

Mech Eng Matters

Outstanding Trike Success



Tim Morgan, a graduate from the Department of Mechanical Engineering has recently been named as a recipient of the coveted Silver Medal from the Royal Academy of Engineering, for outstanding commercial success. This award has come after the remarkable achievements of his Mountain Trike Company, the origins of which are rooted in his final years Masters Project in Innovation and Engineering Design at Bath.

The Mountain Trike Company is a leader in its field, constructing unique and customisable, multi-terrain wheelchairs for a wide range of users. Blending features from mountain bikes and wheelchairs, Morgan and his team have created a one-of-a-kind control and drive system. The lever drive system allows the rider to propel the chair without using the wheels directly with steering being placed upon the back trike wheel allowing the trikes to offer incomparably high levels of manoeuvrability, safety and comfort for wheelchair users.

Speaking of his experiences with the company, inventor Tim says 'Over the years of development and prototyping we have come into contact with some of the nicest and inspiring people you could imagine. It has lifted us out of many a low moment and made the work we do a real pleasure.'

The company, which includes other Bath Alumni, Ed Elias and Johnny Wardle, has recently branched into the American market on the back of the strength of their UK experience and reputation and we wish them all the best in their undoubtedly exciting future.



On behalf of the Department a very warm welcome to our new and returning students. Once again you will see that we have been busy over the summer on our rolling programme of refurbishment of laboratory areas in 4East. We have recently completed work on the Gas Turbine Research Facility and the Aerospace Composites Laboratory. These refurbishments demonstrate our commitment to providing high quality laboratory space to support our teaching and research activities.

We were very delighted to have come out top in the National Student Satisfaction Survey and this will contribute to our high position in the various national University League tables. This helps to ensure that our degrees are held in high esteem by employers and clearly impacts in the quality of our undergraduate applicants. In fact, this year we have had a substantial increase in home and EU and overseas applicants and this means that we can recruit the highest quality students to our degree programmes.

We hope you will find this newsletter, which updates you on activities in the Department, interesting and I wish you all a very happy and successful academic year.

Professor Tony Miles, HoD

The Apprentice Returns



Tom Pellereau, Bath graduate and winner of the 2011 series of BBC's The Apprentice, was the guest speaker at the Department of Mechanical Engineering's annual Design Exhibition. Tom, who graduated with a first class degree in Mechanical Engineering with Innovation and Design, gave his lecture, 'Inventing Your Future' on his experiences as a successful inventor and entrepreneur.

Professor Stephen Culley, who has coordinated the event for the past 15 years, said: "We were delighted to invite Tom back to the university to present the keynote lecture. As a graduate from the department, his passion and perseverance is a real inspiration to all our students. Everyone has contributed to make this a great department event. We are particularly proud of the students, who worked very hard on their projects and then presented them in such a high quality manner at this year's Design and Project Exhibition"

The exhibition showcases projects from third year MEng students which this year included an incredibly diverse array of projects ranging from a human powered rail vehicle, to a robotic pool cleaner, and from a knee simulator, to an autonomous robot gimbal plate. Sounds like there may be a few more Bath 'Apprentices' in the making!

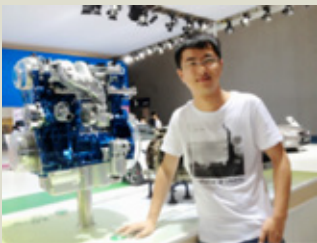
Hellos

The department extends a very warm welcome to our new members of staff, Dr Matt Cole (Lecturer in Control Systems Engineering), Dr Vimal Dhokia (Lecturer in Engineering Design), Dr Tim Dodwell (Prize Fellow in Aerospace Composites), Martin Ould (Teaching Fellow in Business and Design), Lisa Harrison (Departmental Secretary) and Ellie Cronin (Departmental Secretary until she leaves for South America in February). Also, to Steve Thomas and Clive Dix (Mechanical Services Laboratory Technicians) and Emma Walker and Jack Stonell (Apprentice Technicians).

We wish you all the best for your future in the Department.

MechEng Successes

Congratulations, to Mechanical Engineering final year undergraduate student, Yiannis Eftychiou, who was awarded the Chancellor's Prize for 2013. The annual prize is awarded to students demonstrating academic excellence combined with a contribution to life, academic reputation and general work of the university.



Further congratulations, to two of our students, Dian Liu and Bo Hu (pictured above) who have both been awarded prestigious scholarships by the China Scholarship Council to support their PhD studies whilst at Bath.

The scholarships shall allow the two - both first year PhD students - to maintain their studies in Bath by providing travel and living expenses. Both Dian and Bo have also been awarded University of Bath Graduate School scholarships to cover their PhD fees as a result of achieving exceptionally high grades during their previous MSc studies at the University.

Dojo to Dyson

Engineering student and judo champion Jan Gosiewski has been awarded a Dyson Scholarship to support his PhD studies. Jan, 25, has recently successfully completed his MSc degree in Engineering Design here at Bath, while also competing with the GB judo team in the World Championships and the European Open, where he took silver. The Dyson scholarship is awarded for academic excellence, and will allow Jan to stay within our Department of Mechanical Engineering where he'll carry out research in the field of orthopaedic biomechanics.

Jan said: "The Dyson scholarship covers my tuition fees and supplies a maintenance allowance for the duration of my PhD at Bath. My research area is optimising the fixation technique for cemented total hip replacements and is aimed at informing clinical practice by using novel engineering solutions to enhance long-term cemented fixation, with the aim of improving the survival of total hip replacements. I am



thrilled to have the support of such a successful engineering company as Dyson. Combining elite sport with academia is difficult and requires a lot of

drive, but they do compliment each other, keeping healthy through my sport allows me to focus on my research. There is no other place in the UK than Bath where I could be doing both things at this level."

Jan's supervisors at Bath, Professor Richie Gill and Dr Sabina Gheduzzi, will support Jan's research and ensure that he is able to continue his judo training and competition, balancing his commitments. For more information about the James Dyson Foundation and the PhD scholarship provision please see <http://www.james-dysonfoundation.co.uk/>.

The Sky's the Limit



Graduation Day 2013 saw Guillermo Durango, a student from the Department of Mechanical Engineering, being awarded the prestigious BP Centurion Award. Chancellor, Lord

Tugendhat, was so impressed by Guillermo's achievements, that he raised his mortar board to the 23 year old as he collected his degree at the ceremony in Bath Abbey.

The talented student has just completed an MEng (hons) in Aerospace Engineering. During his course he impressed lecturers with both his dedication to his studies and the contribution to student life he made in his spare time.

When asked what he most enjoyed about his course at Bath, Guillermo said: "The practical side of it. The Aerospace course at Bath gives you the opportunity to experience 'authentic' engineering: it

is not just about learning the theory! I have been able to take part of an aircraft group design project supervised by industry members, use the Department's equipment to make a wing model out of composites, carry out wind tunnel testing, and have been able to fly in a test aircraft, to name a few examples."

Now that he has finished his degree, Guillermo plans to do a one-year MSc at Cranfield University in Aircraft Design, before joining the aerospace industry in the UK, and hoping to work in conceptual and holistic design.

Professor Tony Miles, Head of the Department of Mechanical Engineering, said: "While at Bath, Guillermo has proven time and again that he is both highly committed to his studies and to helping others to have a good experience at Bath. He has received a number of impressive accolades, from the Bath Award to a Royal Aeronautical Society Prize and the IMechE Frederic Barnes Waldron Prize, so the BP Centurion award is a fantastic end to what has been an exceptionally strong academic career for Guillermo."

Skylarking



Following the inaugural Icarus Cup, when a Bath team brought a Human Powered Aircraft developed with external assistance, this year saw the first Bath HPA designed and built in-house by our

own students. The competition featured five aircraft, three of which had flown previously, including one from Southampton, with Bath's being the only brand new design.

The team - Rob Abraham, Louise Aiken, and Kirsty Carter - built the aircraft in three months, a fact which shocked some other teams who had spent years developing and refining theirs. Due to weather delays and lack of testing time, they did not get Skylark into the air, but they did win the respect of some of the most creative engineers in aviation, for the quality of their design and construction, and for their refusal to accept setbacks.

Formula Student



University of Bath team came 20th in the Formula Student Competition 2013. Organised by the Institution of Mechanical Engineers, the competition challenges more than 2,000 university students from all over the world to design, build, cost, present and compete as a team with a small single-seat racing car in a series of static and dynamic competitions.

The event took place across the weekend at the famous Silverstone racetrack in Northamptonshire, attracting hundreds

of motorsport fans. With temperatures topping 30C across, the competition saw some surprise results, with a number of well-fancied teams failing to complete Sunday's Endurance event. For Jon Hilton, chairman of Formula Student, the success of ETH Zurich proves that electric cars have a real future within motorsport. He said: "Electrically powered cars have made huge progress going from being unable to complete the 22 Km endurance event to winning overall in just five years. We are delighted by this progress but we will have to see what needs to be done in the future to ensure petrol cars remain competitive."

Hilton said that Formula Student continued to go from strength-to-strength. "The standard of vehicles on display, and the ingenuity of the students who create them, never fails to amaze me.

"This year's competition showcased exactly why these men and women are among the world's best young engineers, and all who took part should feel very proud of what they achieved."



Farewells

2013 has seen the Department celebrate the career of David Barker, who retired in April after 36 years of employment at the University.

David began his career at the University as an Engineer in the Wolfson Laboratory, in the Department of Mechanical Engineering. David very quickly showed a keen interest in, and natural ability with, computers. After a period in the Department's Instrumentation Laboratory, David took on the role of organising and supporting the Department's computing requirements, ultimately working as Computing Support Manager within the Faculty of Engineering and Design.

Head of Department, Tony Miles, said: "We want to thank David for his hard work and dedication over the years. He has been a great asset to the Department and it will never be quite the same without him."

We also say congratulations and farewell to Dr Ben Hicks who has taken up a Chair at Bristol University and Dr Necip Sahinkaya who will be leaving us in November to take up a Chair at Kingston University.

The BIG 6 Questions with Dr Irene Turner



1. Who would you most like to meet?

Richard Feynman, American theoretical physicist.

2. What is your favourite dish?

Fresh black cherries, cherry pie, cherry crumble, cherry cake, cherry cheesecake.....anything with cherries in.

3. What is your favourite outside interest?

Drinking cold beer at the Ramolhaus mountain hut over 3,000 metres up in the Austrian Alps looking out over the glaciers.

4. What is your favourite film?

My Brilliant Career - story of a young girl growing up in the Australian outback determined to have a writing career despite the odds being stacked against her.

5. Favourite book?

The Girl in the Flammable Skirt by Aimee Bender - recently published collection of rather strange short stories.

6. Favourite quote?

"Begin at the beginning and go on till you come to the end: then stop" - The Red King, Alice's Adventures in Wonderland.

The Secret City

Recent Aerodynamic PhD graduate, Luke Tregidgo has won a prestigious UnLtd Champion of Change award as an Outstanding Social Entrepreneur for his Secret City Tours. Luke set up Secret City Tours as a way to leverage Bath's greatest asset, tourism, to tackle one of its biggest social issues, homelessness.

Secret City Tours offer unique walking tours of Bath guided by people who have experienced homelessness in the city and want to work their way to a better life. Luke's venture was recently featured on BBC's 'The One Show' and tickets for the tours are now being sold through a student start-up that closely links the tours to the University. The money from tickets goes towards paying the wages of guides, and any profits go to supporting social enterprise projects that



provide skills, training and employment opportunities to homeless and vulnerable housed people in Bath. Rachel Crossey, UnLtd's Partnership and Support Manager said, "Luke's application left the judging panel completely inspired and wanting to find out more about Secret City Tours. The venture has been an exceptional example of taking a local social issue at the heart of a local community and creating an innovative, sustainable and enterprising solution."

Congratulations

- Congratulations to the Mech Eng. BURST team in the recent International Submarine Races! The team were commended on their presentation and improvement over other years, as well as setting a new team record at 4.05 knots.
- Becky Margetts, who has started work at the University of Lincoln as a lecturer. She is also doing a running challenge this year for Macmillan Cancer Research, which culminates in Bournemouth Marathon in October. Find her page on Justgiving to sponsor her.
- Dr Aydin Nassehi who is this year's joint winner of the Mary Tasker Award with Dr Chris Clarke from Electronic Engineering
- Dr Nigel Johnston who is this year's winner of the Innovation in Learning & Teaching Award
- Dr Sabina Gheduzzi on the birth of her son, Luca, weighing 6lb 10oz, born in May.
- Dr Paul Adams on the birth of his daughter Joselyn, weighing 8lb 11oz, born in November
- Dr Andrew Rhead on the birth of his daughter Isobel 'Berry' Rhead in March
- Jody Muelaner on the birth of his daughter Isabella Sophia Muelaner in April
- Dr Aydin Nassehi on the birth of his daughter Hannah was born in April
- Dr Aiduan Borrión on the birth of Hugo in January
- Prof Tony Miles, Dr Sabina Gheduzzi, Dr Tim Holsgrove and postgraduate Lisa Fitzgerald for winning 'Best Narrative' at this year's Images of Research, with their entry 'Modelling the human knee'.
- Mechanical Engineering PhD student Phil Parkes, who has won the American Society for Composites, best student paper in composite materials award, for his paper "Fatigue of Metal-Composite Joints with Penetrative Reinforcement".
- MEng student, Gemma Hatton who became the first placement student to receive a Gold Award from Nissan for her efforts in organising a Sebastian Vettel visit whilst undertaking her Year in Industry. These Gold Awards are given out twice a year, to only 5/6 people throughout all of Nissan in Europe and the Vice President of Nissan also visited her to congratulate Gemma personally.
- Former Aerospace Engineering graduate Anne McClain, who fought off competition from more than 6,100 applicants to be included in the latest class of trainee astronauts at NASA.
- Richard Butler on being promoted to a Personal Chair. This means that Richard will now formally take up his Royal Academy of Engineering/GKN Aerospace Research Chair in Analysis Enabled Manufacture of Composites awarded earlier this year. Richard's University title will be Professor of Aerospace Composites.



A Norwegian Design Story

The Department of Mechanical Engineering is supporting Stine Kristoffersen, a student on the Innovation and Technology Management MSc, to produce a prototype of a product she designed in her undergraduate studies in Norway. The aim is to create a high quality prototype that can be presented in design exhibition venues in the future.

Stine's innovative design is called Duo Delight, a nature inspired product with a double function: The pebble shaped wooden bowls are gathered in a glass bowl and can be picked up to serve a variety of food.

Working with the Department's Andrew Green, the bowls have been made using the department's 5 Axis DMG milling machine, with early prototypes constructed using the laser cutters and 3D printers. Stine said, "The support and advice I have received from the Department of Mechanical Engineering have been outstanding. It has been an extensive learning process and I am very thankful for all the effort they have given during the prototyping process".

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And thank you to everyone in the Department for your contributions.