

Teaching Portfolio

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Teaching Certifications

I hold the University Teaching Qualification (UTQ) certificate which is regarded as proof of the competence of teaching in academic settings in the Netherlands. See the following link for more information about UTQ [↗](#). My UTQ dossier can be found on my personal webpage [↗](#). I have completed a number of pedagogical courses such as *Teaching Skills*, *Designing Courses and Projects*, *Facilitating Learning*, *Assessment*, *Evaluation of Courses* and *Supervision of PhD Students*.

Teaching Experience

I have a broad set of teaching interests and I am able to teach courses that extend beyond my core research focus to a wide class of students. My teaching experience is summarized below in Table 1.

Data Mining (Lecturer)	BS	140 students	TU Eindhoven
Reinforcement Learning (Responsible Lecturer)	MS	35 students	TU Eindhoven
Embodying Intelligent Behavior in Social Context (Lecturer)	MS	41 students	TU Eindhoven
Data Intelligence (Project Supervision)	MS	50 students	TU Eindhoven
Data Mining (TA)	BS	~ 20 students	IIT Madras
Introduction to Machine Learning (TA)	BS	~ 60 students	IIT Madras
Computational Engineering (TA)	BS	~ 50 students	IIT Madras
Introduction to Research (TA)	BS	~100 students	IIT Madras

Table 1: Teaching Experience

A short snippet from my introductory lecture in the course of Reinforcement Learning can be found at this link [↗](#). Video recordings of all the lectures from this course can be found at the following link [↗](#).

Below I expand on my role in these courses.

- (i) **MSc course: Reinforcement Learning** as a responsible lecturer (35 students) – 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.

Learning objectives were that the students would be able to formulate reinforcement learning problems mathematically, devise solution strategies for them and prove performance guarantees for these solutions. This course was designed following the challenge-based learning paradigm and the students were assessed based on their research projects. Under my guidance, all the groups in this track fulfilled the learning objectives and nearly half the groups extended the state-of-the-art as part of their research projects. Under my supervision, one of the group projects has led to a publication [1].

- (ii) **MSc course: Embodying Intelligent Behavior in Social Context** as a co-lecturer (41 students) – The learning objective was that the students will be able to use machine learning algorithms as a design tool for creating an interactive and explainable system within educational/health context. In my lectures, I taught about various machine learning algorithms and gave a practicum on their use. This course was mostly attended by students from the Department of Industrial Design. Thus, teaching this course gave me an opportunity to tailor my teaching style as well as content to a wider class of students. Furthermore, I supervised students from this course in their projects to devise interactive and explainable machine learning tools for healthcare or education. Under my supervision, one of the group projects has led to a publication [2]. In this work, we proposed a personalized recommendation device for cardiac rehabilitees.
- (iii) **MSc course: Data Intelligence** as a project supervisor (50 students) – The objective of the 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 consisting of 5 students each.

- (iv) **BSc course: Data Mining** as a co-lecturer – 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.
- (v) **BSc courses** as a teaching assistant – During my master’s education at Indian Institute of Technology Madras, I was a teaching assistant for 4 bachelor’s courses, namely – *Data Mining*, *Introduction to Machine Learning*, *Computational Engineering* and *Introduction to Research* (with class sizes varying from 20 to 100). My duties included designing and delivering lectures, meeting the students during office hours and setting up online as well as in-person examinations.

Currently, I am designing a tutorial on statistical learning theory for bachelor’s students from the Honors academy at TU Eindhoven.

Supervision Experience

I am experienced in supervising students at all levels of university education. I am a co-supervisor for 2 PhD students 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 [1, 2, 3, 4, 5, 6, 7]. 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 complete evaluation can be found in my UTQ dossier [↗](#). The following bar chart from the evaluation provides further testimony to my teaching skills.

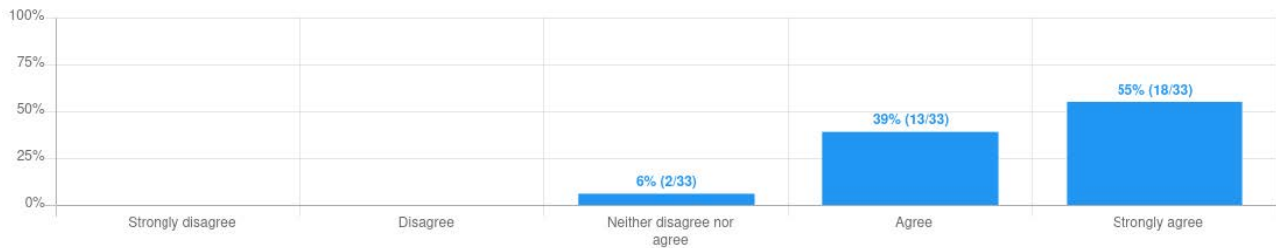


Figure 1: Official course evaluation for 2AMM20– Percentage of responding students agreeing with – “The lecturer explained the content in a clear and comprehensive way”.

I also conducted an anonymous survey amongst students to receive feedback on issues not covered in the official evaluation. The following are the salient results:

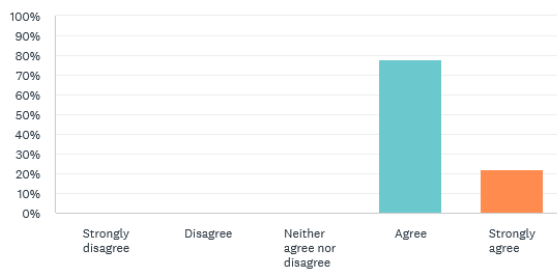


Figure 2: Percentage of responding students agreeing with – “The course materials supported the content well.”

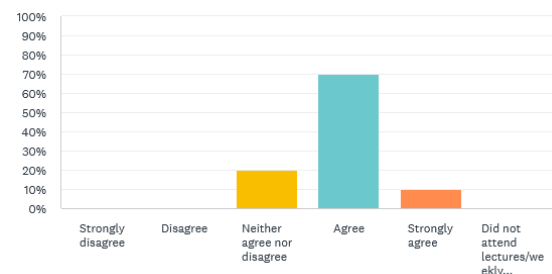


Figure 3: Percentage of responding students agreeing with – “The lecturer fostered an inclusive and accessible learning environment.”

The below sample of comments provides further confirmation of students' favorable views of my teaching :

- (i) "I think the teacher did an amazing job with the way all the information is organized on the slides (colors, variables, mathematical formulations and equations) and all the real-life examples made the topic interesting. I think the teacher explained the content in a clear and comprehensive way and made it seem easier than it actually is. This course increased my interest in Reinforcement Learning."
- (ii) "He did a wonderful job, I looked forward to his classes. They were clear and comprehensible and helped me understand the topic."
- (iii) "Reinforcement Learning seems like a very difficult topic for people with a weak background in mathematics, but I felt that you taught us everything step by step and made it easier for us to understand."
- (iv) "It is nice that you provide us with direct feedback. This motivates us more to continue."

References

- [1] Ronald Van den Broek, Rik Litjens, Tobias Sagis, Nina Verbeeke, and Pratik Gajane. Multi-armed bandits with generalized temporally-partitioned rewards. In *Sixteenth European Workshop on Reinforcement Learning*, 2023. URL <https://openreview.net/forum?id=BcYigwLruz>.
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