

Otis

-The Virtual Patient

Practising even basic clinical skills has traditionally presented problems for students studying audiology; elderly patients tend to tire quickly and limit the extent of the training time whilst healthy volunteers find it difficult to imitate an authentic picture of hearing impairment. Now however, a true-to-life alternative is available in the form of the software teaching programme 'Otis - the virtual patient' which can simulate every conceivable type of hearing impairment.

Christoph Wille, based in Liechtenstein, is one of the principal designers of the Otis software programme. He relates the story behind its creation, "Dr. Spillmann from the University Hospital in Zurich regularly conducts training courses for audiometrists. It has always been a major problem for him to find enough test individuals for the practical exercises. The patients in his clinic are mostly elderly and are only available at certain times; in addition, they soon tire and consequently the course students have little opportunity to apply their theoretical knowledge. Hence, Dr. Spillmann had long



cherished the idea of creating a simulated computer-based audiometer which would allow trainees to carry out audiometric tests using virtual patients.

"Soon after graduating from my engineering studies, I happened to meet Dr. Spillmann, who shared his vision of 'virtual audiology patients' with me. I was captivated by this idea, and got together with a fellow-graduate to design a programme and develop a prototype. This programme, which at the time was still quite simple, was used in training courses for Swiss audiometrists and was immediately enthusiastically applauded."

■ ■ Used in more than 20 countries

Motivated by this initial success, the team - which had meanwhile grown to include five members - decided to enter 'Otis - the virtual patient' for the Liechtenstein International

A TEACHER REVIEWS THE OTOSCOPIC IMAGES WITH STUDENTS IN AN OTIS TRAINING EXERCISE.

Business Plan Competition. After an intensive weeding-out process, their idea was judged one of the best three from over forty plans submitted. Christoph continues, "We subsequently founded the 'innoForce' Company to turn the prototype into a high-quality commercial product which can be adapted to meet the needs of various target groups and different national standards."

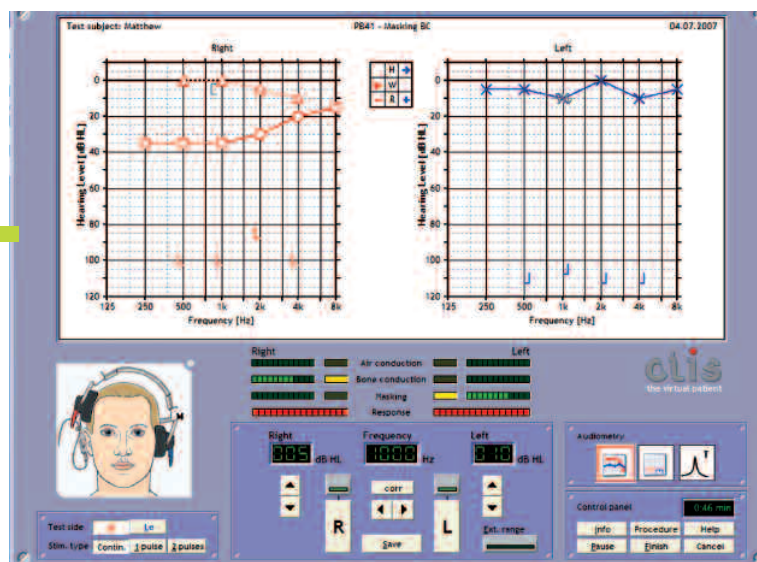
'Otis - the virtual patient' has been translated into a number of different languages and has been successfully implemented in more than 20 countries worldwide.

■ ■ Tried at Aston University

'Otis' has recently been trialed as a teaching tool for the Audiology degree course at the School of Life and Health Sciences,



**VIRTUAL AUDIOMETER:
STUDENTS CAN PRACTICE
AUDIOMETRY AT DIFFERENT
LEVELS OF DIFFICULTY.**



put extra pressure on the clinical supervisors. We are confident that now, after extensive training with 'Otis – the virtual patient', our students are much better prepared for their clinical placements, and can start to test patients more confidently. This will give both the students and their clinical supervisors more time to develop advanced clinical skills, and will help the students to pass their initial clinical assessments at an earlier time."

Particular useful features of the programme are the otoscopic images and tympanograms that are shown in addition to the medical history. This enables students to view unusual medical conditions and gives them the opportunity to interpret these images themselves.



CHRISTOPH WILLE, ONE OF THE PRINCIPLE DESIGNERS OF THE OTIS SOFTWARE PROGRAMME.

virtual patient' across the different years of study, and is full of praise for the options it gives him to present students at different levels with tasks to practise their skills. He has devised a workbook for the students with Otis tasks, which is marked and contributes towards their grade for this module. The students can work through these tasks in small groups at their own pace during their weekly 'drop-in' sessions, after they have been instructed in the larger group (about 15 students at the time) by Wahid. This makes the skills lab manageable for one clinical teacher, with very good learning outcomes for the students."

■ ■ Popular with the students

The programme has been well received by the students, Dr. Rose reports, "Our students commented how much they like to work with Otis, and appreciate in particular the instantaneous feedback. This follows best practice for learning by doing, and is of immense benefit. With so much to learn, it is nice that the programme also has a good sense of humour: the snoring patient who had to wait too long for the next stimulus put in the occasional light relief, much to the amusement of the whole class! Although the workbook tasks are graded, students can train in small groups or on their own until they are competent to pass the workbook tasks. This has resulted in good student engagement and a much higher learning outcome with better grades for the skills lab modules both for our first and second year students. We have also used this audiometry training programme for 3rd year students who could not gain sufficient placement practice, and helped them to pass their practical assessments by providing a flexible training tool. 'Otis – the virtual patient' has been so popular that several students have asked for a student licence to put the programme on their personal computer, so that they could train at home - so far, copies are only installed on computers in the skills lab at the University. Some clinical supervisors are interested in obtaining a copy for their hospitals, to help further training of audiologists in practice, and commented on the fact that many audiologists would appreciate more practice on non-standard cases, and that they also like to see with an objective method that they get their audiogrammes right!"

Marguerite Ashman

■ ■ Opportunity to develop advanced clinical skills

The programme offers students the chance to experience a wide range of clinical skills. Dr. Rose elaborates, "Previously, we had to find several audiologists to help on a part-time basis with the skills lab, and since we do not run a clinic at the university, we could only teach the basic practical skills on volunteers with normal hearing, i.e. the students tested each other, and had to rely on the clinical placements to provide practice with hearing impaired patients. With the time-pressure on clinical departments to clear their waiting lists, this was far from ideal, and

"AFTER TRAINING WITH OTIS OUR STUDENTS ARE BETTER PREPARED FOR THEIR CLINICAL PLACEMENTS."

Aston University, Birmingham. Dr. Marina Rose, Lecturer in Audiology at Aston University was delighted with the results and recounts how the software programme quickly became a success, "In October 2003, we started a new BSc course in Audiology at the School of Life and Health Sciences at Aston University. An important part of the programme is to prepare students for their placements in collaborating teaching hospitals where they are guided by clinical supervisors and practice their clinical skills. Accordingly, we train our students at the university in our 'skills lab', where routine audiological assessments are taught. While searching for good educational software to support our student's learning, a colleague recommended 'Otis – the virtual patient' as an good training tool, and Christoph Wille agreed to develop an English version which would comply with the standards set by the British Society for Audiology.

"After a year of close cooperation, we started to work with the training programme in our skills labs for the first time last year. Wahid Zaman, who is a clinical audiologist and teaches in the skills labs has used 'Otis – the