Introduction to AI in E-Commerce and Marketing

Course Description

This course gives a general introduction to the use of artificial intelligence in the application domain of E-commerce and marketing. First, the general application areas are introduced and put into a historical context. This is then developed deeper in dedicated learning units focused on virtual assistants and visual search. Determining the optimal price for a product or service is crucial to all aspects of E-commerce and marketing; a dedicated learning unit covers the theoretical foundations before turning to discussing methods of how to adapt prices dynamically. The use of artificial intelligence requires extensive use of data. In marketing and E-commerce in particular, personal data are often processed. A dedicated learning unit covers both the regulatory aspects of what data may be processed and under what circumstances, as well as ethical considerations of how to use data responsibly within the allowed remit. Finally, a number of case studies are discussed to illustrate the use of artificial intelligence in E-commerce and marketing.

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1. Application Areas and Historical Review
   1. Retail
   2. Entertainment
   3. Advertising
   4. Internet of Things
2. Virtual Assistants
   1. NLP Fundamentals
   2. NLP with Deep Learning
   3. Chatbots
   4. Voice Search
3. Visual Search
   1. Computer Vision Fundamentals
   2. Computer Vision with Deep Learning
   3. Visual Product Search
4. Dynamic Pricing
   1. Pricing Theory
   2. Measuring Price Elasticity
   3. Bayesian Optimal Pricing
   4. Dynamic Pricing
5. Regulatory Requirements and Ethics
   1. Data Protection and Data Privacy
   2. Ethical Data Usage and Modeling
6. Case Studies
   1. Retail
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