

# Ivica Kostric

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Citizenship: Croatian, Norwegian

## Research interests

Conversational Search, Conversational Recommender Systems,  
Information Retrieval, Natural Language Processing

## Education

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|--------------------|---|
| Jul 2021 – Present | <b>University of Stavanger</b> – Stavanger, Norway<br>PhD Fellowship in Conversational AI<br>Supervisor: Prof. Krisztian Balog  |
| 2019 – 2021        | <b>University of Stavanger</b> – Stavanger, Norway<br>Degree: Master of Science<br>Programme: Master's Degree Programme in Applied Data Science<br>Mentors: Prof. Krisztian Balog, Dr. Filip Radlinski (Google)   |
| 2018 – 2019        | <b>University of Stavanger</b> – Stavanger, Norway<br>Degree: Bachelor of Engineering<br>Programme: Bachelor's Degree Program in Control Engineering and Circuit Design<br>Programme option: Automation and Electronics Design<br>Mentor: Prof. Trygve Eftestøl |

## Publications

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| 2024 | <b>A Surprisingly Simple yet Effective Multi-Query Rewriting Method for Conversational Passage Retrieval</b><br>Ivica Kostric, Krisztian Balog<br><i>Proceedings of the 47th International ACM SIGIR Conference on Research and Development in Information Retrieval, SIGIR '24</i>                      |
| 2024 | <b>IAI MovieBot 2.0: An Enhanced Research Platform with Trainable Neural Components and Transparent User Modeling</b><br>Nolwenn Bernard*, Ivica Kostric*, Krisztian Balog (* equal contribution)<br><i>Proceedings of the 17th ACM International Conference on Web Search and Data Mining, WSDM '24</i> |

- 2023 **Generating Usage-related Questions for Preference Elicitation in Conversational Recommender Systems**  
Ivica Kostic, Krisztian Balog, Filip Radlinski  
*ACM Transactions on Recommender Systems*
- 2022 **The University of Stavanger (IAI) at the TREC 2022 conversational assistance track**  
Weronika Lajewska, Nolwenn Bernard, Ivica Kostic, Ivan Sekulic, Krisztian Balog  
*The Thirtieth Text REtrieval Conference Proceedings, TREC '22*
- 2022 **DAGFiNN: A Conversational Conference Assistant**  
Ivica Kostic, Krisztian Balog, Tølløv Alexander Aresvik, Nolwenn Bernard, Eyvinn Thu Dørheim, Pholit Hantula, Sander Havn-Sørensen, Rune Henriksen, Hengameh Hosseini, Ekaterina Khlybova, Weronika Lajewska, Sindre Ekrheim Mosand, Narmin Orujova  
*Proceedings of the 16th ACM Conference on Recommender Systems, RecSys '22*, pp. 628–631, 2022.
- 2021 **The University of Stavanger (IAI) at the TREC 2021 conversational assistance track**  
Ivica Kostic, Krisztian Balog, Magnus Book, Trond Linjordet, Vinay Setty  
*The Thirtieth Text REtrieval Conference Proceedings, TREC '21*
- 2021 **Soliciting User Preferences in Conversational Recommender Systems via Usage-related Questions**  
Ivica Kostic, Krisztian Balog, Filip Radlinski  
*Fifteenth ACM Conference on Recommender Systems, RecSys '21*, pp. 724–729, 2021.

## Research experience

- Fall 2024 **Book Recommendation Project - Internship** (Amazon, Madrid)  
Leading a project focused on developing novel strategies for book recommendation.  
*In progress*
- Spring 2024 **Impact of Conversational Styles on Preference Elicitation in Recommender Systems** (University of Stavanger)  
Led a research project to develop a conversational recommender system for the scholarly domain. Conducted a user study investigating the influence of different conversational styles on preference elicitation, task completion, and user satisfaction, with findings showing

- Spring 2024     **Conversational Contextual Movie Recommendation** (University of Stavanger)  
Supervised a master's student in developing methods to incorporate contextual signals—such as day, time, location, and company—into a conversational movie recommender system. The project resulted in the integration of necessary components for contextual recommendation into our IAI MovieBot platform.
- Fall 2023     **Query Rewriting for Conversational Passage Retrieval** (University of Stavanger)  
Led research efforts on developing advanced query rewriting techniques for conversational passage retrieval. Focused on generating and integrating multiple query rewrites into the retrieval pipeline to enhance the performance of information retrieval systems. This work, demonstrating state-of-the-art results, was accepted for presentation at SIGIR'24.
- Spring 2023     **IAI MovieBot v2.0** (University of Stavanger)  
Led the enhancement of the IAI MovieBot, focusing on integrating advanced neural components for natural language understanding and dialogue policy. The project aimed to develop a robust platform for user research, featuring transparent user preference modeling, improved user interface, and upgraded research infrastructure. The work was accepted for presentation at WSDM'24.
- Summer 2022     **TREC CAsT 2022 participation** (University of Stavanger)  
Contributed to the participation of the IAI group at Text REtrieval Conference Conversational Assistance Track (TREC CAsT), with the goal of increasing performance over a strong baseline in conversational search.
- Spring 2022     **DAGFiNN: A Conversational Conference Assistant** (University of Stavanger)  
Supervised a team of Master's and Bachelor's students with the goal of building a multi-modal, multi-domain conversational recommender system. The system was showcased at ECIR'22 where it received positive feedback, and the research led to publication at RecSys'22.
- Summer 2021     **TREC CAsT 2021 participation** (University of Stavanger)  
Led the participation of the IAI group at Text REtrieval Conference Conversational Assistance Track (TREC CAsT), with the goal of developing a strong baseline system, which can serve as a basis for future research on conversational search.
- Spring 2021     **Master's thesis** (University of Stavanger)  
Conducted research on preference elicitation in conversational recommender systems by asking implicit questions based on item usage. Utilized multi-staged data annotation protocol using crowdsourcing to gather a high-quality dataset which was used to train a sequence-to-sequence neural model. This project led to publication at RecSys'21 with a journal extension currently in the making.

Fall 2020      **Neural IAI MovieBot**

Used state-of-the-art deep learning approaches for natural language understanding and intent detection to further develop the [IAI MovieBot](#) conversational movie recommender system. Other tasks involved making the system more modular and building documentation using Sphinx.

## Teaching experience

Fall 2022      **Lecturer, DAT640: Information retrieval and text mining (University of Stavanger)**

Responsible for creating and presenting lecture material, guiding students through assignments and group project work, and creating and evaluating the final exam. Topics include search engine architecture, text pre-processing and indexing, retrieval models and evaluation, web search, semantic search, text clustering and categorization.

Fall 2021      **Teaching assistant, DAT640: Information retrieval and text mining (University of Stavanger)**

Responsible for creating, guiding students to complete, and evaluating graded assignments and group project work. Developed a framework for automated evaluation using Pytest.

Spring 2019 - present      **Teaching assistant, ELE520: Machine learning (University of Stavanger)**

Responsible for helping students solve theoretical and practical graded assignments, and evaluating assignment submissions. Topics include Bayes decision theory, estimating the statistical functions using parametric and non-parametric methods, linear discriminant functions, iterative gradient descent, neural networks, clustering.

Fall 2021      **Teaching assistant, MOD510: Modeling and Computational Engineering (University of Stavanger)**

Responsible for helping students solve theoretical and practical graded assignments, and evaluating assignment submissions. Topics include numerical derivation and integration, Monte Carlo and bootstrapping, numerically solving differential equations, simulated annealing, lattice Boltzmann, random walk, and compartment models.

## Industry experience

August 2024 – February 2025 (Internship)	<b>Amazon (Applied Scientist Intern)</b> – Madrid, Spain Responsible for developing and testing novel strategies for book recommendation, with a focus on enhancing personalization and relevance. <i>In progress</i>
June 2020 – Jul 2021 (Part-time)	<b>Presight Solutions (Data Analyst)</b> – Stavanger, Norway Responsible for research and development of a predictive model within offshore safety using machine learning algorithms. This entailed cleaning and processing raw data, training and evaluating several models, and working with the development team to integrate the model into the main application.
Sep 2018 – June 2020 (Part-time)	<b>Presight Solutions (Software Engineer)</b> – Stavanger, Norway The tasks in this position included software R&D, maintenance, further development of existing products, and development of new solutions. The obligations often extended to other parts of the full life cycle of software development.
Summer 2018	<b>Presight Solutions (R&amp;D Intern)</b> – Stavanger, Norway Responsible for creating a miniature (LEGO) model of a city which contains a variety of hidden sensors and a wireless micro-controller (ESP8266) programmed in Python to send sensor updates to the company's main application. This was showcased at Nordic Edge Expo and Conference 2018 in Stavanger with the theme Smart City.

## Additional courses

Spring 2017	<b>Introduction to Computational Thinking and Data Science</b>
Spring 2017	<b>Computational Probability and Inference</b>
Spring 2017	<b>Learning from Data (Machine Learning)</b>
	Courses taken on edX from Caltech and MIT

## Extra-curricular activities

Fall 2021 – Present	<b>Reviewer for Academic Conferences and Journals</b> - Reviewed papers for conferences: ECIR'23, WebConf'23 "Artifacts available" and journals: Computer Speech & Language <b>Student volunteer</b> - Student volunteer at ICTIR '20, SIGIR '21, ECIR '22, SIGIR '24
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## Technical skills

### **Programming languages**

Proficient in: Python, Javascript, C#, VB.NET, HTML, CSS

Familiar with: R, Matlab, Shell script

### **Software**

Visual Studio Code, Git,  $\text{\LaTeX}$

### **Cloud Computing**

Azure, MongoDB, AWS (SageMaker, Bedrock, DocumentDB, EC2, EMR)

### **Languages**

Croatian (native), English (fluent), Norwegian (advanced)

## Other interests

Boardsports when the weather allows and board games when it does not.