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Teaching Statement

Teaching Certifications

I hold the University Teaching Qualification (UTQ) certificate which is regarded as proof of teaching competence in the Netherlands. I have completed a number of pedagogical certifications such as Teaching Skills, Designing Courses and Projects, Facilitating Learning, Assessment, Evaluation of Courses, and Supervision of PhD Students. Through these certifications, I have honed my skills in utilizing active learning methodologies such as problem-based learning, project-based learning, and challenge-based learning. My extensive experience extends across a spectrum of teaching delivery methods, ranging from traditional in-person sessions to virtual classrooms and hybrid models.

Teaching Philosophy

My teaching philosophy primarily concerns the following aspects:

Student-oriented Teaching

As a teacher, I see it as my responsibility to understand my students' backgrounds, existing knowledge, and learning needs/goals. This awareness allows me to tailor my teaching style and content to suit their individual needs. To achieve this, I use a variety of student-focused teaching methods, some of which are detailed below.

(i) **Incorporating various forms of learning**: I incorporate different forms of learning to accommodate a variety of learners. The lecture slides are created using a consolidated color scheme and they contain illustrative figures to benefit visual learners. For auditory learners, I plan my lectures with scheduled questions and invite students to answer them. For hands-on learners, I recommend a few optional assignments and exercises.

(ii) **Think-pair-share**: I typically start my lectures with a recap of previous lectures in the course. Here, I invite the students to *think-pair-share* i.e., I ask the students to recall the core concepts from previous lectures, then to discuss in pairs, and finally, I invite volunteers to share their recollections. This learning activity increases student interaction and also informs me if students have understood previously taught material. Moreover, this activity aids students in achieving learning objectives at the *remember* and *understand* levels of Bloom's Taxonomy of Learning.

(iii) **Pre-test to review and refine prerequisite knowledge**: I provide an optional online pre-test before the course for the students to assess their prerequisite skills and knowledge. After completing the test, the students are given model solutions and further reading materials related to each question. Thus, students are able to review and refine the skills and knowledge that helps them throughout the course.

Inclusive and accessible education

Studies have shown that students perform better when diverse socio-cultural backgrounds of students are recognized and embraced within educational institutions [29]. In order to provide diverse and inclusive teaching and supervision, I act according to the guidelines shown in Table 1 [30].

Principle	Activities
Establish positive class climate.	Learning names, in-class surveys and activities.
Set explicit expectations.	Clear assessment criteria, timely feedback.
Select diverse course content.	Use of multiple and diverse examples.
Design accessible course elements.	Use of dyslexia-friendly fonts (e.g. Arial).
Commitment to inclusion.	Self-inventory of biases, ways to overcome them.

Table 1: Guidelines for inclusive and accessible education

Teaching Interests and Experience

I possess diverse teaching interests and can effectively instruct courses beyond my core research focus to a wide range of students. My teaching experience is summarized below in Table 2. Below I expand on my role in these courses. For more information, please see my teaching portfolio.

(i) **MSc course: Reinforcement Learning** — In the course on *Research Topics in Data Mining*, I designed the track of *Reinforcement Learning* independently and developed all the teaching materials including lectures, assignments and additional resources. Furthermore, I planned and conducted all the teaching, supervision and assessment activities. A short snippet from my introductory lecture in this course can be found at this link. Video recordings of all the lectures from this course can be found at the following link.

(ii) **MSc course: Embodying Intelligent Behavior in Social Context** — The learning objective was that the students would be able to use machine learning algorithms as a design tool for creating an interactive and explainable

Course	Level	# Students	Institute
Data Mining (Lecturer)	BSc	140 students	TU Eindhoven
Reinforcement Learning (Independently responsible for the track)	MSc	35 students	TU Eindhoven
Embodying Intelligent Behavior in Social Context (Lecturer)	MSc	41 students	TU Eindhoven
Data Intelligence (Project Supervision)	MSc	50 students	TU Eindhoven
Data Mining (TA)	BSc	~ 20 students	IIT Madras
Introduction to Machine Learning (TA)	BSc	~ 60 students	IIT Madras
Computational Engineering (TA)	BSc	~ 50 students	IIT Madras
Introduction to Research (TA)	BSc	~100 students	IIT Madras

Table 2: Teaching Experience

system within an educational/health context. My responsibilities included co-creating the syllabus, developing the teaching materials, teaching, and co-assessment.

(iii) **MSc course: Data Intelligence** — The objective of the course group project was to design a minimal viable product that is a marketable solution to a realistic problem using a machine learning framework. I supervised 10 groups, with each group comprised of 5 students. I guided the students helping them with tasks such as defining problems, designing solutions, and programming those solutions.

(iv) **BSc course: Data Mining** — This was a basic course taken by second-year Computer Science BSc students. In collaboration with other lecturers, my teaching duties involved creating the syllabus, developing all the teaching materials including lectures, assignments and additional resources, teaching, and assessment.

Supervision Experience

I am experienced in supervising students at all levels of university education. I am a co-supervisor for a PhD student and 4 master's students with thesis topics ranging from deep learning, continual learning, supply chain management and constrained sequential decision making. Under my supervision, PhD and MSc students have published a number of research articles [6, 7, 8, 9, 14, 15, 16]. Moreover, I have been on the assessment committee for bachelor's projects and the thesis committee for master's defenses. Feedback letters about my supervision from a PhD student and an MSc student can be found in Appendix G of my UTQ dossier.

Teaching Evaluations

The official evaluation grade on a five-point scale received for the course of *Reinforcement Learning* was 4.5, which exceeded the university-wide mean substantially. The evaluations for my other courses were positive too and in particular, students evaluated the following aspects of my teaching highly: course design, course materials, ability to teach complex topics in a broadly understandable manner, approachability, and inclusive and accessible learning environment. The complete evaluations can be found in my UTQ dossier. The following bar chart from the evaluation provides further testimony to my teaching skills.

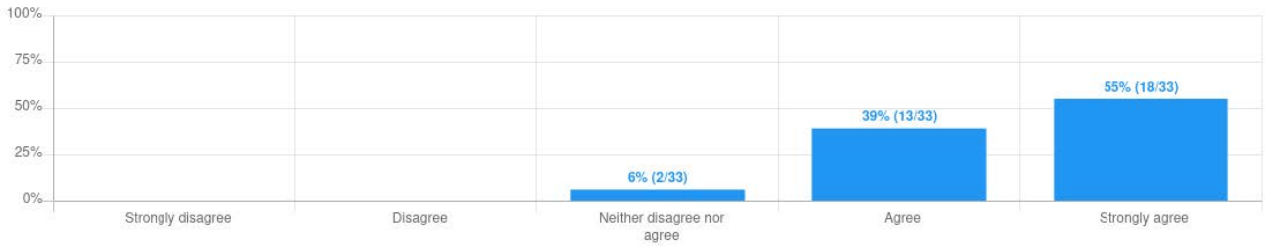

Figure 1: Official course evaluation for 2AMM20 – Percentage of responding students agreeing with – "The lecturer explained the content in a clear and comprehensive way".

I also conducted an anonymous survey among students to receive feedback on issues not covered in the official evaluation. Following were the salient results:

(i) 100% of the responding students agreed with - "The course materials supported the content well."

(ii) 80% of the responding students agreed with - "The lecturer fostered an inclusive and accessible learning environment.", while the rest chose the option of "neither agree nor disagree".

References

References [1] to [28] can be found in my CV.

[29] Laura Celeste, Gülseli Baysu, Karen Phalet, Loes Meeussen, and Judit Kende. Can school diversity policies reduce belonging and achievement gaps between minority and majority youth? multiculturalism, colorblindness, and assimilationism assessed. *Personality and Social Psyc. Bulletin*, 45(11):1603–1618, 2019.

[30] Columbia Center for Teaching and Learning. Inclusive teaching and learning online. columbia university, 2020. URL https://ctl.columbia.edu/resources-and-technology/teaching-with-technology/teaching-online/inclusive-teaching/. Accessed: 2022-09-30.