

The 2009 Academy Awards

Sponsoring Companies' Young Engineers



BAE SYSTEMS

Vickie Wilson

Sigma Engineer

Vickie has an MSc in Human Factors and is currently studying for another MSc in Systems Engineering Management. In March 2008, Vickie joined the engineering stream of the Sigma scheme, BAE Systems fast track, leadership development programme. Within the last 12 months she has positively contributed to a number of engineering activities of strategic importance within the company. Five key achievements stand out as worthy of note from her work in the last year:

The most significant activity Vickie has participated in has been to define an offering to support a proposal to conduct a UK MOD Hybrid Electric Drive Technology Demonstration Programme. This work included defining the system level architectures, technical requirements and performance parameters of the system (captured in a SoW). Vickie was also responsible for the price build up for this contract.

Vickie's work has also involved the application engineering and demonstration of BAE's advanced prognostics capability into both the military and commercial market areas.

Vickie's work has also involved the application engineering and demonstration of BAE Systems advanced neural network prognostics capability into both the military and commercial market areas.

On a different placement in 2008, Vickie adopted a systems engineering approach to improving the efficiency of engineering change on an armoured fighting vehicle programme named Terrier. Not only did this work instigate a number of changes to the benefit of the programme, she also established and implemented a process to ensure sustained continuous improvement in this area. Furthermore, she also designed and managed a successful workshop event entitled 'engineering change' to promote lessons learned to a wider community.

Vickie has continued to use her human factors engineering training and experience to ensure that the human has been adequately considered in system design. As well as providing human factors advice to various projects, she has been an assessor on a number of independent design reviews.

Finally, Vickie is a valuable member of the People and Leadership working group of the company's Engineering Council. She has proactively lead a cross functional working group responsible for identifying and implementing mechanisms for improving the way we reward and recognise the contribution of our engineers across the business.



BOSCH

Nick Butcher

Product Development Engineer, Bosch Lawn and Garden division, Stowmarket (until December 2008). Sales Engineer in the Bosch Automotive Original Equipment division (since January 2009)

Winner of the Bosch Engineer of the Future Award 2009.

Robert Meier, Managing Director of Bosch in the UK, decided to use the opportunity of the Young Engineers Award presented at the Academy Awards dinner to create a competition to celebrate and encourage engineers within Bosch. Now in its second year, the Bosch Engineer of the Future award is open to all Bosch Group engineers in the UK.

To enter the competition, a Bosch engineer has to show that he or she has had an innovative idea, which is then implemented, bringing benefits to Bosch, by way of commercial competitiveness, product development, cost-saving and future-focus.

The 2009 winner is Nick Butcher, for his work on developing the latest successful product from Bosch Lawn and Garden Tools, the CISO cordless secateur. Here is an extract from his entry to the competition:

The Bosch CISO cordless secateur is a highly innovative new tool for the Lawn & Garden business. It is a Lithium-Ion battery powered hand-held secateur capable of cutting up to Ø14mm wood. It offers people who struggle with pruning, in particular those with arthritis, a powered alternative to manual secateurs. Cutting time is less than 1 second/cut and up to 500 cuts of Ø9mm wood can be achieved per battery charge.

As the leader of the engineering team I was responsible for the design, development and implementation of the CISO product. The project presented many challenges, namely how to achieve the required performance targets whilst also meeting the weight, size and cost targets. Additionally, as there were no EU Safety Standards for this type of product, very detailed Product Liability assessments were required which I developed templates for.

I was involved in generating the design solutions for the tool cutting mechanism, the safe switching design and the blade construction, all of which had patent applications submitted in 2008. Additionally, the control electronics required much development in conjunction with the supplier to ensure it met the packaging, performance and cost specifications. The cutting mechanism combines an existing Bosch approved DC motor with a 4-stage planetary gearbox and an integrated crank mechanism to achieve the required direction of movement. This single unit minimises weight, size and also cost.

The final product entered production at the Stowmarket plant in early 2009.

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Edwige Lindsey

Process Engineer, Stanlow

Edwige Lindsey studied Chemical Engineering at the University of Bath, graduating in 2002 and completed her PhD in 2005 at Bath.

Edwige joined Shell Exploration and Production and spent her first assignment in Shell Downstream Manufacturing, Stanlow. Here she is currently the process engineer on the Energy Recovery Plant (ERP).

At the start of her assignment, Edwige worked on key safety and reliability improvement projects, gaining experience in a range of technical and project management skills. In 2008, she had the opportunity to work as a plant-based engineer. Edwige moved into this role-elevating organisational position of the asset by developing a balance sheet to show where the ERP made and lost money in managing the refinery's waste in a sustainable manner.

Edwige has championed changes in the use of the technology around sludge treatment and oil recovery. This work has increased oil recovery, avoiding additional disposal costs whilst improving environmental performance. The impact of this application is more than \$5m a year and earned Edwige a Shell Vice President Award.

Edwige has also supported the operational team, challenging some of their ways of working. This has resulted in a change behaviours and in the case of additive dosing, this greater focus has already resulted in a cost saving of \$0.5M a year.

Edwige has worked to reduce the environmental footprint of ERP, whilst increasing the concentration of impurities in the waste ERP can legally process. An example of this is the work she has done on the abatement of SO₂ emissions. The results of this have been written up in a technical paper on "SO₂ abatement at the ERP", which has been accepted for presentation at the World Congress of Chemical Engineering Montreal, August 2009.



John Bucknell

*Engineer, Marine and Energy Lubes
Technical Services & Testing, BP*

John Bucknell, graduated from the University of Bath with 2:1 honours in Automotive Engineering in July 2004. John joined BP's graduate development scheme in September 2004 with GLT secondments firstly in the passenger car oil development team working on the 1st generation of Castrol Edge, and secondly as a GLT Technical Services Engineer within the Product Performance department.

Upon finishing the BP graduate development scheme, John stayed within the GLT Technical Services team working on projects for the Technology and Innovations group and in November 2008 took over the responsibility for Marine and Energy Lubes market space projects.

He also has a keen interest in racing hovercraft and classic Volkswagens.



Patrick Cook

E.ON Engineering Combustion and Fuel Technologist

Patrick was born in Scunthorpe, Humberside and attended Queen Elizabeth's High School in Gainsborough before leaving to complete a Year in Industry with Railtrack.

Working in the Eastern Region Asset Protection Department at York provided some valuable industrial experience prior to studying for a BEng (Hons) in Mechanical Engineering at UMIST.

Upon graduation Patrick enjoyed a summer of leisure applying skills picked up through the IMECHE Formula Student competition to begin re-building his semi-classic Opel Kadett, before accepting a place on the E.ON UK Technical Consultancy graduate scheme in September 2005.

Working in the combustion and fuel technology department Patrick developed competency in the field of energy from waste, produced an EFW technology status review for the E.ON UK Low Carbon R&D programme and took part in a wide range of complementary projects in the areas of biomass, fuel characterisation and combustion.

Upon completion of the graduate scheme in March 2007 Patrick accepted a permanent role in the Combustion and Fuel Technology Department and is

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now recognised as the lead technical contact for EFW issues within E.ON Engineering.

Other major areas of work include anaerobic digestion R&D, assessment of best available techniques for a paper sludge incinerator, options for re-powering gas turbine and reciprocating diesel CHP plants with biofuels and review of small scale biomass CHP technologies. Patrick is also engaged with the Energy Technologies Institute representing E.ON in the field of distributed energy generation.

Quote from John Tomlinson, Department Head; Combustion and Fuel Technology:

Pat is an extremely well motivated hard-working, conscientious and level-headed member of our team with a great passion for engineering. Pat has shown a marked development in his abilities and confidence as an engineer, and has consistently delivered high quality work above and beyond that expected of his role. Pat has established himself as the primary technical contact in the niche area of Energy-from-waste and demonstrated his capability to manage the projects that he has been responsible for.



THALES

Matthew Emmerton

Graduate Electronics Engineer

Matthew was born in Zimbabwe in 1984 and lived there until the age of 16. In 2000 he moved with his family to the UK due political unrest. Matthew attended a sixth form in Sunbury-on-Thames, Surrey before studying an Engineering Science degree at Lady Margaret Hall, Oxford University.

Matthew is a very active sportsman and particularly enjoys playing and coaching hockey.

Matthew joined Thales in 2007 on completion of his degree and has been working on TOP FLIGHT SATCOM (TFS), the most advanced high-speed solution for the new SATCOM generation. The extended broadband capability means passengers can now use cellular telephones and Internet with worldwide roaming aboard an aircraft. The TopFlight SATCOM establishes a new level of performance for making and receiving voice calls, SMS, e-mails or surfing the web with personal electronic devices and takes full advantage of Inmarsat's new I4 series satellites. Matthew is currently in the final stages of Hardware Qualification for Airbus, Boeing and Embraer.

The Royal Academy of Engineering Young Engineers



Sharan Gill

Engineer - Structures, Transport for London

Born into a science focussed family (her mother studied biophysics and her father is an electrical engineer), it's fair to say Sharan's family had a lot of positive influence on her when she was deciding which GCSEs to take. For A-levels Sharan went to Welbeck College; a college set up specifically to prepare student for a technical career in the Armed Forces. After Welbeck she joined the Forces and with an army scholarship took a place at Balliol College, Oxford University to study Engineering Sciences.

In her first two years at university Sharan studied a range of different engineering disciplines including electrical, electronic, aerodynamic, civil and mechanical engineering. In her third and fourth years she specialised in civil engineering. Unfortunately her planned career in the army was cut short by a long-term sports injury, but choosing to stay in engineering she joined the Transport for London Civil Engineering Graduate Scheme.

The scheme gave Sharan experience in many different areas of the business through a series of short-term placements. She also got the chance to work on some major TfL projects, including Westminster Bridge Fascia Replacement and the development of a multi billion pound highways maintenance contract. At the end of the scheme Sharan got a permanent job working as an Assistant Engineer in the Highway Structures Team in TfL and has since moved up into the Engineer role. Moving from assisting team members to managing her own projects and giving technical advice to others within and external to TfL has been her most rewarding learning experience to date.

So, what does the future hold for Sharan? She intends to stay in the Structures Team for a while yet and continue to develop her skills and practical knowledge. She also aims to get her Chartered Membership of the Institute of Civil Engineers in the near future.

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Mark Griffiths

Principal Traffic Control Engineer, Transport for London

Since attending Brunel University in September 1999 to study for a Geography BA (Hons) degree, Mark has developed a particular interest in transport and development. Geography is so multi-disciplined that when he graduated he was able to apply for a job in a variety of sectors. With a keen and growing interest in transport, Mark began looking in the Transport Planning sectors which included a number of engineering consultancies.

One of the first applications he made was to Hyder Consulting – an international advisory and design consultancy. He was successful with his first application and started working with Hyder in September 2002. He began work on a variety of schemes with a particular focus on Traffic Signals which interested him immensely. He was working on a diverse set of schemes throughout London. His knowledge of traffic was surprisingly very good and he feels this has come from living and travelling in and around London all his life – this was an instant advantage. Working on schemes near where Mark went to school or where his bus travelled daily gave the work real context. Mark feels this line of work has enabled him to give something back to London.

To further develop his knowledge, Mark was seconded to Transport for London (TfL) Traffic Control Systems Unit (TCSU) from Hyder as a Traffic Control Engineer (TCE). This was a calculated move designed to gain intensive training where he could pick up the specialised skills to design and implement traffic signals. The secondment was a fantastic opportunity, the people he worked with and the engineering work he had the opportunity to be part of, was a real joy. Traffic signals were interesting, had variety and Mark had the freedom of being able to work in the office and on site – a perfect split.

Fortunately for Mark, whilst on secondment, a position at Transport for London became available as a Traffic Control Engineer (TCE). He applied and since May 2003, he has been employed by Transport for London. The move was fantastic for Mark and has allowed him to develop a very broad and specialised knowledge in the traffic signals field.

Mark has now been working at Transport for London for six years. He has had extensive and on-going training, met some fantastic people, worked on a variety of projects and grown as an individual. In those six years he has progressed from Traffic Control Engineer to Principal Traffic Control Engineer; he manages nine engineers and three London Boroughs' traffic signals work. Mark's team works with numerous stakeholders from Lewisham, Lambeth

and Southwark including developers, TfL internal, London Buses, members of the public, signal companies and emergency services.

The future? Who knows. TfL are a very good employer and traffic signals engineering is, in Mark's opinion, one of the best career paths for someone with a background in engineering, planning, electronics, geography. For the foreseeable future, traffic signals and the working for TfL is where Mark wants to be and develop. A new Mayor of London has brought new and exciting challenges to the traffic signal field which he hopes to be a part of.



Ed Hopkins

Graduate Mechanical Engineer, Tube Lines

Ed graduated with a 2.1 Masters from the University Of Liverpool in 2006. From there he went to live in France for a year before moving to London and taking a job in a post production facility while he applied for engineering jobs.

The focus of Ed's applications was in transport engineering and he was thrilled when he was offered a job with Tube Lines which he began in September 2009. Ed has been fascinated by the underground world of London since a trip to the London Transport Museum as a child. Working as part of a team responsible for the upgrade and maintenance of such a large and historic engineering project has been challenging, rewarding and a complete privilege for Ed.

Since joining Tube Lines he has been working to help bring a new engineering train to the network, the Asset Inspection Train. This innovative new train will greatly improve the efficiency of fault finding on the network. Ed was responsible for the assurance process of the train, checking the design conformance of any modifications. Ed enjoys getting stuck in and trying his hand at as much as possible and he has been offered, and accepted a few varied projects. Ed has begun to cut his teeth at project management, arranging for the removal of old stock from a siding and he designed and constructed a hydraulic ram to ease calibration of scanning equipment on the old Track Recording Vehicle. These projects have exposed him to, and helped him to begin to develop, a wide knowledge of the industry, introducing him to the importance of issues such as costing and the safety of operators.

One of the aspects Ed has most enjoyed in his introduction to the world of engineering has been becoming a science and engineering ambassador. This is something he is really passionate about. Ed's own interest in science

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was lighted by the popular writings of those such as Simon Singh and Brian Greene, then, the spectacular engineering feats of the Millau Viaduct and Channel Tunnel amongst others, captured his imagination and convinced him of the benefits of a career in engineering. Ed thoroughly believes that projects such as STEMNET and the London Engineering Project are a fantastic way to achieve this level of enthusiasm in young children today. Ed's experience so far has been overwhelmingly positive and he hopes to continue to help out where he can, if only due to a selfish enjoyment of seeing how much the projects help inspire children.



Kamlah Kew

Principal Traffic Control Engineer, Transport for London

At school Kamlah really enjoyed projects where she had to make things. As the subjects became more specific, she became more interested in the Sciences as she really enjoyed learning about the theories that were used to create everyday items we take for granted.

After completing her A-levels, Kamlah was drawn to Engineering as she found it to be the best combination of her interests in Maths, Physics, Art and Design. She liked the idea of using her technical knowledge in a creative way to design things and solve problems.

Kamlah went on to study Electronic Engineering at UCL and then continued to do an MSc in Physics at Imperial College London. After graduating she joined TfL on their Graduate Electronic Engineering scheme. On completion of her training Kamlah took on a permanent post as a Traffic Control Engineer in the TfL Signals Department, and since then she have moved on to a management position in the same department.

Kamlah enjoys her job because there is no such thing as a 'typical day in the office'; as there are so many things to do and so many people to work with. Activities that are part of her job are; designing traffic junction layouts, carrying out junction surveys, inspecting and commissioning junction installations, advising clients on designs solutions, and managing the delivery of departmental programmes.



Sharon Odetunde

Track Quality Engineer, Tube Lines

Sharon's engineering career began when she joined Tube Lines in 2006 on an engineering graduate scheme. Sharon spent two years moving around the company trying a variety of engineering roles, such as station design, rolling stock maintenance and lift and escalator design. In October 2008 she took up a permanent role as Track Quality Engineer for the Jubilee Line. This involves assuring the quality of the track for daily traffic. Her role involves planning and co-ordinating track work, track design and the management of track innovation projects.

Sharon enjoys getting involved in activities with the IMechE, LEP and STEMNet as a Science and Engineering Ambassador. She is currently on the IMechE's Young Members Railway Committee which involves organising seminars and lectures for young engineers. Sharon has worked with the LEP and Tube Lines to help organise engineering workshops for school students. These workshops give students an idea of the kind of projects engineers get involved with. As a Science and Engineering Ambassador she has the opportunity to visit schools and work with students on engineering projects and explain to them what her work as an engineer involves. Being able to work with young people has been a highlight of her career and she looks forward to this year's upcoming school projects.



Jo Reeve

Graduate Civil Engineer, Transport for London

Jo attended Cambridge University from 2003-2007 to study Civil, Structural and Environmental Engineering. After which she was given the opportunity to study at Harvard University on a one year placement. Jo started working for Transport for London on their graduate scheme as a graduate Civil Engineer in September 2008.

Jo is currently working on a site placement in Aldgate. The task of which is to convert a disused road into a park.