GLOBAL TRAINING PROGRAMME

FORM 1 APPLICATION FORM: GLOBAL TRAINING PROGRAMME

REFERENCIA: EHU01

CORPORATIVE INFORMATION			
Name of the company		**AIT Austrian Institute of Technology GmbH**	
Contact Person		Nicole Brosch	Email: [redacted]
Location	Country	Austria	
	City	Vienna	
	Address	Giefinggasse 4, 1210 Vienna, Austria	
Sector		**Research and Technology Organization (RTO), industrial research**	
PROPOSED INTERNHISP INFORMATION			
Number of trainees to host (in case you want more than 1 trainee, indicate the different departments where they will work)		1	
Extension time (extra months and salary) OPTIONAL SEE DOCUMENT: *"FORM 2_Global Training 2023 extension preliminary agreement"*	Extra months	Extra months possible, and can be discussed individually later	
	Monthly payment for extra months (between 0-1600 €/month)	Payment similar to previous payment through Basque Government	
INTERNSHIP/PLACEMENT INFORMATION			
Department		Center for Vision, Automation & Control (VAC): https://www.ait.ac.at/en/about-the-ait/center/center-for-vision-automation-control Competence unit High-Performance Vision Systems (HVS): https://www.ait.ac.at/en/research-topics/high-performance-vision-systems	
Description of project/activities		High-accurate 3D robotic inspection using Computer Vision based systems. The aim of the project is to enhance current AIT state-of-the-art in Inline Computational Imaging technology to tackle challenging scenarios in industrial applications. These scenarios include challenging inspection tasks such as retrieving 3D shapes of shiny or transparent objects, detecting defects on a micro-meter scale, deploying robotic platforms to automate the inspection process. To achieve this objective, new methodologies are explored by developing a range of algorithms spanning across Computer Vison, Artificial Intelligence, and Robotics. By using multi-view and photometric stereo images captured by high-deforming digital cameras, the aim is to infer highly accurate depth information of an inspected object. This allows to provide quality understanding based on metrology cues of the scene. The success of this project has significant implications for the industrial sector, particularly in improving the efficiency and accuracy of inspection process for many applications, ranging from 3D printing to additive manufacturing of the different compartment of the industrial panorama. The supervision of the selected candidates will be assigned to senior research scientists and engineers with deep expertise in the field of Computer Vision and Robotics.	
COMPETENCES, SKILLS and EXPERIENCE REQUIREMENTS			
Requested profile(s) information (Studies, previous experience, language skills, other skills...)	Studies	• Degree in Computer Science, Computer Vision / Image Processing, Mathematics, Physics, or related fields • Knowledge in computer vision and image processing	
	Language skills	Very good command of English in spoken and written	
	Other *(professional experience,*	• Good programming skills in Python and/or MATLAB • Ability to communicate and work in a team •	

	software, other skills...)	• Strong self-motivation and enthusiasm for creative solutions
Other commentaries		

COMPANY/INSTITUTION	SIGNATURE	DATE
AIT Austrian Institute of Technology GmbH REPRESENTATIVE: Andreas Vrabl (Head of Center) Center for Vision, Automation & Control, AIT Markus Clabian (Head of Competence Unit) Competence unit High-Performance Vision Systems, AIT	ppa.  i.V.  	13.05.2024

HoelblingA
14.05.2024

INFORMATION ABOUT THE COMPANY/INSTITUTION

LOGO	
WEBSITE	https://www.ait.ac.at/
INFORMATION ABOUT THE CITY AND THE AREA WHERE THE COMPANY/ISTITUTION IS LOCATED (General information about SECURITY, ACCOMODATION, PUBLIC TRANSPORT…)	Vienna, Austria's capital, is a city with a very high quality of life, a feature that is highly appreciated by the many visitors who come to the Austrian capital. Vienna features an excellent infrastructure, is clean, safe, and dependent where in Vienna you stay quite green. Vienna's comprehensive and unified public-transport network is one of the most efficient in Europe. Flat-fare tickets are valid for trains, trams, buses, the underground (U-Bahn) and the S-Bahn regional trains. Services are frequent and you rarely have to wait more than 10 minutes. AIT-VAC-HVS is located more in the outskirts of Vienna, however, it can be easily reached by means of public transport (approx. 20 min from the main station).
GENERAL INFORMATION ABOUT THE COMPANY/INSTITUTION	We are Austria's largest Research and Technology Organization (RTO) and an international key player in many of the research areas we cover. This makes us a leading development partner for the industry and a top employer within the international scientific community. AIT provides research and technological development to realise basic innovations for the next generation of infrastructure related technologies in the fields of Energy, Mobility Systems, Low-Emission Transport, Health & Bioresources, Digital Safety & Security, Vision, Automation & Control and Technology Experience. As a national and international network node at the interface of science and industry AIT enables innovation through its scientific-technological expertise, market experience, tight customer relationships and high-quality research infrastructure. The *Center Vision, Automation & Control (VAC)* is a team of about 100 experts in various fields including image processing, machine learning, sensor fusion, data analytics, etc. The Competence Unit *High-Performance Vision Systems (HVS)* in VAC has been active in research for industrial inspection and quality assurance systems for many partners in industries from print inspection to surface inspection tasks for more than 20 years.
SIZE OF THE COMPANY (EMPLOYEES)	The AIT has about 1.400 employees - mostly based at the main facilities Vienna Giefinggasse, Seibersdorf, Wiener Neustadt, Ranshofen, and Graz.
NUMBER OF PEOPLE AT THE DEPARTMENT WHERE THE TRAINEESHIP WILL TAKE PLAKE	Competence Unit High-Performance Vision Systems (HVS): approximately 35
MAIN ACTIVITY OF THE COMPANY/INSTITUTION	The competence unit High-Performance Vision Systems has been active in research for industrial inspection and quality assurance systems in different domains: • High-speed acquisition concepts (high-speed cameras, illumination, …) • Inline computational imaging methods (image processing, 3D reconstruction, …) • Real-time vision for robotic systems • Advance machine learning tools and AI-based inspection
A BRIEF EXPLANATION OF MAIN PROJECTS	The competence unit High-Performance Vision Systems (HVS) in the Center for Vision, Automation & Control has a focus on industrial inspection and quality assurance. One of our main research topics focuses on computational imaging, a fast-growing new research field combining new image acquisition technologies with intelligent algorithms. The aim is to extract image information which could not be derived by conventional machine vision. Light field and photometric stereo are two prominent examples for computational imaging. A light field consists of multiple views of an object obtained from different viewing angles. It can be understood as an extension of conventional stereo systems, i.e., as multi-view stereo. This technology uses more than two object views in combination with advanced algorithms and therefore allows for more accurate and robust calculation of depth information. By high-

	performance computational processing of the light-field data one can derive depth information and obtain all-in-focus images with increased image quality.
PREVIOUS COLLABORATION IN INTERNSHIP/TRAINING PROGRAMMES?	Master students through IAESTE; Previous edition of the Global Training Programme
OTHER COMMENTARIES	