEP LEARNING PROJECTS

- Deep learning Course, News Recommendation Systems, Technical University of Denmark (2024).
  Supervised 26 groups involving more than 100 students working on the RecSys '24 challenge as part of the deep learning course at the Technical University of Denmark, providing guidance on advanced recommender systems techniques and strategies.
  Role: Co-Supervisor.
- Zhijian Feng, 2023, Technical University of Denmark & Ekstra Bladet.
  MSc thesis: *Using Image Information in Deep Learning-Based Recommender Systems for News.*
  Role: Main Supervisor and Mentor.
- 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.*
  Role: Main Supervisor and Mentor.

OTHER

Languages	Danish (native), English (fluent), Spanish (intermediate).
Coding	Python (expert), R (proficient), SQL (intermediate), HTML (familiar).
Frameworks	PyTorch, TensorFlow, Hugging Face, Scikit-learn, SciPy, Polars, Pandas, MLFlow, Matplotlib, NumPy.
Passions	Culture (lived abroad in the United States, Australia, Greenland, and Spain), Climbing (certified rock-climbing instructor), Freediving (completed a dive to a depth of 28 meters), Hiking (almost hugged a wild bear).