INVESTIGATION, COLLABORATION AND EXPERTISE

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WORK WITH US
USE OUR EXPERTISE

EXPERTS IN OUR FIELD
SPECIALISED COLLABORATIONS
RESULTS FOR REAL LIFE

Loughborough University

Further information is available online:
lboro.ac.uk/lds
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WELCOME TO THE DESIGN SCHOOL

Loughborough Design School is part of Loughborough University, a facility purpose-built to emulate the modern design working environment. It is home to students and staff; bringing together many areas of design through its undergraduate and postgraduate courses as well as active research and enterprise ventures.
We are home to a number of specialist research areas and facilities related to design, ergonomics and human factors, and our researchers have worked with a wide range of companies such as Adidas, the NHS, Jaguar Land Rover, EDF Energy UK and the Department for Transport. The expertise, commitment and flexibility within the School is clearly apparent from our successful partnerships with companies from a range of industries worldwide.

The work undertaken has real life impact: changing policy, ideas and the design of everyday products, systems and services. Our research capabilities offer organisations exciting opportunities to work in conjunction with experts to make significant advances and inspirational changes.

"Loughborough Design School has a strong international reputation for research and enterprise that makes a real difference to people's lives around the world. With over 50 research active academic staff and about 90 PhD students Loughborough Design School is one of the UK's largest centres for design research. Our unique blend of skills, expertise and world-class facilities in design, ergonomics and human factors makes us an ideal partner for industry, commerce and the public sector leading to successful collaborations in sectors such as consumer products, healthcare, transport, energy, technology, digital media, sport and government.

Our research has been presented around the world in leading conferences and published in the world's highest-ranking journals ensuring that the results of our work reach a truly global audience. In the last 5 years the School has produced more than 670 journal papers which in turn have been cited more than 2,800 times.

We have a number of proven enterprise mechanisms that ensure our research is effectively translated into real impact in society around the world. These include consultancy, contract research, knowledge transfer partnerships, staff secondments and tailored CPD training. Our research has led to innovative new products and services, improved safety standards in healthcare and transport and more productive ways of working.

We are extremely proud of our facilities, staff, expertise and students and all the potential we have available to our partners in industry and the public sector."

Richard Bibb
- Design School Dean
RESEARCH WITH IMPACT

Image:
The research on Body Mapng for Clothing Design provided insight on human thermoregulation for the development of Team GB’s ClimaCool® apparel as well as for the Team GB’s track cycling ‘Hot Pants’.

Delivering Results
“The body maps of sweat production zones have made a tremendous contribution to adidas’ understanding of human performance and have enabled adidas to design better performing apparel.”

Sport Research Director, Adidas Futures, Germany

Effective Partnerships
“Achievement of the single specification ambulance was as a result of a very successful collaboration and I was delighted to note that over £2.5 million has been saved over the past 3 years.”

Chair, National Ambulance Fleet Strategy Group

Industry Advances
“I’m determined to ensure the most dangerous zero star rated lorries are removed from our roads completely by 2020. Our ground-breaking Direct Vision Standard will be the first of its kind in the world.”

Sadiq Khan
Mayor of London
POSTGRADUATE RESEARCH OPPORTUNITIES

FUNDED AND SELF-FUNDED PLACES AVAILABLE

Studying for a PhD will help develop excellent research skills and is the basis for creating individual expertise in a particular field of study. It can form the foundation for a career in academia or wider industry, and opens many windows of opportunity as it is a recognised qualification worldwide.

The Design School offers full and part time PhD opportunities in areas of design and ergonomics, and students are supported by academics who are themselves, experts in their field.
Research and Enterprise at the Design School is an exciting opportunity for both academics and organisations to work in partnership; ultimately to find a solution to a problem.

The Design School has worked with a variety of organisations from charities, multi-national industries and government organisations to small businesses and individuals; creating collaborations with industry and university researchers. Through a variety of research techniques, skill and in-depth investigations, research has shed new light on different challenges that can have a positive impact on real life demands including the economy, society and the environment.

Within the School, each academic is an expert in their chosen field. This expertise has built from an initial interest, strengthened by detailed study, teaching and intensive in-depth research experiences.

Current Expertise Includes:

- 3D Laser Scanning and Reverse Engineering
- 3D Printing / Additive Manufacturing
- Additively Manufactured Textiles
- Archaeological Applications of 3D Scanning
- Medical Applications of 3D Printing
- Participatory Design Methods, including Co-Design
- Product Personalisation and Customisation
- Sustainable Societies and Lifestyles
- Ageing at Work
- Autonomous Vehicles
- CAD / CAM
- Construction Health and Safety
- Crash Investigation and Analysis
- Design Education
- Design Ethics
- Design for Happiness
- Designing for Emotion
- Digital Human Modeling
- Driving Ergonomics and Health
- Energy Demand Reduction
- Environmental Ergonomics
- Eye Tracking Techniques
- Inclusive Design
- Industrial / Product Design
- Interfaces and Usability
- New Product Development
- Personal Protective Equipment
- Rapid Prototyping
- Service Design
- Social Innovation
- Sports Clothing
- Systematic Thinking
- Transport Safety / Road Safety
- Universal Design
- User Centred Design
- UX Design
- Vehicle Design
- Vehicle Seating Design
- Workplace Design
Work with us

The Design School works in partnership with a range of organisations and industries, large and small. Working in collaboration can lead to a widened perspective, create a different idea or lead to exploring new potential.

Methods of collaboration:

**Contract research**
- Assigning an academic expert to work on a specific research project.

**Collaborative research projects**
- Combining forces for more extensive research: knowledge, resources, funding or facilities.

**Knowledge Transfer Partnership (KTP)**
- A graduate joins the staff of an organisation to add specialist knowledge (supported by a university academic).

**Consultancy**
- Buying in the expertise of an academic.

**Secondment**
- An academic temporarily works as part of another organisation to pass on practical expertise.

**Training and short courses (CPD)**
- Bespoke training courses to educate industry staff.

**Industrial placement**
- A flexible source of new talent as an undergraduate temporarily joins the organisation.

**PhD research**
- Comprehensive research from a skilled graduate on a specific research project.

**Graduate employment**
- Employing a new source of talent at the start of their career.

**Live projects**
- Companies set a brief and a group of students generates a wealth of ideas as part of their undergraduate or postgraduate course.
Redesigning Ambulances

Emergency ambulances in England were designed with over 40 different layouts when we started this project. Our research has supported the ambulance service in moving to a standardised vehicle specification, which has saved the NHS £2.5 million due to economies of scale.

<table>
<thead>
<tr>
<th>Date</th>
<th>2003 – 2012</th>
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<tbody>
<tr>
<td>Sponsors</td>
<td>Department of Health, Health and Safety Executive, Engineering and Physical Sciences Research Centre, EPSRC, NHS</td>
</tr>
<tr>
<td>Partners</td>
<td>Bristol Primary Care Trust, East Anglia Ambulance Service, East Midlands Ambulance Service, Great Western Ambulance Service, Leicester County and Rutland Primary Care NHS Trust, Helen Hamlyn Research Centre Royal College of Art, Three Shires Ambulance Service, University of Bath, University Hospitals Bristol, University Hospitals of Leicester, University of Plymouth, University of West of England, WAS Vehicles (UK) Limited</td>
</tr>
<tr>
<td>Funding</td>
<td>LDS Research Group – Environmental Ergonomics</td>
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<td></td>
<td>Total project funding £798,299</td>
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<td>Principal Investigator</td>
<td>Prof. Sue Hignett</td>
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<td><a href="mailto:s.m.hignett@lboro.ac.uk">s.m.hignett@lboro.ac.uk</a></td>
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<tr>
<td></td>
<td>lboro.ac.uk/lds/research/redesigning-ambulances</td>
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</tbody>
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Expertise

Prof. Hignett has published over 150 peer-reviewed papers on a wide range of human factors and ergonomics issues including hospital and ambulance design, emergency response, medical device evaluation, staff wellbeing and patient safety (e.g., mobility and falls). She has received research funding from the Health and Safety Executive (HSE), Engineering and Physical Science Research Council (EPSRC), Dept. of Health (UK), EU (Horizon 2020) and Industrial Sponsors. Sue is Chair of the Professional Affairs Board at the Chartered Institute of Ergonomics and Human Factors (CIEHF), and Editor for 'Ergonomics.' She is the past Chair of the International Ergonomics Association Technical Committee on Healthcare Ergonomics and a member of the Peer Review College of the EPSRC.

By 2012 a single design was arrived at, improving patient safety and care as well as saving the NHS £2.5 million. This was all thanks to research undertaken by a team of experts including academics from the Design School.

This revolutionary research had vision to help improve patient care and reduce NHS costs by redesigning the interior layout and design of ambulances. The project specifically focused on how to make the ambulance design safer, more comfortable and easier to use for both healthcare professionals and patients. Working in partnership with the Helen Hamlyn Research Centre, the Royal College of Art and London Ambulance Service Association, an expert team of researchers from Loughborough Design School used an ergonomics approach to find an efficient way for the users and their environment to interact safely and effectively.

In the initial stages the research team were involved in several "ride-alongs" to understand the challenges faced by paramedics, so that these could be directly addressed with the new designs. Human Factors methods and tools were used for analysing various responsibilities, including the description of complex tasks, interactions between paramedics and patients with postural demands, to develop an understanding of working activities and potential compromised safety.

The outcome of the intensive research undertaken by the team has meant that a UK-wide standardised single specification interior and exterior design for ambulances has replaced the inconsistent designs that were in circulation. The readily adaptable fleet, that reflects the specific services identified, has now been implemented nationwide. Not only has this seen improved patient safety and comfort, but also better working conditions for ambulance staff.

“Not only has this seen improved patient safety and comfort, but also better working conditions for ambulance staff”
Identifying Truck Blind-spots to Reduce Road Accidents

In London there are a large number of accidents involving construction trucks, cyclists and pedestrians. Researchers at the Design School, working with TfL, have undertaken a comprehensive study into this phenomenon which has led to the introduction of an industry standard rating system to ban trucks with poor vision from London's roads.

Date
2016 - 2017

Sponsors
Transport for London

Partners
Transport for London

Funding
LDS Research Group
- Design Ergonomics.
Total project funding £250,000

Principal Investigator
Dr. Steve Summerskill
S.J.Summerskill2@lboro.ac.uk

→ lboro.ac.uk/lds/
research/blindspots
Ultimately to make city streets safer, the project was commissioned by TfL due to the disproportionate number of construction trucks involved in accidents with cyclists and pedestrians in London. The project aimed to define a method to test how big the blind spots are for trucks on UK roads. The information gathered will be used to determine which trucks are not suitable for city centre environments, and how the size of blind spots cause accidents with vulnerable road users. The research has the potential to remove the most dangerous trucks from the roads of London, with potential application at a European level and has the chance to reduce the number of people that are killed or seriously injured by accidents with trucks across Europe.

The project involved the modelling and analysis of 19 truck designs, allowing the variability in blind spots to be identified. These blind spots are caused by the structure of the vehicle, and stop the driver from seeing cyclists, pedestrians and even other vehicles that are in close proximity to the truck. The results of the project led to the introduction and testing of safer truck designs in London, and provided a mechanism for vehicle operators to select truck designs and specifications which are best in class, in terms of having reduced blind spot size. In addition, the project included the production of concept truck designs, which showed how vehicles can be configured to reduce blind spots, whilst improving the aerodynamic performance of standard truck designs.

This work has led to the recommendation of a Direct Vision Standard, the first of its kind. It will quantify and limit the size of blind spots in trucks, using a star-based safety rating from zero to five based on the amount of vision the driver has. By January 2020, those with a zero rating, primarily trucks with a high cab will be banned from London’s roads. By 2024, only trucks rated three stars or above will be allowed in the city. Further research is being undertaken to support the definition of a Europe wide Direct Vision Standard.

“Expertise
Dr Steve Summerskill began his career as a Design Consultant working with Wincor Nixdorf, Lloyds Bank and the Department of Trade and Industry. He became a lecturer in 2008 and his current research interests are looking at the design and assessment of vehicles, including the design of occupant packaging; the design of in vehicle Human Machine interface; the design of future vehicle concepts; and the assessment of vehicle blind spots to improve vulnerable road user safety. He has worked with Nissan, Jaguar Land Rover, McLaren Automotive, Honda, IPECO, New Balance and Transport for London among others.
Customised 3D Printed Wrist Splints

Creating a revolutionary alternative to designing bespoke wrist splints, the specialists at Loughborough used research funding to develop software with real commercial potential. The project enabled the development of their proposed software, which is specifically designed for hand therapists and the generation of real virtual splint designs that are ready for 3D printing.

Date
2016 - 2017

Sponsors
Arthritis Research UK

Partners
Arthritis Research UK

Funding
LDS Research Group
- Design for Digital Fabrication,
Total project funding - £49,553

Principal Investigator
Dr. Abby Paterson
A.M.Paterson@lboro.ac.uk

lboro.ac.uk/ids/research/wrist-splints
Expertise
Dr. Abby Paterson’s research spans various areas involving automated digital design and fabrication methods, including 3D scanning, advanced Computer Aided Design (CAD), and particularly interested in the applications of CAD and AM within the healthcare sector, specifically prosthetics, orthotics and rehabilitation.

She is currently completing a 12-month industrial fellowship, funded by the Royal Academy of Engineering with an industrial partner, focusing on 3D scanning and a number of additional services including CAD for reverse engineering and AM services. Topics of the fellowship will draw together Abby’s previous knowledge in 3D scanning, CAD, Additive Manufacture and metrology in an industrial context to give industrially relevant teaching material in the Design School.

“This software allows therapists to create custom-made, multi-colour, multi-material wrist splints, with lattice patterns, which not only look attractive, but also seek to improve ventilation.”

Working with Arthritis Research UK researchers from Loughborough Design School looked at how to produce specialist Computer Aided Design (CAD) software to help design bespoke 3D printed wrist splints.

The research aimed to assist therapists in the treatment of patients particularly with rheumatoid osteoarthritis. Previous research showed that many patients chose not to wear their wrist splints because they were uncomfortable, unattractive and sometimes unhygienic. This has led to the need to develop bespoke splints.

In terms of designing bespoke splints, traditional design software would have been the best way to address this need, however these software packages can be difficult to learn. This research project took on this challenge and identified that there was a need for bespoke design software that could help clinicians to produce splints, quickly and easily.

The easy to use software would also open up further possibilities for efficiency, where the ability to replicate splints could result in drastically reduced costs. This would not only reduce the manufacturing costs for clinics, but the time saved by not having to regularly schedule appointments would have an enormous impact to the efficiency of the entire patient process.

A tailored approach to both making physical splints and devising software will have impact at every stage of the process including patients visiting clinics to order splints, and therapists seeing patients all the way through their recovery.

The development of this research will enable clinics to make and save 3D scans of patients’ wrists, and print and splints on demand.

The 3D printed wrist splints will not only be more visually appealing, but practically more comfortable as each splint will be custom made for each patient. There are also further design opportunities to integrate comfort padding, ventilation and flexible hinges to make the splints easier for patients to use, resulting in a more adaptable wrist splint better suited to needs of the modern user.

The outcome of this work could result in decreased manufacturing time and costs for wrist splints, making a much more efficient process. The new splints may also reduce recovery time for patients as they will be more likely to wear a more attractive and more comfortable splint, custom-made for each patient.
MA    User Experience Design
MSc   Integrated Industrial Design
MSc   Design for Additive Manufacture
MSc / Dip / Cert  Ergonomics and Human Factors
MSc / Dip / Cert  Human Factors in Transport
MSc / Dip / Cert  Human Factors for Inclusive Design
MSc / Dip / Cert  Human Factors and Ergonomics for Patient Safety
MSc / Dip / Cert  Ergonomics in Health and Community Care

lboro.ac.uk/lds/pg
WHO WE WORK WITH

These are some examples from around the world of partners that we work with;

Addenbrooke’s Hospital
Adidas AG
Adidas UK
AHRC – Arts & Humanities Research Council
Arjo Huntleigh
Bridgestone Corporation
British Council
Carlton Hayes Hospital
Cenex
Department for Transport
EDF Energy UK
EPSRC – Engineering & Physical Sciences Research Council
European Commission
HEFCE – Higher Education Funding Council for England
Innovate UK
Institute of Occupational Safety and Health
Insurance Institute for Highway Safety
Jaguar Land Rover
Materialise NV
Nissan UK
RSSB Rail Safety & Standards Board
Tong Saing Ltd
Future Fashion

The project involved a core team of collaborators ranging from fashion icons to global textile manufacturers and it was an excellent vehicle to engage in knowledge transfer and increase the impact of our innovative research. The work created has provided new opportunities for 3D fashion and resulted in new design practices and workflows that are now being adopted by industry.

Is the future of fashion in 3D printing technology? Working closely with the fashion industry and designers, researchers from the Design School considered ways of creating 3D garments designed using additive manufacturing techniques.

Initially this project demonstrated and prototyped the concepts of 3D printed clothing. Further stages of the research then developed into investigations of Intellectual Property of 3D printed textiles from the polymer stage and then on to how to mass-manufacture new materials. The outputs from the research included the design of a new collection that would include two footwear designs and four clothing garments that would be printed to scale, worn and developed to consumer level.

As Additive Manufacturing (AM) becomes more mainstream, it opens up opportunities which have never been possible previously and could make the textiles industry more efficient, cost effective and sustainable, by providing a more environmentally friendly alternative. The flexibility and design freedom which Additive Manufacturing allows opens the door to previous unimaginable possibilities for the clothing industry.

Working with the Yeh Group and their partners, the research project aimed to develop wearable 3D printed clothes and shoes. Working in conjunction with a major fashion house, researchers looked at how the items would be designed, produced and ready to sell to customers. The 3D design and manufacturing data was produced at Loughborough University with the full-scale concepts manufactured by EOS.

Additive Manufacturing textiles could revolutionise the fashion industry, resulting in sustainable production methods, combined with low-cost and environmentally friendly clothing and shoes for consumers. The impact of this work is landmark and could signal a step-change in textile, garment and footwear innovation that can be disseminated globally.
Date
2016 - 2017

Sponsors
Enterprise Projects Group, Yeh Textiles

Partners
Enterprise Projects Group, Yeh Textiles, Tong Siang, EOS

Funding
LDS Research Group
- Design for Digital Fabrication.
- Total project funding £339,000

Principal Investigator
Dr. Guy Bingham
G.A.Bingham@lboro.ac.uk

→ lboro.ac.uk/lds/
research/future-fashion

“The impact of this work is landmark and could signal a step-change in textile, garment and footwear innovation that can be disseminated globally”

Expertise
Dr. Guy Bingham completed a HND in Aeronautical Engineering from the University of Wales in 2000 before joining Loughborough University where he graduated with a BEng (Hons) in Product Design and Manufacture in 2003. In 2010, Dr. Bingham returned to Loughborough University as a Lecturer within the New Design School and continues his research addressing the design opportunities of Additive Manufacturing.

Guy’s current research focuses are the design opportunities in Additive Manufacturing and Rapid Prototyping. His research explores both CAD modelling techniques and systems used to create such geometries while also investigating and developing novel applications of Additive Manufacturing. He is also interested in additive manufacturing technologies; high performance AM textiles applications and design; design optimisation strategies for AM textiles; computer aided design; modelling strategies and digital sculpture.
4th in the UK for the overall quality of our research

- 93% of our research impact is classed as internationally excellent (Source: ref 2014)

- We attract approximately £4 million of funding annually
IN THE PAST 5 YEARS, OUR RESEARCH HAS PRODUCED:

673 publications
28477 citations
165 conference papers
Improving the Safety of Vulnerable Road Users

Very little has been achieved in the past 20 years in preventing pedestrian, cyclist and motorcyclist injuries. Joining a consortium to research this issue, it immediately struck a chord with us not only because we have something to offer in terms of problem definition, but also importantly there is an urgent need to address this incredibly complex traffic safety challenge.
Expertise
Prof. Andrew Morris has over 27 years' experience of research in road transportation safety, vehicle safety, accident investigation, crash-injury and driver behaviour research, and has published over 180 refereed technical publications, reports and conference papers in the subject of accident research, road crash injury, accident causation and driver behaviour. During his research career, Andrew has been involved in successful research grant applications totalling over £7million.

Vulnerable road users (VRU), pedestrians, motorcyclists and cyclists make up over half of all fatalities of road traffic accidents. This research project investigated vulnerable road users’ perspectives of road use and aimed to provide a set of recommendations for future Intelligent Transport Systems applications aimed at improving the safety, mobility, and comfort of vulnerable road users.

Intelligent Transport Systems are usually a set of applications which aim to provide different services to aid transport and traffic management. They are a combination of Information Technology and telecommunications that provide on-line information, to help users make safer and more coordinated use of transport networks.

Working with the European Commission, along with many other leading institutions to improve safety for all road users, this project looked at the application of systems and their societal impact. The project included pilot testing in Helmond, NL, which involved sending signals and messages to cars when they are about to encounter cyclists on the road.

This was done by using a road-side unit to detect cyclists with radar. The information was then transmitted to approaching cars, which determined the risk of collision. If there was a high risk of collision, the system would alert both the driver and the cyclist, as well as begin automatic braking in the car if necessary. This project could change the way Intelligent Transport Systems are built in the future, and help to ensure that they are further incorporated into Vulnerable Road Users' resulting in safer roads for all users, a reduced amount of road traffic collisions and fewer fatalities.

“If there was a high risk of collision, the system would alert both the driver and the cyclist, as well as begin automatic braking in the car if necessary”
No More Avoidable Deaths from Accidents

Through the investigation of accident theories, the project aimed to make the complexity of these concepts more understandable, and created three systems safety animations to help the public visualise and engage using story based animations.

Considering various factors that cause an accident, and perceptions of the cause, the research team investigated accident theories to produce simple safety system animations to aid understanding and safety improvement.

The first animation looked at the South Korea ferry accident which occurred in 2014. The ferry capsized while carrying 476 people, mostly secondary school children. In total 304 passengers and crew members died. After the disaster, many people sought to blame various individuals responsible for the many failings which led to the accident. This research worked with partners internal and external to the university with the aim to help people understand that all the factors of the accident were complex and interrelated, rather than using these factors to simply assign blame.

The project looked at the many different contributing factors which caused the ferry accident, and as a result of the research the animation “Two Contrasting Views of the South Korea Ferry Accident” was created to help people understand, through different viewpoints, the role that different people played, their pressures and situations. This could be used to prevent future accidents from happening. It encourages a shift from looking at human beings as potential hazards, to looking at human beings as potential heroes, capable of solving complicated issues of safety and efficiency, to which automated systems cannot adapt.

This first animation reached over 50,000 views worldwide. Due to the success of the animation the project team were led to create two more systems safety animations; “No more avoidable deaths from accidents; Two contrasting futures” and “Accelerating systems thinking in healthcare incident investigation”. These animations will provide essential guides to policy making, public debate and social action for safety improvement.

They will be powerful education and communication tools for safety professionals by showing what a safe and resilient system would look like.
Date
2014 - 2018

Sponsors
The Enterprise Office, Loughborough University, Crowd funding & the Health Foundation

Partners
Cognitive Media, Leicestershire Improvement, Innovation and Patient Safety Unit, School of Arts, English and Drama (LU) and Manki Park

Funding
LDS Research Group – Human Factors in Complex Systems, Total project funding £65,264

Principal Investigator
Dr. Gyuchan Thomas Jun
G.Jun@lboro.ac.uk

→ lboro.ac.uk/lds/research/nada

“It encourages a shift from looking at human beings as potential hazards, to looking at human beings as potential heroes”

Expertise
Dr. Gyuchan Thomas Jun’s research interest has been in applying systems engineering, resilience engineering and human factors principles and methods to complex socio-technical systems design in the healthcare, maritime, railway and energy sectors. His expertise is in systems mapping, risk assessment and accident analysis and participatory design. He has worked with various research projects funded by Islington Clinical Commissioning Group, Carton Hayes Mental Health Charity, Health Foundation, EDF Energy and the Rail Safety and Standards Board. He is also very keen to reach a wider audience to share important systems safety messages using engaging animated films.
Research Groups

The expertise of the Design School is arranged into research groups, with individual specialists working on a wide range of projects under their group umbrella.

Transport Safety
→ Focusing on key aspects of transport safety improvement for all road users & pedestrians

Design Ergonomics
→ Designing ergonomic products and concepts that impact industry and end users, making a positive difference to people's lives

Design for Digital Fabrication
→ Designing, using automated programs in the manufacturing process, by means of additive manufacturing, CAD software and 3D printing

Design Practice
→ Concentrating on the design process, and making improvements to design and design technology

Environmental Ergonomics
→ Highlighting the interaction between people and their surrounding environment, replicating environment conditions to test and research new products

Human Factors in Complex Systems
→ Looking at how people, products and different technologies interact with each other to form complex systems

Sustainable Design
→ Analysing how design can be used to improve the longevity of products and ultimately reduce waste and emissions

User Centred Design
→ Putting the user at the centre of the design process to design new products, systems and services
WORK WITH US

What else is happening in the Design School?

PhD students & opportunities
→ The school has a thriving PhD student community, with around 90 students currently conducting in-depth research on their own area of expertise, and enhancing their area of study. Opportunities for new PhD students are available throughout the academic year, to utilise the facilities and expertise accessible to Design School students, and develop their research and career.

Degree show
→ At the end of every academic year, Design School undergraduate students showcase their work at the prestigious degree show.

→ The event takes place over several days, within the Design School building and includes a Business event, where industry contacts can view the innovative designs and meet the pioneering students behind these creations.

Alumni successes
→ The Design School has been the catalyst for a variety of new designers, who have progressed into successful careers.

→ Recently, Design School graduate Simon Enever received new funding to further develop his New York based “quip” toothbrush brand.

→ Design School Alumnus Mostafa Al-Dah Mostafa is now the Chief Technical Officer and Co-founder of Shaali Motorsports, who unveiled the Shaali N360 roadster premium sports car, the first track car made in United Arab Emirates.

→ Robin Spicer, who studied Industrial Design at Loughborough and now founder of Armis Sport, has been telling the Discovery Channel how Armis Polo is innovating the way polo players protect themselves against high impact head injuries during a game of polo.

→ View past degree shows
www.lboro.ac.uk/departments/design-school/study/undergraduate/degree-show/
Research and enterprise at the Design School covers a range of projects encompassing the broad arena of design, ergonomics and human factors.

Examining energy demand in the home and new household digital technology
Investigating how hot water is used in the home
Studying how to store and transport thermal energy
Investigating safe patient handling in long-term care facilities
Studying the risks of moving a person from lying to sitting
Looking at new ways to heal bone fractures
Helping first responders deal with chemical, biological, radiological and nuclear incidents
Improving nuclear safety
Developing 3D printed textiles

Developing design rules for 3D printed wearable devices
Creating a portable modular mini-factory to manufacture customised products
Finding out what to do with electronic devices that are no longer used
Investigating sustainable manufacture of the materials used in electronic devices
Looking at product design methods in different countries
Looking at how to ensure data privacy while improving customer experience when travelling
Investigating driver training testing and medical fitness

Reviewing health and safety on multi-site construction projects
Creating a design for a driving seat that reduces fatigue
Looking at suicide prevention from a human factors perspective
Examining the cause of accidents involving motorbikes and bicycles in Europe
Predicting rainfall to encourage cycling
Experimenting with autonomous vehicles and simulations
Investigating how to improve road safety in India and Africa
Examples of our range of expertise across various projects:

Design for AM & 3D Printing
Developing a set of design rules to guide process selection and design optimisation for cost-effective Additive Manufacturing (AM) and 3D printing.

Energy storage solutions
Developing technologies that aim to reduce energy consumption; i-STUTE is an End-Use Energy Demand Interdisciplinary centre for Storage, Transformation and Upgrading of Thermal Energy.

Hybrid Additive Manufactured-Aramid Fibre Body Armour
The project seeks to utilise the design and manufacturing opportunities offered by Additive Manufacturing (3D Printing) technologies, with the aim to produce the first-generation hybrid AM-aramid fibre body armours capable of providing protection against stab and ballistic threats. The development of this hybrid protective system could present a significant leap in the development of the next generation of body armour in which the physical comfort of the wearer and their subsequent operational performance is as important a factor as protective performance.

Robopilot
Working as part of a consortium to help develop autonomous driving functionality for a new range of electric freight vehicles, the Robopilot project combines input from sensors around the vehicle to monitor its surroundings. Sensors including radars, cameras, ultrasonics and lidars (light sensors to measure the distance to a target object) with mapping devices, artificial intelligence and fleet information, will be used which will then be transmitted to the autonomous software to activate.

Smart Mobility Lab
This initiative has created a driverless transport testing area to enable companies to trial their ideas, technology and services within complex public environments, to help them develop new vehicle systems and big city transport applications.

Body mapping for clothing design
Body mapping for clothing design: Investigating how the body uses response processes to regulate temperature, to develop thermal body maps and aid clothing design features and fabric choices for sportswear.

Customisation in the automotive industry
Research into how to manufacture customised parts for automotive construction and define how to integrate AM technologies with suitable rapid tooling methods.

Toxi triage
The project brings together international expertise and innovative research from a European network. The research will determine the technology and systems needed by first-responders to enable them to respond effectively and manage mass casualties. This will include how medical care and on-site decontamination can be administered rapidly. The project will also help identify the processes for following up and monitoring casualties and potential casualties (including first responders) for clinical and sub-clinical exposures and environmental surveys.
Published articles written or co-authored by Design School researchers in 2017*
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Here is how to get in touch:

Loughborough Design School
Loughborough University
Leicestershire
LE11 3TU

Email
dsoffice@lboro.ac.uk

Call
01509 226 900

See more on our website
lboro.ac.uk/lds