AI & DATA SCIENCE INITIATIVE

Applied AI for the Non Specialist - Mini Course Report

Frauke Zeller (The Creative School) & Ebrahim Bagheri (Faculty of Engineering and Architectural Science)
Compiled and Prepared By: Stuart Duncan
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INTRODUCTION

The AI and Data Science (AIDa) initiative at Toronto Metropolitan University (TMU) initiated a three-session mini-course in Fall 2022. Providing an introduction to artificial intelligence (AI) and its application in research and work, the course series was tailored for individuals without technological backgrounds. The workshop series covered a variety of topics, including programming, machine learning, natural language processing, and network visualization through demonstrations and hands-on activities.

Enrollment was open to TMU employees, researchers, and students. The mini-course was affiliated with the NSERC CREATE program on the Responsible Development of AI and TMU's Center for Communicating Knowledge (The Creative School). Drs Frauke Zeller and Ebrahim Bagheri led the AIDa initiative.

Stuart Duncan, an instructor with the RTA School of Media, designed and delivered the course with support from Taylor MacLean, Creative Lead of the Centre for Communicating Knowledge, and Tharujan Ravitharan, Departmental Assistant, Electrical, Computer, & Biomedical Engineering.

This report provides information on the course organization, mini-course content, attendee demographics, feedback from attendees, resources created during the course, and potential future plans for the series.

ORGANIZATION AND OUTREACH

The mini-course was organized under the auspices of the AIDa initiative at TMU, which was established, as a grass-roots movement, in January 2022 to create a network for researchers from different disciplines and departments who are involved in or have an interest in AI and Data Science. The initiative's outreach activities brought together 59 faculty and staff members from across the university for the initiative's inaugural meeting in early 2022. During the meeting, the idea of conducting a workshop series that would introduce AI and data science concepts to non-technical individuals[1] was proposed.

Based on this feedback, the mini-course planning began in September 2022, and the course design was completed in late October. The workshop series ran on November 18 and 25 and December 2, 2022.

Outreach efforts for the workshop series included emails to the AIDa email list, a dedicated course website, and a video trailer posted on YouTube and with course promotional material. Social media graphics were also developed and circulated to TMU units and departments, to facilitate posting about the workshop series. The event info was also shared with the TMU Today, The Office of the Vice-President, Research and Innovation, The Catalyst, the Yeates School of Graduate Studies and all TMU faculties.

Online registration, which opened in late October, received an overwhelming response with over 171 people registering for the course.

COURSE MATERIAL

The mini course took a dual approach, introducing the fundamental theoretical concepts of AI and data science and demonstrating how these concepts can be put into practice using simple computational tools. Given the participants' non-technical backgrounds,

1 We define non-technical individuals as those without technical skills specifically in AI-based work.

the course emphasized using non-programmatic methods to apply AI and data science in research and work.

Each of the three classes had a specific area of focus. Class 1 provided a comprehensive overview of AI and natural language processing. Class 2 explored supervised and unsupervised learning, as well as working with large datasets. Class 3 offered a brief introduction to Python programming and highlighted how it could be used in AI and data science work.

Using hands-on exercises, the course enabled participants to use software tools for sentiment analysis, topic modeling, and network visualization. Additionally, the mini course investigated the practical application of AI and data science, the perils of data bias in AI approaches, and the various definitions of artificial intelligence.

Following the conclusion of the workshop series, we made the class recordings available on our website and YouTube. To supplement the material covered in class and provide a more comprehensive learning experience, we also

recorded longer and more in-depth videos on select course concepts, which are now accessible on the course website. Additionally, we compiled a collection of external resources related to the course material, which are also available on the website.

COURSE ATTENDANCE

Throughout the workshop series, we had strong attendance numbers, with 92 participants attending the first class, 52 attendees at the second class, and 40 participants attending the final class. After each class, we circulated a recording of the workshop, which also allowed those that could not attend to engage with the course material. Given that the workshop series occurred during the busy end of semester period, we consider the attendance numbers to be quite good.

FEEDBACK

After completing the mini course, we requested feedback from the participants and received 19 responses. Participants were asked to rate their

familiarity with the concepts taught on a scale of 1 to 5, with 1 being the least familiar and 5 being extremely familiar. The mean response was 2.47, showing mixed familiarity with the concepts presented. Online instruction quality was rated on a scale of 1 to 5, with 1 being very poor and 5 being very good, and the mean value was 4.47. The interactivity of the course was also rated on a scale of 1 to 5, with 1 being not very interactive and 5 being very interactive, and the mean value was 4.15. Participants expressed a high level of satisfaction with the course, with a mean response of 4.47 on a scale of 1 to 5, with 1 being not at all satisfied and 5 being extremely satisfied. Additionally, participants expressed a desire for a full course on the topic and recommended follow-up activities.

FUTURE PLANS

Overall, we believe that the Applied AI for the Non-Specialist Mini Course was an overwhelming success. Each of the three classes was well attended, and feedback related to the sessions was positive. Building on this initial course series and reflecting on the feedback provided, we intend to redevelop the course series to expand on the concepts taught in this course.

The passion shown by the attendees, who included faculty, staff, and students from Toronto Metropolitan University, was truly inspiring. This workshop series serves as an excellent example of the commitment of the university and its community to staying at the forefront of cutting-edge technologies and fostering a culture of continuous learning. We hope that this success will promote ongoing collaboration and innovation across campus.

Report graphics created with the DALL-E AI-based image generator.