

Cooperative Agreement
Regarding Double Doctoral Education in European Joint Doctorate
“Dynamic Wearable Applications with Privacy Constraints” (A-WEAR)

between

**Faculty of Computing and Electrical Engineering (to become Faculty of
Information Technology and Communication after 01.01.2019)**

**Tampere University of Technology (to become Tampere University after
01.01.2019)**

and

**Faculty of Automatic Control and Computers
University Politehnica of Bucharest**

ARTICLE 1 - INTRODUCTION

Tampere University of Technology (hereafter TUT), Finland, to become the Tampere University (TAU) after 1st of January 2019, and University Politehnica of Bucharest (hereafter UPB), Romania have recognized their mutual interests in research and in the development of doctoral training in the field of Electronics, Computers and Communications Engineering and wish to specify the terms under which students from both universities may be admitted to a jointly implemented doctoral education in the doctoral programs of Electrical Engineering at TUT and Computers and Information Technology at UPB. The registered students shall be granted, upon successful fulfilment of all requirements for graduation from the corresponding doctoral programs at each university, a double degree consisting of the doctoral degree and the official degree certificate from each university.

This Cooperative Agreement defines the terms for implementing the double degree doctoral education in Electronics, Computers and Communications Engineering, the rights and responsibilities of both parties and the requirements of TUT and UPB regarding the education.

The aim of this Cooperative Agreement is to deepen the collaboration in the doctoral education and to build a base for a double degree doctoral programme.

TUT offers either Doctor of Science (Technology) - DSc (Tech) - or Doctor of Philosophy - PhD - degree depending on the educational background of the candidate. Both degrees are

equal in contents and requirements. The DSc (Tech)/PhD education at TUT refers to a minimum of 40 ECTS of graduate work beyond the master's degree and a thorough research work leading to innovative results and several peer-reviewed publications. The PhD student must attain status as a doctoral candidate by satisfying the TUT specific degree requirements in the student's field. The student must prepare a doctoral dissertation, get it pre-approved by two external pre-examiners, chosen in accordance to TUT regulations, and successfully defend the Dissertation before a Dissertation Committee including at least one external evaluator. There is no strict minimum limit to the residency at TUT, but in general the portion of work and studies carried out at TUT needs to be considerable.

UPB offers Doctor of Philosophy – PhD - degree for candidates having a master degree or equivalent. The PhD education at UPB refers to 180 ECTS of graduate work beyond the master's degree and a thorough research work leading to innovative results and several peer-reviewed publications, from which at least 3 articles in ISI indexed journals or conference proceedings, the candidate being first author. The PhD student must attain status as a doctoral candidate by satisfying the UPB specific degree requirements in the student's field. The student must prepare a doctoral dissertation, get it pre-approved by her/his Advisory team nominated in accordance to UPB regulations, and successfully defend the Dissertation before a Dissertation Committee including at least two external evaluators and one internal evaluator. There is no strict minimum limit to the residency at UPB, but in general the portion of work and studies carried out at UPB needs to be considerable.

ARTICLE 2 - AIMS AND LEARNING OUTCOMES

The double degree doctoral education aims at producing top-level researchers and professionals for the growing field of Electronics, Computers and Communications Engineering by combining the special expertise of the laboratories associated to the Faculty of Computing and Electrical Engineering at TUT, and the laboratories in the Faculty of Automatic Control and Computers at UPB. The main objective of the double degree doctoral program is to prepare top-class scientific individuals that will be able to provide solutions to challenging problems of science and technology in the field of electrical engineering, computers and communications. Another aim is to teach graduates the methods of scientific work, to prepare them to face the future challenges in smart wearables and wireless computing, and to furnish students with theoretical, experimental and practical knowledge from the field of wireless communications, automation and computer engineering. The expected learning outcomes of the doctoral candidates include various branches of wireless communication systems, wireless positioning and navigation, digital signal processing, system modelling and simulation, wireless networks and protocols, and embedded systems.

ARTICLE 3 - STUDENT SELECTION AND ADMISSION

Professors and supervisors of doctoral students at both faculties can select and nominate candidates for the double degree doctoral education according to the selection criteria mutually agreed upon. The criteria are as follows:

- Master's degree or equivalent in the fields of electrical engineering, communications engineering, computers and Information Technology or a closely related field, completed with good grades.
- A sufficient proficiency in the English language. In order to be eligible for double doctoral education, the candidates must demonstrate during the admission procedure that they meet the English language requirements equal to the CEFRL level B2 or higher.
- A research plan to be implemented throughout whole doctoral study with the goal to prepare the doctoral thesis.
- AT TUT, the student admission is open all-year around. At UPB, the student admission is done in June or September for a non-paying tuition fee entrance in October. At UPB, candidate admission is also open all-year around for tuition fee paying PhD students.

The candidates must fulfil the admission requirements of both universities. Final selection is to be made by the respective doctoral programs according to each program's admission criteria.

ARTICLE 4 - STUDENT STATUS

Students will be admitted to the PhD programme on a full-time basis and they will be registered at both universities as degree-seeking doctoral students. The University where the student will start the doctoral training will be referred to as the *home university*. The other university implementing this double degree doctoral education will be referred to as the *host university*. Students shall have the same rights and obligations as degree students in the respective institutions.

A set of documents detailing course requirements at both universities and requirements related to the research to be conducted, the final written dissertation and its oral defence, the assessment/grading of the thesis will be negotiated and concluded on faculty or doctoral program level for each individual student taking part in the double degree doctoral education. These annexes will be ratified by the respective responsible persons of the doctoral programs and by the student's supervisors and they shall bear a reference to this Cooperative Agreement.

The students will be studying according to the curriculum and mobility plan defined in the student-specific annexes. The language of instruction of these programs is English.

ARTICLE 5 - SUPERVISION OF RESEARCH

For each student, there must be one main supervisor at each university with allocated responsibilities. The aim is that the supervision work is divided evenly between the universities. The responsibilities and roles of the supervisors are to be specified in the

student-specific annexes.

The supervisors should have a doctoral degree and be qualified to supervise doctoral studies according to the university regulations. The main supervisor at TUT must hold the position of a Professor, Associate Professor (tenure track) or Docent. The main supervisor at UPB must hold a habilitation degree certified by the National Council for Certification of University Titles, Diploma and Doctorates.

ARTICLE 6 - PERIOD OF CANDIDATURE

A full time student is expected to complete the requirements of the doctoral education in four (4) years. If the student requires more time he/she must seek approval from both universities. The aim of both parties is that the student will spend approximately equal amount of time at each university. However, if this is not possible, the supervisors of the student may agree on a shorter period at the host university. Details regulating this will be specified in the student-specific annexes.

Students selected to the double degree doctoral education shall be provided with a necessary workspace, research equipment etc. at both universities and the hosting university shall assist in locating suitable accommodation.

ARTICLE 7 - COURSEWORK REQUIREMENTS

In order to be granted a doctoral degree at TUT and at UPB, the student has to fulfil the respective coursework requirements, which may be complementary or additional to those of the other university. Details regulating this, including a scheduled study plan, will be specified in the annexes.

ARTICLE 8 - FINANCIAL MATTERS

a) Fees

UPB does not have any tuition fees for EU candidates being admitted in examination sessions organized by UPB in June or September. Non-EU candidates or candidates wanting to be admitted at any other time of the year will have to pay a tuition fee which will be covered from the A-WEAR project, funded by the European Union's Horizon2020 research and innovation programme under the Marie Skłodowska Curie grant agreement No. 813278 and coordinated by Assoc. Prof. Elena Simona Lohan, TUT.

TUT does not have any tuition fees for doctoral students. At TUT, a Student Union membership fee is voluntary for the doctoral candidates.

Costs related to the conducting of research at the universities will be covered by the

A-WEAR project funded by the European Union's Horizon2020 research and innovation programme under the Marie Skłodowska Curie grant agreement No. 813278 and coordinated by Assoc. Prof. Elena Simona Lohan, TUT, as agreed by the supervisors and agreed upon in the student-specific annexes.

b) Research scholarship and travelling expenses

Students not hired in the A-WEAR project are responsible to finance their living expenses and study materials and to seek for appropriate health insurance. The costs of living, housing, social insurances and other expenses related to studies are in the responsibility of the double degree candidates. Service units at both universities (at TUT: Student services office; at UPB: Doctoral school office) will assist candidates in practical and academic matters.

The living expenses, study materials, and health insurance of the students hired in the A-WEAR project will be paid by the A-WEAR project.

c) Fees related to the Dissertation

When Dissertation is held at TUT, TUT will cover the Dissertation fees and any fees related to the two members of the Dissertation committee which are not from TUT or UPB, and UPB will cover the fees of its members participating in the Dissertation committee if the student has been admitted as non-paying tuition fee PhD candidate.

When Dissertation is held at UPB, UPB will cover the Dissertation fees and any fees related to the members of the Dissertation committee which are not from TUT or UPB if the student has been admitted as non-paying tuition fee PhD candidate, and TUT will cover the fees of TUT main supervisor participating in the Dissertation committee.

ARTICLE 9 - CONTINUATION, WITHDRAWAL, TERMINATION OF CANDIDATURE

Students of the double degree doctoral education are required to follow the rules and regulations of both TUT and UPB for doctoral candidates, including the conditions for continuation, withdrawal and termination of doctoral studies. If a student wishes to leave the double degree doctoral education he/she will be free to pursue a regular degree at either university, provided that existing regulations permit it.

ARTICLE 10 - DISSERTATION

The doctoral thesis is expected to contain research material of relevance superior to that attainable by work performed within a single PhD program. It will be written in English.

The thesis manuscript has to pass the preliminary examination in both universities before entering to an oral examination (called defence) according to TUT and UPB rules, regulations and practices. Permission to publish the thesis as an academic dissertation will be granted only after passing the preliminary examination. The oral examination cannot take place before that. Both TUT and UPB will consult each other before nominating any necessary organs for preliminary examination or before giving a permission to publish the

thesis.

The defence of the thesis will be held at the Home University, and in the English language. The agreed committee for thesis defence will be nominated by the two universities in compliance with their regulations. The committee for the thesis defence will be composed of **6 members**, namely: a president (also called 'Custos' or committee chair), the two main supervisors from TUT and UPB, 1 additional member from UPB, and at least 2 members from outside TUT and UPB. When the thesis defence is held at TUT, TUT will nominate a 'Custos' (or committee chair) for the thesis defence different from the TUT supervisor. All members of the dissertation committee must hold a doctoral degree and have a well-reputed scientific career. It is recommended to offer the opportunity to participate in the public defence via video conference to one committee member from each university, at most.

The respective local regulations will be applied:

- TUT: The thesis work of the candidate must be first pre-approved by two external pre-examiners. After the permission to publish granted, the candidate can have his/her Dissertation. During the Dissertation, the candidate must keep first a *Lectio Praecursoria* of about 20 minutes. The members of the Dissertation committee (called Opponents) are then raising as many questions as necessary to clarify the different aspects of the doctoral work. The total time of Dissertation cannot exceed 6 hours.
- UPB: The candidate must present first in about 40 minutes his doctoral research and dissertation to the members of her/his Advisory team (i.e. the thesis committee) that was nominated when the candidate was enrolled as Ph.D. student in UPB. The members of the Advisory team are then raising questions to clarify the different aspects of the doctoral work, and make eventually recommendations to improve the dissertation's content. The Advisory team must pre-approve the candidate's doctoral dissertation for public defense.

ARTICLE 11 – GRADUATION

a) **Graduation**

Each university will separately examine and evaluate the progress of the student annually or with the prescribed frequency, and transmit the result of the evaluation to the other university.

(b) **Doctorate**

Both universities will issue (separately) their official doctoral degree certificate for the students of the double doctoral education, when all requirements are fulfilled.

In addition to the degree certificate, a diploma supplement will be given to the doctoral students in accordance with regulations of individual universities. The supplement should describe, among other things, the structure and content of the doctoral education, the nature of the degrees awarded and the mobility periods included in the training.

The doctoral degree certificates and diploma supplements of TUT shall state that the degree has been awarded within a double degree doctoral programme implemented by TUT and UPB, indicating that the student is receiving a double degree. The diploma supplement of UPB shall state that the degree has been awarded within a double degree doctoral programme implemented by TUT and UPB, indicating that the student is receiving a double degree.

ARTICLE 12 - USE OF INTELLECTUAL PROPERTY

Doctoral candidates own the copyright to their dissertation and the dissertation is public. When the doctoral candidate is the sole author of the doctoral degree thesis, he/she alone has the copyright to the work. If the doctoral degree thesis consists of a collection of articles and a summary, the doctoral candidate has the copyright to those parts that are the results of his/her independent effort.

Both institutions shall have the non-exclusive right for a non-commercial use of the thesis and the results in their education, training and research. This right is perpetual and free of any charge.

If the doctoral student participates in an externally funded research project in which he/she shall transfer intellectual property rights to the university/universities, a separate written agreement shall be negotiated between the relevant parties.

ARTICLE 13 - SPECIAL SITUATIONS

Any disputes arising from the interpretation of this Cooperation Agreement shall be resolved jointly by and between respective faculties at TUT and UPB. In the event of non-resolution, the first step is mediation by the President of TUT and the Rector of UPB and the second step is to refer the dispute to arbitration under the Rules of Arbitration of the International Chamber of Commerce by one arbitrator appointed in accordance with said Rules. The place of arbitration shall be the city of registered office of the home university. The language of the arbitration shall be English. This Agreement shall be construed in accordance with, and governed by, the national law of the home university, excluding its conflict of law.

ARTICLE 14 - EFFECTIVE DATE AND TERMINATION

This Cooperative Agreement will become effective upon signing and shall remain in effect until 31.8.2024. Modifications to this Cooperative Agreement may be made by mutual agreement and confirmed through an exchange of letters. The Cooperative Agreement may be extended by mutual consent by the two parties.

The Agreement may be terminated by the appropriate authorities of either party giving six-

month notice to the other party in writing. Both parties agree that in the event of any party wishing to terminate the Cooperative Agreement the student enrolled under the double degree education will be allowed to proceed and graduate under the programme of the other party.

ARTICLE 15 - LIABILITY

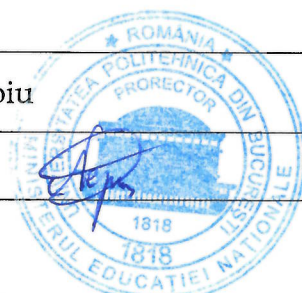
This Agreement will not give rise to any financial obligation by one Party to other. Each Party will bear its own cost and expenses in relation to this Agreement.

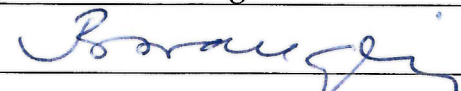
This Agreement has been signed in two originals in English, of which each institution has taken one.

Signing the Cooperative Agreement for University Politehnica of Bucharest

Title of the authorised representative:	<u>/ Rector</u>
Name of the authorised representative:	<u>Mihnea Costoiu</u>
Date: <u>18.09.2019</u>	Signature: <u></u>

Title of the authorised representative:	<u>Dean</u>
Name of the authorised representative:	<u>/ Prof. Dr. Adina Magda Florea</u>
Date: _____	Signature: <u></u>



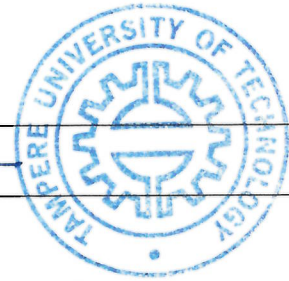
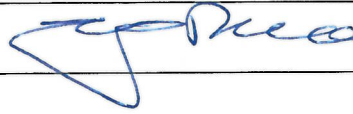
Title of the authorised representative:	<u>Director of Doctoral School</u>
Name of the authorised representative:	<u>Prof. Dr. Ing. Theodor Borangiu</u>
Date: _____	Signature: <u></u>

Signing the Cooperative Agreement for Tampere University of Technology

Title of the authorised representative:	<u>President</u>
Name of the authorised representative:	<u>Prof. Jaakko Puhakka</u>

Date: 3.12.2018

Signature: _____

Title of the authorised
representative: _____

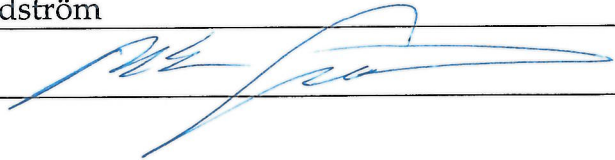
Dean

Name of the authorised
representative: _____

Dr. Mika Grundström

Date: 28.11.2018

Signature: _____



ANNEX: PROJECT-SPECIFIC INFORMATION

Two of the A-WEAR recruited fellows (denoted in the A-WEAR Grant Agreement by ESR3 and ESR8) will register to this double degree program. The specifics of their projects are given below:

ESR3

Project Title and Work Package: Privacy-aware approaches for wireless IoT localization on wearable devices	
Objectives: • Identify the privacy and security related challenges in the IoT positioning on wearable devices, from both the network-side and the user point of view; • Define the Key Performance Indicators of privacy, robustness, and security of a localization algorithm on a wearable device; • Develop passive localization methods for future wireless networks and cellular IoT standards, such as 802.11az, LP-WPANs, etc.; • Test the methods in an industrial setting focused on digitalized society	
Expected Results: Measurement and simulation-based performance analysis and derivation of privacy and security measurable parameters in localization; new privacy-aware positioning methods and algorithms; new robust privacy-aware IoWT positioning methods; comparative performance analysis in dynamic wearables localization vulnerabilities from network and user's point of view; implementation of the algorithms onto a digital platform on digital data management	
Planned secondment(s): 1. UPB, 9 months, starting M21, work on IoT cm-level localization and collection of ECTS for PhD, 2. DLI, 3 months starting M37 for a case study of implementing the IoT privacy-aware localisation into a digital platform	

ESR8

Project Title and Work Package: Centimetre-level accuracy for IoT localization of wearable devices	
Objectives: • Explore indoor positioning technologies that promise high performance localization and orientation, such as hybrid magnetic-WiFi-BLE solutions and UWB positioning; • Create a set of open-source software tools for accurate indoor positioning; • Explore the trade-offs between instrumentation and training, energy consumption and performance, privacy and convenience.	
Expected Results: Novel high-accuracy hybrid positioning algorithms; open-source SW for cm-level accuracy of wearables localization and tracking; industrial testbed of high-accuracy localization at NXP premises	
Planned secondment(s): 1. TUT, 9 months, starting M21, work on hybridization techniques in wireless localization and course attendance at TUT, 2. NXP, 3 months, starting M39, work on the test-bed in industrial settings	
Double PhD degree from: UPB and TUT	Supervisory team: Prof. Niculescu (UPB), Assoc. Prof. Lohan (TUT), Dr. Andreev (TUT), industrial mentor: Pavel ??? (NXP).