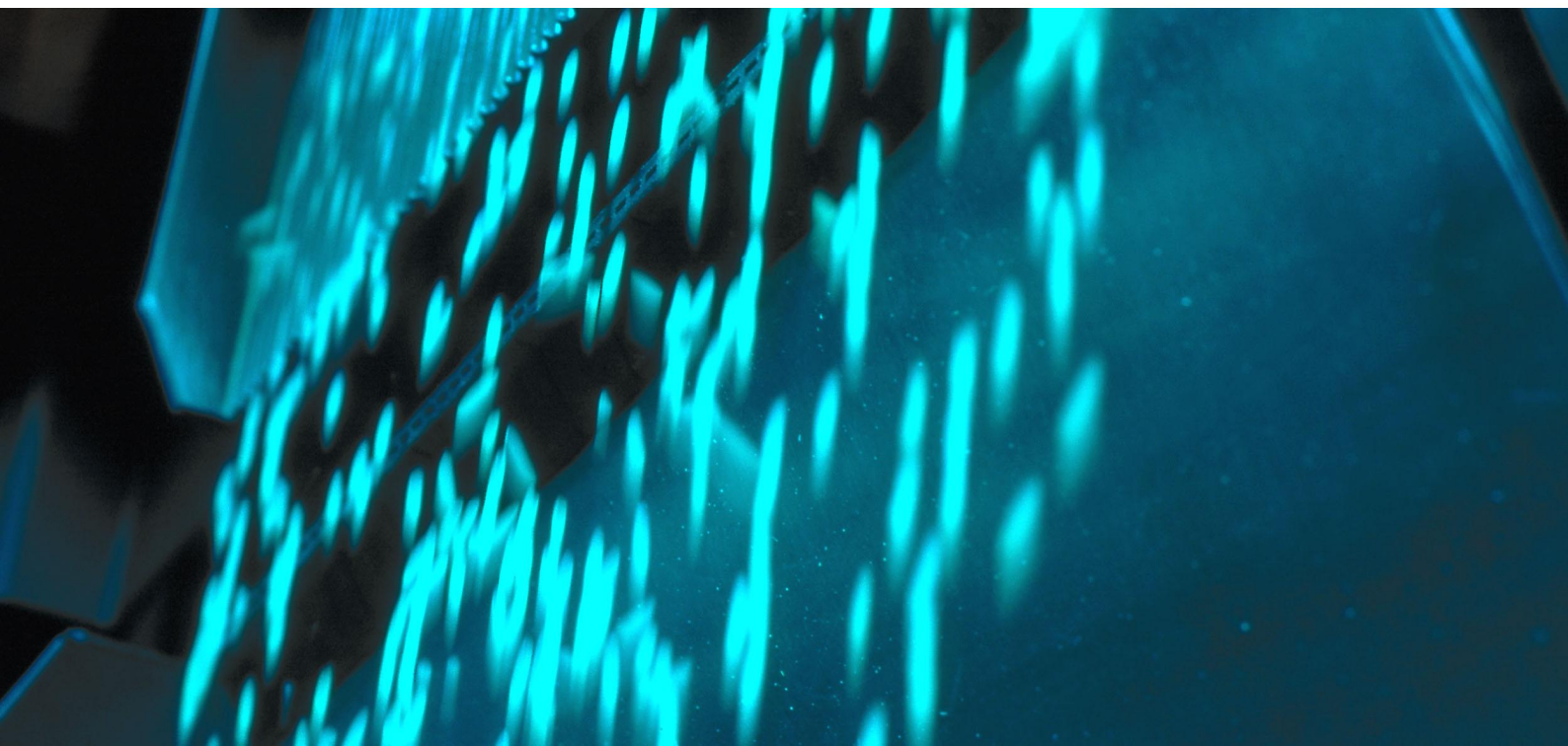# Bühler Sortex Student Placements

2015 - 2016

BÜHLER

Beer, chocolate and money.

In 1860, a Swiss gent named Adolf Bühler hired two staff and opened an iron foundry in Uzwil, Switzerland. After 16 years of development and refinement, he'd created the very first cast-iron flour rollers, retiring the mighty millstone.

Since then, we've patented over 6,000 inventions, from brewery equipment to cocoa refiners. 80 percent of the world's banknote inks are made using our technology.

With a multi-billion dollar turnover and locations in over 60 countries, Bühler is now a global market leader in manufacturing solutions. And, we're proud to say, still privately owned.

In 1994 we joined forces with Sortex, world leaders in optical sorting equipment. Coffee, nuts, spices, pulses, berries: you name it, they'd sorted it. Today, our Bühler Sortex machines use custom built line-scan cameras and ultra high-speed valves to remove defects from food before it's packaged.

We're looking for engineers and managers of the future to join the Research and Development department of Bühler Sortex. You'll be working with 50 professional engineers to design the next generation of optical sorting machines. You'll have a salary of £18,300 plus 25 days holiday and flexi-time working.

In 2015-16 we're offering five placement schemes, one in each of the following disciplines: Image Processing, Software Engineering, Electronic Engineering, Mechanical Engineering and Applications Engineering.

We take our placement programme seriously: as a member of the department, your contribution will be as important as anyone else's and our students are viewed as valuable engineering resources.

For details of each placement, read on.

BÜHLER

Bühler Sortex Mechanical Engineer Placement

Job Description

You'll be fully integrated into a team of 14 mechanical engineers, working in a multi-disciplinary R&D department. You'll experience a wide range of practices; design and development of small projects, evaluation of concept and proof of principle testing, engineering change orders and legal/patent analysis. You'll get to know our CAD software, design parts and build 3D assemblies, prepare drawings for manufacture, and communicate with our in-house workshop and external suppliers.

Previous Student Projects

- A project to develop a multi-machine mounting test frame. This consisted of gaining understanding of the requirements of the machines from different business units. Designing a frame using CAD software and using FEA to prove it was fit for purpose. Detail drawings were made of the parts and the assembly and then ordered from external suppliers. Installation instructions were developed and the design passed to business units around the world.

- An investigation into the suitability of a new lighting system and subsequent design of the assembly to mount it into production machines. This consisted of a design and implementation of an experiment to test the concept. The results were inserted into a technical report and a presentation was given. Once the principle was proven, CAD models were designed and technical drawings produced detailing the parts and assembly information required to mount the lighting in a machine. Outside suppliers were liaised with to get prototype parts produced and production quantities of the parts quoted for. The prototype was built and tested in a trial site and the design passed to production.

Skills and Requirements

You'll be studying for a degree (or equivalent qualification) in Mechanical Engineering or Product Design.

The size of the projects you'll tackle will vary, so you'll need to be able to work both independently and as part of a team. You'll need to be able to plan your work, estimate time-scales and work to deadlines. You'll also need to manage multiple projects simultaneously.

How to apply

Email your CV and a covering letter outlining why you're perfect for the job to hrukrecruitment@buhlersortex.com with "Mechanical Engineer Student Placement" in the subject line. The deadline for applications is Wednesday 19th November 2014.

Bühler Sortex Applications Engineer Placement

Job Description

You'll be fully integrated into a team of mechanical, software and electronic engineers, working in a multi-disciplinary R&D department. You'll develop a wide range of engineering and business skills and gain an understanding of the fundamentals of sorting machinery. You'll be involved in development of new applications for current machines; acceptance testing of new machine parts; Completing sort trials with client samples, analysing results and improving machine performance.

Typical Student Projects

- Working with a team of test engineers to evaluate new products being released by the R&D department. Testing covers software functionality, software stability, and sorting performance at ambient temperature extremities.
- Using a commercial spectrophotometer and hyperspectral imager to analyse the spectral response of customer commodity samples. Designing an optical sorting configuration based on these analyses. Modifying test sorting machinery to new configuration and running trials with actual customer products.

Skills and Requirements

You'll be studying for a degree (or equivalent qualification) in an engineering discipline.

You'll be methodical, practical and inquisitive, with a scientific approach to problem solving. An interest in systems design would be advantageous.

The size of the projects you'll tackle will vary, so you'll need to be able to work both independently and as part of a team. You'll need to be able to plan your work, estimate time-scales and work to deadlines. You'll also need to manage multiple projects simultaneously.

How to apply

Email your CV and a covering letter outlining why you're perfect for the job to hrukrecruitment@buhlersortex.com with "Applications Engineer Student Placement" in the subject line. The deadline for applications is Wednesday 19th November 2014.

Bühler Sortex Software Engineer Placement

Job Description

As part of the R&D software team you'll work on a range of software, from C code on micro-controllers to large scale object-orientated C++ on 64-bit desktop PCs. You'll gain experience in all phases of software development including requirements gathering, specification, design, prototyping, implementation and testing. You'll be involved in interfacing to hardware, diagnostic tools, network communications, real-time operating systems and UX interfaces.

Previous Student Projects

- Designing and implementing software for a production test rig. This included writing C code for an AVR microcontroller to control an LED array; monitoring light levels using SPI sensors; and providing a communications protocol allowing production test software to interface with hardware.
- Designing and implementing a high-speed camera image acquisition system. This included developing a custom high throughput file system; configuring a RAID disk array optimised for write performance; interfacing and designing input for custom capture hardware; implementing sorting algorithms for analysis; and creation of post-processing tools for image viewing and statistics generation.

Skills and Requirements

You'll have an interest in developing software for embedded systems, with an understanding of software that controls and interacts with hi-tech equipment.

The size of the projects you'll tackle will vary, so you'll need to be able to work both independently and as part of a team. You'll need to be able to plan your work, estimate time-scales and work to deadlines. You'll also need to manage multiple projects simultaneously.

How to apply

Email your CV and a covering letter outlining why you're perfect for the job to hrukrecruitment@buhlersortex.com with "Software Engineer Student Placement" in the subject line. The deadline for applications is Wednesday 19th November 2014.

Bühler Sortex Electronic Engineer Placement

Job Description

You'll be working in the Bühler Sortex Test Development department of R&D, developing and building equipment for testing PCBs/assemblies. You'll develop a wide range of skills, from designing hardware to writing software and building prototype systems. You'll be involved in all aspects of electronic and electro-mechanical design, from concept to final build.

Previous Student Projects

- Designing and building a functional test box for our PCB suppliers to test "sorting" boards before they are shipped into Bühler and fitted to machines. Designing a multi-layer test board to simulate camera inputs and check ejector outputs.
- Designing the electronics for a product simulator and working closely with the Mechanical and Software placement students. Developing a closed loop stepper motor controller circuit to control the cycling of multiple rice test patterns in front of machine cameras to simulate plant operation.

Skills and Requirements

You'll be studying for a degree in an Electronics-related degree.

You'll have a keen interest in electronics and computing, with a practical aptitude. You'll need to be able to liaise with the Production test team to prepare project specifications, and deliver robust, usable solutions for the Manufacturing team.

The size of the projects you'll tackle will vary, so you'll need to be able to work both independently and as part of a team. You'll need to be able to plan your work, estimate time-scales and work to deadlines. You'll also need to manage multiple projects simultaneously.

How to apply

Email your CV and a covering letter outlining why you're perfect for the job to hrukrecruitment@buhlersortex.com with "Electronic Engineer Student Placement" in the subject line. The deadline for applications is Wednesday 19th November 2014.

Bühler Sortex Image Processing Placement

Job Description

As a member of our Research team, you'll experience most aspects of research at Buhler Sortex. The main focus of this research is to investigate image processing and computer vision algorithms. A significant part of the role is writing Matlab code, a programming language widely used throughout academia and industry for rapid prototyping. The role includes: undertaking experiments, learning new computer algorithms as well as experimenting with algorithms that learn.

Previous Student Projects

- Pioneering a new method for sorting food products. This involved implementing and evaluating the performance of several machine learning algorithms and selecting the most suitable solution for a specific application.
- Investigating the factors affecting how grains flow down a chute. This involved capturing image data and analysing this data to develop a suitable algorithm; then coding this algorithm in Matlab to produce a software utility for use by other engineers.

Skills and Requirements

You'll have ability in computing, mathematics and engineering, with a keen interest in images and computing, including how computers can be used to extract information from images. You don't need previous experience in machine vision or Matlab which can be learnt on the job.

The size of the projects will vary, for some projects you'll work independently and for others as part of a team.

How to apply

Email your CV and a covering letter outlining why you've chosen this placement to hrukrecruitment@buhlersortex.com with "Image Processing Student Placement" in the subject line. The deadline for applications is Wednesday 19th November 2014.