

Application Procedure

This November 2024, the EuMA Innovation Team is launching the seventh edition of the EuMA Internship Award. Every year up to ten awards of 4.500 € each will be given to selected Master and PhD students to spend a period of at least 3 months abroad in one of the leading European microwave industries, universities and research institutes supporting this initiative.

In addition to promote mobility of students that would like to work in the microwave field across European Institutions, the awards will also attract new talents to the hosting organizations and will help creating a larger and stronger community of microwave young professionals.

Eligible Master and Doctoral students with a background in engineering, computer science, mathematics or physics can apply using this [link](#). This document provides a description of the application procedure including all relevant information, dates, and list of documents to be provided that are necessary to complete the application for the EuMA Internship Award.

The award is a subsistence by EuMA that is to facilitate an internship of the candidate at the respective host institution. The internship itself is a matter between the candidate and the host institution, i.e., the legal framework and the details of the internship will be settled in an agreement between the candidate and the host institution. This includes also insurance issues, which are not part of the EuMA award.

1. Objectives

- Provide opportunities to Master and PhD students to carry out a stimulating work experience at one of the leading European microwave industries, universities, and research institutes within the EuMA network.
- Provide an incentive to potential new professionals to join the microwave community.
- Promote and extend the microwave community and network across industry, academia and research institutes.

2. Eligibility

- Master and PhD students at the time of application.
- Fluent in English.
- Background in computer science, engineering, mathematics, or physics.
- Candidates that were awarded once with the EuMA Internship Award cannot apply a second time to the same award.
- Further restrictions may apply depending on host Institution.

3. Economic contribution

- Selected candidates will be awarded 4.500 € each to spend a period of at least 3 months abroad in one of the European microwave industries, universities and research institutes supporting this initiative.
- Up to 7 awards per year will be given.
- The award money will be paid in one installment at the beginning of the internship period, once the agreement between host and candidate is signed.

4. Duration and planning

- Duration of the internship must be a minimum of 3 months, but host and awardee may agree on a longer duration.
- We suggest a time frame of one year to complete the internship abroad, starting with the official notification of the award winners.

5. Departure Requirements

- A valid visa, if non-European applicant.
- For the duration of the internship, awardee should neither be employed by a company nor be a consultant to a company.

6. Awarding

- Selected awardees will be notified officially by e-mail the 30.04.2025.
- Internship Award results will also be posted on different channels (i. e. EuMA International Journal of Microwave and Wireless Technologies, EuMA website and social media).

7. Internship monitoring

- As stated in the introductory remarks, the internship is a bi-lateral agreement between the candidate and the host institution.
- Accordingly, monitoring of internship will be done by host that will assign a supervisor to awardee for the duration of the internship.
- The internship is governed by the respective rules at the host institution. This is true for intellectual property of work during internship, for instance.
- Once the internship is finished, awardees may deliver a voluntary feedback form to EuMA Internship Award Committee explaining their internship experience.

8. List of hosts and topics of interest

Candidates will select their desired host Institution and corresponding topic of interest from list provided below. A minimum of 2 hosts in a ranked order should be selected.

#	Host institution	Point of contact	Topics
1	TNO the Netherlands	Jaap Essing Jacco de Wit Stefania Monni Alessandro Garufo	<ul style="list-style-type: none"> • <i>MMIC Technology</i>, Jaap Essing <ul style="list-style-type: none"> ○ Space-Mapping Framework for RF Matching Network Layout Synthesis ○ On-chip In-situ Measurement of Complex-valued Waves in Tx-chain ○ VSWR-Resilient Load-Modulated High-Power Amplifiers ○ On-chip Temperature Sensing for High-Power Amplifiers • <i>Radar Signal Processing</i>, Jacco de Wit <ul style="list-style-type: none"> ○ Algorithm Development for Detect-and-Avoid Radar ○ Exploiting attention to streamline the training of deep neural networks applied to radar data ○ Recurrent deep learning applied to radar data Target-matched radar waveforms ○ PARSAX Radar for Space Monitoring • <i>Antennas</i>, S. Monni, A. Garufo <ul style="list-style-type: none"> ○ Foldable Reflectarray for Small Satellite Applications ○ Wide Scanning Impedance Matching for Antenna Arrays ○ Compact Filters for Phased Arrays ○ Frequency Selective Surfaces (FSS) for high power radar applications ○ Integrated radome for lens antenna array systems
2	IEMN Lille France	Kamel Haddadi Tahsin Akalin	<p><u>Kamel Haddadi:</u></p> <ul style="list-style-type: none"> • AI-driven nanorobotics and automated on-wafer probing station • Dielectric spectroscopy of food materials based on open-ended coaxial probe

			<ul style="list-style-type: none"> • In-liquid Near-field scanning microwave microscopy • CW Microwave radar for hearth / respiratory rates monitoring using six-port technology • Microwave coaxial, free-space and guided set-ups for electromagnetic shielding based on 2-D materials • <u>Tahsin Akalin:</u> <ul style="list-style-type: none"> • On-chip Near Field Microscopy based on Planar Goubau Lines • Original microwave and Terahertz lenses based on metasurfaces • Biosensing with Metasurfaces and Planar Goubau Lines • Terahertz antennas and RIS for 6G Wireless Communications
3	<p>Ferdinand-Braun-Institute (FBH)</p> <p>Germany</p>	<p>Wolfgang Heinrich</p>	<ul style="list-style-type: none"> • Electromagnetic Simulation • Microwave Power Amplifiers: Digital Transmitters • VHF power converter design • Sub-THz rectifier design • Sub-THz switch-mode PA design • Intelligent amplifier control (Signal processing) • Reconfigurable MMIC PAs design (Design) • Large-signal mm-wave and THz measurements • THz camera measurements and imaging algorithms • Mixed-signal design in InP HBT (Mux, Demux) • MIMO radar system implementation • THz scanner conveyor belt measurements • Design of an electronic comb generator

4	Fraunhofer FHR Germany	Anna Bischof	<ul style="list-style-type: none"> • Radar Signal Processing for Space Surveillance • Detection of Space Objects & Parameter Estimation • Radar System Concepts and Signal Processing • Radar Imaging and 3D Imaging • Waveform Design with Artificial Intelligence • Forward Scattering Radar • Multi-function sensors and distributed radars • Antenna Design (e.g. gap-waveguide antennas) • Propagation effects • Industrial imaging radars • Integrated Circuit Design (SiGe, CMOS) • Embedded Systems Design using FPGA • Terahertz Technology in medical applications, 6G or material characterization
5	Manchester Metropolitan University UK	Sunday Ekpo	<ul style="list-style-type: none"> • Multiphysics Characterisation of mmWave 5G/5G+ Transceiver Sensitivity, Linearity and Efficiency; • Wireless RF-Perovskite Energy Harvesting for Passive and Ultra-Low-Energy 5G/Wi-Fi 6/6E/7/Halow Use Cases and Applications; • Regenerative Transponder and Reconfigurable Transceiver Satellite-Cellular Convergence Ecosystem Subsystems Development; • Machine Learning-based Radio Frequency Propagation Modelling • Reconfigurable Holographic Beamforming Metasurfaces for 5G/6G Satellite-Cellular Convergence Applications

6	Università di Bologna Italy	Alessandra Costanzo Alberto Santarelli	<p><u>Alessandra Costanzo:</u></p> <ul style="list-style-type: none"> • Active mmwave antenna design for wireless power transfer in the field of next generation wearable systems. • Techniques for EM characterization of human tissues in the mmwave • Smart beaming of antenna array in the mmwave employing SDR (software defined radio) and time-variable solutions • Exploitation of new devices and materials for THz energy harvesting • Wireless systems for intelligent transportation <p><u>Alberto Santarelli:</u></p> <ul style="list-style-type: none"> • RF/Microwave Device Characterization & Compact Modelling • Hybrid/MMIC RF PA/LNA Design • RF/Microwave Instrumentation and Measurement Techniques • Behavioural Modelling & Digital Predistortion for Power Amplifiers and Beamforming Arrays
7	Chalmers University of Technology Sweden	Jan Stake Christian Fager	<p><u>Jan Stake:</u></p> <ul style="list-style-type: none"> • Terahertz electronics <p><u>Christian Fager:</u></p> <ul style="list-style-type: none"> • Advanced Wireless Communication Transmitters
8	THALES the Netherlands	Winston van Oosterhout	<ul style="list-style-type: none"> • Radar system and suite related concepts • Distributed sensor systems • RF front-ends • Algorithms

			<ul style="list-style-type: none"> • Signal and data processing including e.g. machine learning for classification
9	University of Glasgow UK	Mahmoud Wagih	<ul style="list-style-type: none"> • Additive antenna in package and active arrays • Sub-THz printed interconnects, antennas, and metamaterials. • Wearable and implantable wireless power transfer and antennas. • Recyclable and biodegradable microwave circuits and antennas. • ML-assisted antenna-based sensing and advanced materials.
10	University of Stuttgart Germany	Ingmar Kallfass	<ul style="list-style-type: none"> • Adaptive Wideband IM3 Generator Design with Enhanced Fundamental Carrier Suppression • Design of a Phase Equalizer for 300 GHz Analog Pre-Distortion Circuits • Modeling of RF transistors in the IMS Chips GaN Technology with adjustable Threshold Voltage • EM Simulation and Layout: Scaling, Verifying and Redesigning an E-band SIW-to-MMIC Transition and SIW-Horn Antenna into the D-band • FPGA Programming for a Real-time signal evaluation and correction with Xilinx MPSoC • Longterm Operation of THz-Communication Link • Modelling of an InGaAs mHEMT for nonlinear operation • Design and evaluation of a Resonant Rectifier for 13.56 MHz Wireless Power Systems using Active GaN-Devices
11	Maynooth University, Ireland	John Dooley	<ul style="list-style-type: none"> • Power Amplifier Behavioural Modelling and Digital Predistortion • AI/ML for Wireless Communications Systems and Networks • Software Defined Radios for 5G/6G – FPGA, Mixed Signal, RF Frontends

			<ul style="list-style-type: none"> • RF/Microwave OTA Instrumentation and Measurement Techniques for mmWave 5G/6G • Hybrid RF/Optical Wireless Communications • Quantum Communications and Networking
12	Technical University of Denmark (DTU)	Vitaliy Zhurbenko	<ul style="list-style-type: none"> • RF detector coils for MRI
13	University of Birmingham	Yi Wang	<ul style="list-style-type: none"> • Reconfigurable/programmable microwave devices and antennas (e.g. liquid metal based) • Mm-wave and sub-THz filters (e.g. V/W band and above)
14	Ruhr University Bochum Germany	Jan Barowski	<ul style="list-style-type: none"> • Signal Processing in Millimeterwave Radar and Radar Imaging • Antenna Design for Radar Sensors • Joint Communication and Sensing in 6G • Measurement Methods for Mobile Material Characterization
15	AGH University of Krakow Poland	Jakub Sorocki Ilona Piekarz	<ul style="list-style-type: none"> • microwave biosensors, methods, and systems • microwave narrow- and broadband sensors and systems • broadband material characterization techniques • broadband dielectric spectroscopy sensors, methods, and systems • additive manufacturing of microwave components • hybrid fabrication techniques for integration of passive and active microwave components • high-performance passive microwave components

16	Warwick University UK	Emma MacPherson Abigail Meadows	<ul style="list-style-type: none"> • Terahertz in vivo imaging • THz spectroscopy of tissue phantoms
17	University College Cork & Tyndall National Institute Ireland	Dimitra Psychogiou	<ul style="list-style-type: none"> • 3D Printed RF filters and antenna subsystems • Inkjet-based additive manufacturing technologies for RF applications • Tuneable RF filters, MMIC RF passive/active components • Antenna front-end components for full-duplex systems
18	Airbus Germany	Volker Ziegler	<ul style="list-style-type: none"> • Software-def. radios • 5G/6G comms systems • Wireless power beam • Advanced antennas • RF-System-on-chip
19	KIT Germany	Benjamin Nuss	<ul style="list-style-type: none"> • Calibration of large antenna arrays for high-accuracy angle estimation • Antenna array design and direction of arrival estimation for coherent radar networks • High-accuracy range estimation • Comparison of different waveforms for joint communication and sensing
20	Eindhoven University of Technology the Netherlands	Ulf Johannsen	<ul style="list-style-type: none"> • Active antenna systems from MHz to THz <ul style="list-style-type: none"> - Antenna integration (Antenna-in-Package, Antenna-on-Chip) - Antenna-amplifier co-design - Antenna arrays for communication, radar and radio astronomy • Microwave/millimeter-wave (reconfigurable) filters • Over-the-air testing • Computational electromagnetics
21	CNIT RaSS (Radar and	Laura Anitori	<ul style="list-style-type: none"> • Electromagnetic Propagation

	Surveillance Systems) National Laboratory Italy	Amerigo Capria	<ul style="list-style-type: none"> • Antennas and metamaterials (Ago fammi sapere) • Multistatic Radar systems concept and processing • AI applied to radar for target detection and classification • Target tracking • Radar imaging (SAR/ISAR) • Passive radar • Radar for Space Situational Awareness
22	Warsaw University of Technology Poland	Bartłomiej Salski	<ul style="list-style-type: none"> • Electromagnetic modelling of layered structures in a Fabry-Perot open resonator • Characterization of low-loss liquids in the millimeter waves • Characterization of powders with microwave resonant methods
23	Universidade de Aveiro Portugal	Nuno Borges Carvalho	<ul style="list-style-type: none"> • Wireless Power Transmission • Simultaneous Wireless Information and Power Transfer (SWIPT) Solutions • Harmonic Tags for Various Applications • Agricultural Sensors Using LEO and VLEO IoT • Electromagnetic Field (EMF) Absorbers Using Textiles
24	Miguel Hernandez University of Elche Spain	Germán Torregrosa	<ul style="list-style-type: none"> • Microwave imaging systems for medical applications • Additive manufacturing of microwave devices • Microwave sensors for medical and industrial applications • Dielectric characterization of materials • Antennas, circuits and systems for telecommunications

9. Application Procedure

1. Every candidate must complete the application online available at EuMA website using this [link](#). Candidates will select their desired host institutions and corresponding topics of interest from the list provided. A minimum of 2 hosts in a ranked order should be given. Submission deadline will be 12:00 CET on the 28.11.2024.

Documentation to be provided:

- Motivation letter (which will be a relevant document for the evaluation of the candidates) must clearly describe **the reasons (personal and professional) for selecting the desired host** from EuMA list, **the expected achievements** and **the intended work** to be carried out during the Internship
 - CV (recommended maximum 2 pages).
 - Reference letter from professor (also confirming student link with University).
 - Degree and Master marks from University.
2. Pre-acceptance notification from EuMA Award Committee in order to proceed with further steps of selection process will be provided by 13.01.2025.
 3. In case of pre-acceptance, candidates must contact the host institution and arrange an interview. As a result of this process, students will get an acceptance letter from host that must be uploaded through the online form before the 13.04.2025. Candidates who do not get their acceptance letter from the host in time will be excluded from the competition and allocation of an internship in one of the European microwave industries, universities and research institutes supporting this initiative.
 4. The EuMA Award Committee will select the seven award winners amongst all the students that have received an acceptance letter from the host according to the score criteria **as described in section 10 of the application procedure (Selection and Ranking Process)**.
Selected awardees by the EuMA Award Committee and corresponding hosts will be notified officially by 30.04.2025. The selection process results will also be posted on the EuMA website.
 5. From acceptance notification, awardees are suggested to complete the internship abroad within a time frame of one year, period ending the 30.04.2026. Duration of the internship must be a minimum of 3 months, but host and awardee may agree on a longer duration.
 6. In the event that the awardee decides to renounce the Internship, this decision must be communicated immediately to assign the Award to the next candidate on the waiting list.

10. Selection and Ranking Process

The list of documents provided by the candidate will be evaluated according to the criteria described below:

Input	Score	Criteria
CV Degree and Master marks Reference letter from professor	0 – 5 Pts.	Merits of the candidate
Motivation letter	0 – 5 Pts.	Personal motivation Quality of the proposal
Mobility	1 Pts	Strengthening of new bonds across Europe Mobility of the candidate within different countries
Acceptance letter from host	Go / No-Go decision	
Total	0 – 11 Pts.	