

# Teaching Statement

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March 6, 2021

## Introduction

My primary motivation for applying to a position in academia, as opposed to my industry experiences, is the opportunity to teach, advise, inspire and educate both undergraduate and graduate students. I strongly believe in the importance of education in society, and teaching has provided me with rewarding experiences during my stay in South Africa. I believe the knowledge we accumulate as practitioners and researchers are only valuable if shared with others.

## Previous Experience

My teaching experience is both broad and deep. During my master's degree study in Computer Science at Wits University in 2015, I was a teacher's assistant (TA) for the following modules: Basic Computer Organisation, Algorithms and Programming, and Database Fundamentals, under Prof Turgay Celik, Dr Richard, and Dr Hima Vadapalli. I ran self-directed sessions in all of these classes, organised teaching material, developed lab assessments, and graded projects and exams. This year was pivotal to my teaching career. Within the next five months, I took up a visiting lecturer's position at the Management College of South Africa (MANCOSA), where I have spent the past six years lecturing during weekends on both Saturday and Sunday. At MANCOSA, I had the opportunity to exercise my teaching philosophy of combining a solid theoretical foundation with practical hands-on experience. MANCOSA allowed me to lecture a broad spectrum of courses from Data Structures and Algorithm, End-user Computing, Project Management to System Analysis and Design.

I joined the Pearson (Bedfordview) campus in August 2016 as a lecturer and module lead. I have worked at this institution to date. At Pearson, I lecture Network Fundamentals, Computer Network and Security, Advanced

Networking, Internet Server Management, Project Management, Social Practice and Security, Hardware Essentials and Software Process (Software Engineering), amongst others. Interestingly, I have won two teaching excellence awards, where out of a class of 65, 53 got distinctions for one of my modules. In addition to this, I currently serve as a module head, where I lead four (4) Information Technology modules across Pearson's (12) campuses in South Africa. These modules range from Internet Programming and e-commerce, Project Management, Software Engineering, Software Projects. Together, I serve as an internal moderator to assess the quality several modules. Also, I was in charge of mentoring a couple of master's students during my PhD. I also gave tutorials on my research to an audience unfamiliar with my area of research. Recently, I trained a number of UJ staff on the use of a Google cloud storage and collaboration service solution. This is available through this link: [UJ Google cloud training](#). I have translated all valuable experiences gained from the industry and research into practice when teaching courses.

## **Teaching Philosophy**

Computer science and information technology are practical fields. Based on my own experience and from students' feedback, I believe that students should have hands-on experience building small systems or working through problems rather than just a theoretical evaluation of the subject. The impact of a hands-on experience tends to be impactful. I would also like to keep my courses flexible – for example, students can choose a more significant project instead of doing multiple smaller ones. Given the subjective nature of the evaluation of projects, it is important to pay careful attention to the evaluation criterion. I want to evaluate my students progressively over the semester through assignments, projects and quizzes rather than tests.

In more advanced courses, tests may be replaced with writing a research paper or engaging on a significant project. As the world gets increasingly networked, the role of a traditional teaching method may decrease to some extent. However, an instructor would still need to play the critical role of inculcating curiosity in learning the various concepts and techniques and show the joys of exploring the different topics without necessarily focusing on results. To facilitate this, I will keep my classes interactive. I will also introduce discussion sessions on open-ended topics (A simple example could discuss how the future Artificial Systems would look like in an Artificial Intelligence (AI) class). I would also like to invite guest lecturers or make field trips for my courses, whenever possible. Lastly, I will ensure that my grading system doesn't penalise students for exploratory work rather than results-oriented work.

## **Plan for the future**

I am interested in teaching core computer science and information technology courses, such as AI, Databases, Programming Languages, Theory of Compu-

tation, Software Engineering and Network Security and Practice, and others for undergraduate level. I am also interested in developing and teaching new unconventional courses, such as a course that explores AI to finding solutions to many educational problems — for example, using AI to uncover if a student may likely graduate or showing how facial expression influences student understanding of a course concept. I believe that these mixed types of courses would be more suitable at an undergrad level since they will provide practical context to otherwise theoretical subjects and potentially inspire students to pursue these subjects at an advanced level. I am also interested in teaching advanced courses, such as Advanced AI, Big Data, Data Science, and others for the graduate level. Besides, I would also like to teach specialised research courses focusing on AI research and building practical AI systems. In modern times, students must be exposed to many innovations, which may help decide their career paths at an elementary stage. As a passionate researcher in AI, I have to expose them to the joys of research and spot and groom future scientists early.