APPLICATION FORM: GLOBAL TRAINING PROGRAMME 2016-2017 – INTERNSHIP INFORMATION

CORPORATIVE INFORMATION		
Name of the company		Bright Red Systems GmbH
Contact Person		Dipl.-Ing. Thomas Jerman
Location	**Country**	Austria
	City	Headquarter: Graz Laboratory: St. Egyden
	Address	Headquarter: 8010 Plüddemanngasse 39 Laboratory: 9536 Am Sonnenhügel 29
Sector		Research and Development of laser based optical measurement systems, including embedded systems, electronics and software development

PROPOSED INTERNHISP INFORMATION		
Number of trainees to host		3
Extension time (extra months and salary) OPTIONAL SEE DOCUMENT: *"FORM 2_Global Training 2015 extension preliminay agreement"*	Extra months (2, 3 or 4 months)	4
	Monthly payment for extra months (between 0-1124€/month)	1124 €/month

INTERNSHIP/PLACEMENT INFORMATION	
Department (in case you want more than 1 trainee, indicate the different departments where they will work)	Research department and department for product development and testing, led by Dr. Robin Priewald.
Description of project/activities (in case you want more than 1 trainee, indicate the different projects/activities on which they will work)	For the development of patented 2D precision laser measurement systems (laser scanner), tasks described in the attached profiles need to be addressed by the trainees, preferably Masters level graduate of Electrical Engineering, Masters level graduate of Software Engineering, or similar as well as Masters level graduate of Business Administration and Marketing
COMPETENCES, SKILLS and EXPERIENCE REQUIREMENTS	
Requested profile(s) information (Studies, previous experience, language skills, other skills…)	See detailed profile descriptions on the following pages.
Other commentaries	Working place will be in St. Egyden, where already one Trainee from 2014s GTP is being employed since beginning of October 2015. The ranking of the desired trainees is: • Embedded Systems Engineer • Application and test Engineer • Marketing Trainee

Bright Red Systems GmbH

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Profile Description

Embedded Systems Engineer

For the development of a new type of 2D precision laser measurement system (laser scanner), the following tasks need to be addressed by a suitable individual, preferably a Masters level graduate of an Electrical Engineering degree, or similar.

Tasks:

- Programming of algorithms and routines for precision laser measurement into an embedded system based on an ARM Cortex A9 multicore application processor, running a low-level realtime capable operating system (RTOS), using C/C++ as programming language. Routines that need to be implemented comprise basic communication interface commands to configure the laser scanner (using Ethernet, USB, or UART), the implementation of existing CCD/CMOS sensor array signal analysis functions, mathematical matrix algebra routines and calibration procedures, as well as implementing and testing new experimental algorithms.
- MATLAB serves as a development platform for rapid creation and verification of algorithms. Using this platform, C-code can be generated, which has to be adapted and optimised to be included into the embedded system. Speed of code execution, the optimal usage of the available mathematical SIMD coprocessors and the multicore architecture, and real-time responsiveness are the key criteria.
- New algorithms and implementations need to be tested for performance and reliability, which is done using a precision coordinate machine for data collection, and processor-in-the-loop (PIL) testing.
- Embedded system programming requires some basic understanding of the underlying electronic hardware, and debugging with electrical measurement devices such as e.g. a digital oscilloscope.
- Producing and maintaining a structured and detailed development documentation of the steps above.

Requirements:

- Very good programming skills in C/C++ for embedded systems
- Very good programming skills in MATLAB
- Capability of analytical thinking, tracing cause-and-effect chains, and ability to deal with abstract tasks
- Flexibility, capability of working independently on own initiative, structured and organised
- Good command of English, spoken and in writing (alternatively, German), and good communicating skills

Beneficial / Nice-To-Haves:

- Experience with embedded programming and real-time operating systems
- Experience with ARM Cortex A application processor family embedded systems
- Experience with electronic circuits and laboratory equipment
- Knowledge of the concepts of version control (Git and GitFlow)
- Experience with ARM DS-5 or Keil MDK, Doxygen, SourceTree
- Enthusiasm for electronics and engineering problems, enjoying the feeling of seeing virtual code doing actual real things on the target hardware

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Profile Description

Application and Test Engineer

For the development of a new type of 2D precision laser measurement system (laser scanner), the following tasks need to be addressed by a suitable individual, preferably a Masters level graduate of an Electrical Engineering or Software Engineering degree, or similar.

Tasks:

- Programming of a graphical user interface (GUI) application for communication, configuration and results illustration of precision laser scanner devices, using C++/.NET as programming language. Converting existing algorithm and protocol routines from MATLAB into C++, in part manually and using automated code conversion tools. The GUI application should be written for Windows, keeping portability to other operating systems such as e.g. Linux as an option. Communication interfaces comprise of TCP/IP, USB and UART.
- Development of test programs for automatic testing of laser scanner systems under various operating conditions using MATLAB or C++/.NET, and providing analysis of the data using objective metrics. This involves applying the test programs to scanner systems for evaluation, using a precision coordinate machine for data collection, and measurement equipment to capture and evaluate analog signal outputs.
- Producing and maintaining a structured and detailed development documentation of the steps above.

Requirements:

- Very good programming skills in C++/.NET
- Very good programming skills in MATLAB
- Capability of analytical thinking and ability to deal with abstract tasks
- Flexibility, capability of working independently on own initiative, structured and organised
- Good command of English, spoken and in writing (alternatively, German), and good communicating skills

Beneficial/Nice-To-Haves:

- Experience with electronic circuits and laboratory equipment
- Knowledge of the concepts of version control (Git and GitFlow)
- Experience with Doxygen, SourceTree
- Enthusiasm for programming and engineering problems

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Profile Description

Marketing Trainee

For the marketing of our 2D precision laser measurement systems (laser scanner), the following tasks need to be addressed by a suitable individual, preferably a Masters level graduate of Business Administration who is interested in Marketing.

Tasks:

- Support for updating the companies homepage
- Creation of company and product presentations
- Creation of marketing material like brochures or designs for product manuals
- Support for planing and preparing usage of social media, blogs and newsletters
- Support for planing and preparing product fairs
- Support for product video presentations
- Support for public relations
- Support for ongoing market research
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Requirements:

- Flexibility and capability of working independently on own initiative, structured and organised
- Good command of English, spoken and in writing (alternatively, German), and good communicating skills

Beneficial/Nice-To-Haves:

- Education and experiences with marketing