Computer scientist plans bach over broadband

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A singing computer scientist wants to use cutting-edge technology to create Europe's first successful Internet choir.

Dr Barry Cheetham, a senior lecturer in The School of Computer Science at The University of Manchester, is seeking to combine his academic expertise in communications, networks and digital signal processing with his love of choral singing.

He is looking for funding to drive forward a project that will bring together amateur and semi-professional singers across Europe for seamless and polished live performances.

But to make this possible he will have to address the limitations of existing communications networks.

New 'ultra broadband' networks will be needed, capable of delivering sound and images with far less delay than services like Internet telephony and video conferencing currently achieve.

If there is too much delay, the 'real time' interactive experience of singing in a choir will not be achieved.

The voices travelling down the wires will need to be processed and digitised quickly to achieve the required high sound quality. The voices will also need to be accurately merged to give the impression all the singers are together in one concert hall.

Other challenges include discovering how a conductor can control and rehearse a choir made up of people in different locations and how singers can be made to feel as if they are interacting with fellow performers.

The planned study will focus on classical and popular choral music, hymns and carols. It could include schools, church choirs and congregations of any denomination.

At the moment there are no plans to include professional orchestras and Internet-based rock and pop bands in the study, as even lower levels of delay are likely to be required.

Dr Cheetham, who works in the Advanced Processor Technology (APT) Research Group, has been a keen choral singer for about ten years and sings first bass in The University of Manchester Chorus (www.universitychorus.org.uk) and also the Holmfirth Choral Society (www.holmfirth.org.uk).

Dr Cheetham said: "We are hoping to establish online collaborations between choirs within Europe. The dream is to contribute to the integration of people living in the European community.

"The geographical distances and the speed of electrical transmission lead us to believe the low delay needed may be achievable within Europe but not further afield.

"There are a vast number of choral societies throughout Europe, many of which have very high standards. Some support professional orchestras such as the Halle Orchestra in Manchester.

"These societies are an important part of the fabric of European life and provide an enjoyable and worthwhile activity for ordinary people, young

and old, wealthy or otherwise.

"This project has the potential to bring European people together and the possibility of doing this electronically to form a choir is exciting and worthwhile. Enabling older and disabled people to participate in the activity is also one of our goals."

The type of super-fast low delay broadband network needed for the study is currently being delivered for some limited applications - and Dr Cheetham hopes ambitious initiatives such as the Virtual Choir will drive the future development of Internet communications.

Source: University of Manchester