

General Interest Talks on Telecommunications

Professor Nigel Linge, University of Salford, UK

Nigel Linge is Professor of Telecommunications at the University of Salford. He is an electronic engineer by profession, is an experienced academic with over 30 years' service and offers a series of popular general interest talks that showcase the engineering achievements that lie at the heart of our telecommunications revolution and examine how our lives have been transformed. Each talk is designed for a general public audience, is delivered as a multimedia presentation and is further illustrated by appropriate exhibits taken from the University of Salford's collection of telecommunication artefacts. Depending on the audience, a more technically orientated version of each talk can be delivered on request.



Contact details:

If you wish to make a booking for one of these talks for your group or to discuss your requirements, please use the following contact options:

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Please note that it is becoming increasingly common for talks to be booked at least twelve months in advance of delivery.

Venue Requirements:

All that is required at the venue is the provision of a projector screen (or suitable wall for projection onto), easy access to mains electricity, tables on which to place a laptop/projector and the range of physical artefacts that are brought along as visual aids which provide additional interest for the audience. Car parking close to the venue is also preferred for ease of handling equipment.

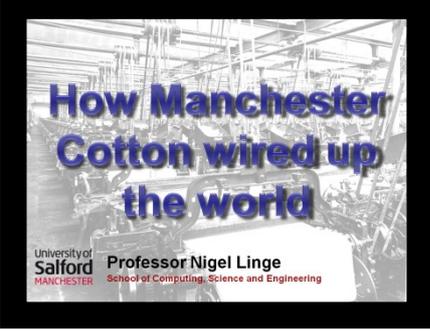


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Talk Titles (2018 update)

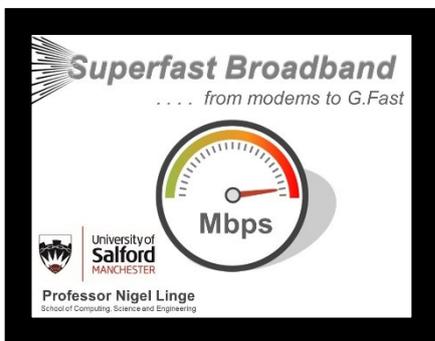
The following talks are available from the above date. However, this list is subject to revision and so please consult our website for the most up to date information. The list is alphabetically ordered by title.

 <p>The slide features the title "5G – The next step for mobile phones" at the top. Below it is the University of Salford logo and the name "Professor Nigel Linge, School of Computing, Science and Engineering". The main visual is a 3D bar chart with five bars representing mobile generations: 1G, 2G, 3G, 4G, and 5G. The 5G bar is the tallest and has a green signal icon above it.</p>	<p>5G – <i>The next step for mobile phones</i></p> <p>In December 2017, the world took an important step forward in the development of the next generation of mobile phones when the first standard for 5G was published. The journey to this point began back in the 1980s when the first generation of analogue mobile phones was introduced. The move to 2G in the 1990s heralded improved communications and the introduction of data services. The third generation subsequently brought better Internet connections and then 4G offered high-speed broadband connectivity. This talk however, examines the latest moves towards 5G, what that entails and what its impact might be. The talk will explore why 5G is needed, how it differs from 4G, what technical challenges need to be overcome and which new applications and services will become available.</p>
 <p>The slide shows an astronaut on the moon's surface on the left. On the right, there is a computer keyboard. A large, 3D, orange, wavy banner across the center contains the text "From Man on the Moon to life in cyberspace". The University of Salford logo and "Professor Nigel Linge, School of Computing, Science and Engineering" are at the bottom.</p>	<p>From Man on the Moon to life in cyberspace</p> <p>In 1969 Apollo 11 touched down on the surface of the Moon, however, a lesser known fact is that in December of that same year the first four computers were connected together to form what we now know as the Internet. This talk takes as its starting point 1969 and looks at how the early development of the Internet was achieved. From there it goes on to trace the evolution of both the Internet and the World Wide Web to create a new world known as cyberspace. Today, virtually every aspect of our daily lives is impacted and influenced by the Internet. Mankind may well have made a giant leap on reaching the Moon but cyberspace has potentially had a far greater impact on us all!</p>
 <p>The slide features a background image of a factory interior with machinery. Overlaid on this is the title "How Manchester Cotton wired up the world" in large blue letters. At the bottom, the University of Salford logo and "Professor Nigel Linge, School of Computing, Science and Engineering" are displayed.</p>	<p>How Manchester Cotton wired up the world</p> <p>In the mid-1800s, the Lancashire Cotton industry dominated the world market for finished cotton goods pieces. However, since cotton was not grown in the UK it had to be imported which generated significant trade across the Atlantic. This and other industries therefore drove a business case for improved global communications and from that, a desire to link the telegraph networks of the UK and USA with a copper cable under the Atlantic. Nothing on this scale had been attempted before and so this talk tells the heroic story of the engineers and businessmen who battled numerous setbacks to deliver this pioneering achievement. The talk goes on to show how the trans-Atlantic telegraph cable of 1866, which owed much of its success to a Manchester based cotton merchant, then spawned a telecommunications revolution that delivered the world's first global network that encircled the planet by 1902.</p>



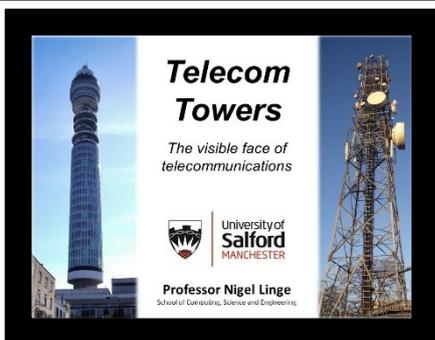
Our wireless world

We are today more reliant on wireless communications than ever before. Our smartphones use the latest 4G wireless technology, we access the Internet from home using tablets and laptops connected via Wi-Fi, our ability to navigate is increasingly dependent on the GPS signals transmitted by satellites and television programmes reach us thanks to radio broadcasting. This talk traces the history and key developments in wireless technology from the first theories put forward by James Clerk Maxwell to the practical realisation and exploitation of the technology as a viable means of communication. You will discover that it was a Welshman who was the first to transmit radio signals, how Chelmsford became a world centre for radio, how a military walkie-talkie gave us the mobile phone and the link between a film actress and World War Two torpedo that made both Bluetooth and Wi-Fi possible.



Superfast Broadband – from modems to G.Fast

Most homes in the UK are connected by a pair of copper wires to a local telephone exchange. For many years, those wires were used solely for making and receiving telephone calls. However, the personal computer, the Internet and World Wide Web changed all of that and now those same wires give you access to a seemingly infinite source of information, allow you to buy things online, bring you ultra-high definition television on demand and meet all of your social networking needs. How has all of this been possible? This talk examines how it all began with the modem and why that led onto the development of broadband and from there to today's superfast connections. If you ever wondered how your Internet connection at home actually works, why speeds vary or what those large green metal boxes are for on your street, then this talk will explain all!



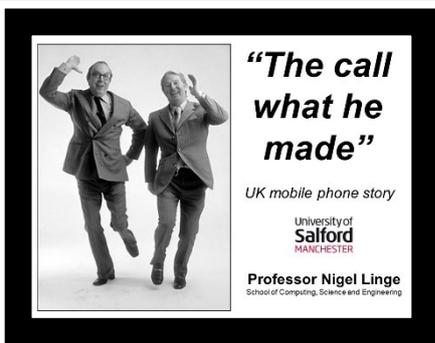
Telecom Towers – the visible face of telecommunications

One of the most clearly visible aspects of the telecommunications industry are the many towers and masts, which adorn roadsides, roofs and hilltops. Indeed, our mobile phones only work because they are able to communicate with a myriad of small towers. From the days of the Armada, telecommunications towers have been used to ensure messages can be sent over many miles. Today, towers which are used to broadcast our television and radio programmes are some of the tallest structures in the country and at least one of London's most iconic landmarks – BT Tower – was built primarily as a telecommunications tower. This talk showcases the many different types of telecommunications towers that exist, explains their usage, examines their evolution and construction, highlights some unusual and little-known features and in so doing brings to life an essential aspect of telecommunications on which our daily lives are so dependent but which often goes unnoticed.



Telstar – 50+ years of the telecommunications satellite

In October 1957, the world was amazed by Russia's Sputnik satellite, which became the first man-made object to orbit the earth. Whilst Sputnik and those that immediately followed it demonstrated the potential of satellites, it was not until the launch of Telstar in July 1962 that the world would truly be able to exploit the full potential of a telecommunications satellite in space. This talk tells the story behind Telstar, its capabilities, the importance of Goonhilly Downs in Cornwall, and the world firsts in television and telephone transmission across the Atlantic that it delivered. From there the talk will show how today's satellites allow you to receive hundreds of television channels, pinpoint your location on the planet, know whether it will rain tomorrow, make telephone calls from the remotest parts of the world and browse the web whilst flying at 30,000 feet!



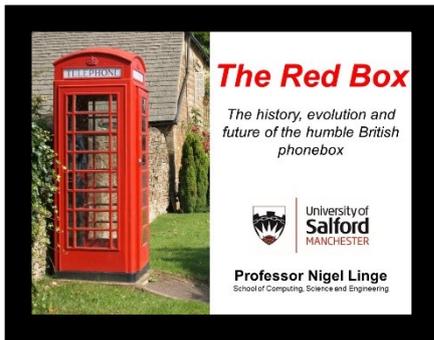
The call what he made – UK mobile phone story

Comedian Ernie Wise was one half of the UK's hugely popular comedy double act, Morecambe and Wise, and was famous for the "plays what he wrote!" However, on 1st January 1985 Ernie Wise made history by inaugurating the UK's first mobile telephone network. This therefore was "the call what he made" that signalled the start of our mobile communications revolution which today has resulted in the situation where there are now more mobile phones than people in the country. Those early mobiles were huge, extremely heavy, very expensive, had limited battery life and could only make telephone calls. This talk tells the story of how that technology evolved over a relatively short period of time to deliver today's smartphone that acts as our gateway to the web, ensures that we have a camera with us at all times, can pinpoint our physical location within a few metres on the planet's surface and has transformed our lives and the very nature of how we communicate.



The Internet of Things (IoT)

The Internet began life in 1969 as a means of connecting together large, expensive, mainframe computers. However, the creation of the World Wide Web changed that and through the later developments in social media, turned the Internet into a means of connecting people. Now in the 21st century the Internet is going through another transformation with a focus this time on connecting more and more physical objects or things. People can already connect and remotely control their central heating, our cars are increasingly filled with technology that communicates via the Internet, companies are testing the use of drones for delivering goods, factories are adopting more and more automation and our cities are now becoming intelligent. This talk will explore how the Internet of Things (IoT) is set to transform our lives.



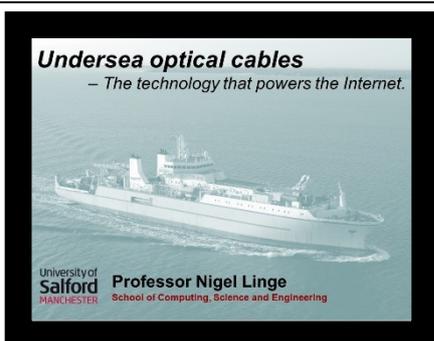
The Red Box – the history, evolution and future of the humble British phonebox

It has achieved iconic status; it symbolises Britain; but it is now seldom used! The British phonebox has been part of our landscape since 1921 when the first K1 model was introduced. However, it was the K2 design by Sir Giles Gilbert Scott and then his much more numerous K6 design that established the now familiar and iconic red box on our streets. Today the mobile phone generation have probably never stepped inside a phonebox let alone used one. Nevertheless, there they remain as an essential part of what makes Britain, Britain! This talk looks at the history and evolution of the humble British phonebox through all of its major models, including those that were introduced by organisations other than BT and also the one that is now more famous because it is used by a Time Lord. It will conclude by showing the latest designs that are appearing on our streets, looking at how many are being given a new lease of life as something quite different and also show that, actually, they are not all painted red!



The Winged Messenger – from semaphore to smartphone

From the earliest times, our ability to communicate with one another has been essential to our evolution. Even the Gods of Ancient Rome understood this and made Mercury their messenger. With his winged sandals, traveller's hat and serpents to protect him, Mercury could be relied upon to deliver all of the Gods' messages quickly and reliably. This talk will show how technology of the day has always been exploited to improve our ability to communicate over greater and greater distances and at an ever-faster speed. Enjoy a whistle-stop tour through 2,500 years of history that takes you from the early forms of semaphore signalling to today's all powerful smartphones that provide access to a seemingly infinite source of information and keep us connected wherever we happen to be, twenty four hours a day!



Undersea optical cables – the technology that powers the Internet

It is a common misconception that the bulk of our telephone and Internet traffic is transmitted around the world via satellites. Whereas, in fact, more than 95% of our communications is transmitted as light travelling along optical fibre cables laid on the bottom of the world's oceans. This talk begins in the Victorian era when undersea copper cables were used to build the world's first global telegraph network. It then goes on to explore in detail today's undersea optical cables, showing how cables are laid and maintained, looking at the internal workings of a modern-day cable ship and explaining how today's global network can carry huge amounts of data. When making an international telephone call or using the Internet you are benefitting from this network of undersea optical cables.

Do please get in touch to discuss your requirements.

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