Faculty of Computer Science

PhD programme in COMPUTER SCIENCE

Duration: 3 years

Academic year: 2022/2023

Start date: 01/11/2022

Official programme language: English

Website: https://www.unibz.it/en/faculties/computer-science/phd-computer-science/

PROGRAMME CONTENTS

The aim of the PhD programme is to allow students to acquire the abilities and skills to carry out independent research in the area of computer science. This also involves the ability to communicate ideas clearly and efficiently orally and in writing and the ability to work in groups.

In order to conclude the programme successfully, the PhD student has to elaborate a research topic independently and this research must contribute significantly to current knowledge in the area of computer science. Due to the time limits of the programme, PhD students will focus on their research work. To achieve this, they are supported by a structured PhD programme.

In the following, this structure is described in detail together with the procedures for the nomination of the supervisor, the definition of the research and study plan, and the examinations:

- The programme is divided into four phases, which end at months 6, 12, 24 and 36 respectively.
- For each PhD student, the PhD Course Committee nominates a supervisor, who is preferably chosen among its members. It can also nominate a co-supervisor who can provide additional support.
- Together with their supervisor, each student sets up a Research and Study Plan, which defines the research goal and the steps to achieve it. The latter include subjects where the student needs to deepen their expertise. The Research and Study Plan is updated continuously, taking into account both the progress that has been made and new developments that arise in the area of research during the course of the PhD work.
- There are four milestones at the end of the fore phases at which students report on their work and at which the PhD Committee assesses their progress. The updated Research and Study Plan is one of the deliverables for each milestone.

DEADLINES

Application: no later than 9 October 2022, 12:00 noon (GTM +2)

The admission interviews will take place **online** on 11 October 2022 starting from 2:00 p.m. until 5 p.m.

The invitation for the interview will be communicated per email to the pre-selected candidates within October 10, 2022.

The ranking list will be published on the website of unibz by October 13, 2022.

AVAILABLE PLACES

Total positions:	**1**
Positions with university grants:	**0**
Positions with other types of grants:	**1**

Positions are divided as follows:

Financed by	No.	Research projects
MD 352/2022 under PNRR *(minimum 6 months abroad and minimum 6 months in the company mandatory)*	**1**	F6- Entertainment in the car by using a cognitive seat with tactile feedback (prof. Haller e prof. De Angeli - in collaboration with BMW Group)

RESEARCH PROJECT - Details

You can find here below the detailed description (project description + required skills) of the Research Project. Please read carefully the details.

F6-Entertainment in the car by using a cognitive seat with tactile feedback

Academic Advisor: **prof. Michael Haller**

Industry advisor: **to be defined (BMW Group)**

Co-advisor: **prof. Antonella De Angeli**

Project Description:

When the vehicle takes over the driving function, users can devote themselves to other activities that are currently not possible in this form. This goes far beyond a simple phone call or video conference opening the door to the satisfaction of hedonic goals. At present, the entire vehicle interior is geared only to driving, when the person is comfortably sitting in front of the steering wheel. If we imagine, instead, a driver who is sleeping or entertaining themselves inside the car with the seat in an almost bed-like position, we will quickly notice that the current position and interaction modalities for seat adjustment are useless. There is a need to (a) identify new creative use-cases (in the context, for example, of tourism) and (b) rethink how the controls should be changed to transform the vehicle into a unique experiential space.

The goal of this thesis is the design and development of an experiential (cognitive) car seat acting as an input sensitive, fully interactive device which interfaces the driver with digital content. Equipped with pressure-sensitive textile patches, the seat with will recognize full-body interactions allowing the driver to interact with the car.
The seat sensing ability can be improved by adding input devices, such as cameras, speech etc.).
More specifically, the objectives are the
1. design and implementation of different multi-modal interfaces for novel user experiences;
2. design, implementation and critical evaluation of prove of concepts.

Required skills:

The prospective PhD student will work together with a team in the field of next-generation interfaces. The candidate must fulfill the following conditions to be eligible for employment:

- a Master's (MSc) degree in Computer Science or a closely related area,
- Human-computer interaction and/or computer graphics background with interest in game development (e.g. Unity, Unreal),
- fluency in written/spoken English.

ENTRY REQUIREMENTS

Regardless of age and citizenship status, applicants can be admitted to the selection procedure if they have been awarded at least one of the following degrees:

a) a **Master's degree** independent from the degree classes (ex D.M. 270/04 or ex D.M. 509/99) or a degree according to the former legislation or an equivalent qualification

b) **a non-Italian Second Cycle Degree** (*foreign Master's degree)* awarded by an academic institution, equivalent to the above-mentioned degrees (letters a), valid for admission to Doctoral studies in the Country it has been issued (except for substantial differences).

Applicants who <u>are yet to obtain</u> their Master's degree or their Second Cycle Degree are admitted to the selection procedure on condition that they obtain their degree no later than the enrolment deadline, and before the PhD program's start date.

Other requirements:
In order to apply for the PhD program in **COMPUTER SCIENCE** applicants must have sufficient knowledge of English.
The prerequisites for admission to doctoral programme include having acquired an appropriate educational degree, and/or have worked in the PhD course fields, in particular being able to demonstrate a deep knowledge of the fundamental techniques and methods used in computer science.

LANGUAGE REQUIREMENTS

The official language of the PhD programme is English. Therefore, applicants must have very good knowledge of English.
The proficiency in English will also be assessed during the interviews.

ONLINE APPLICATION

Your application must be submitted online through the Application Portal. The deadlines are indicated in the "Deadlines" section.

➢ You need to create an account and upload a valid ID card or passport (front/back). Please note: if your document is invalid, incomplete or unreadable, you will be excluded from the admission procedure;

➢ Fill in the online form and upload the attachments listed under "Admission procedure";

➢ Complete and submit the online application by the deadline. Documents sent per email will not be taken into consideration. Once the application has been sent, it cannot be modified, unless a change/addition request is received from the faculty secretariat.

Please note: False declarations will lead to automatic exclusion from the competition.

DOCUMENTS REQUIRED

To apply to the PhD programme, applicants must include the documentation listed below. Incomplete applications will be excluded from the competition.
Attention: text exceeding the maximum allowed length (if clearly indicated for a document) will NOT be taken into account! Please respect the format/length indicated.

- **Diploma supplement or the Master degree diploma <u>together with</u> the transcript of records of all passed exams** (=certificate with exams list of Master degree):

- ➤ **if graduated in Italy:** diploma supplement or self-declaration (following the Italian D.P.R. no. 445/2000) of the degree awarded with the exams passed (if graduated) or just with the exams passed (if not graduated yet);

  - ➤ **if graduated abroad:** diploma supplement or final degree certificate with exams passed (if graduated) or transcript of records (if not graduated yet) in Italian, German or English related to a second level university qualification;

- *Curriculum vitae (CV)* in English (possibly following the EU format that can be downloaded here https://europass.cedefop.europa.eu/en/documents/curriculum-vitae). The CV must be updated with all data and information <u>of the current year 2022</u>.

- *Presentation letter -Attachment A* (In English, PDF format: it is mandatory to use the relative template in section "Attachments"): Highlight your reasons for applying to the doctoral programme in Computer Science, your motivations for choosing **unibz** (in particular the Faculty of Computer Science) and your career perspective after completing your PhD. Include a brief discussion of your general research interests, of questions and objectives you are interested in, and add a summary of the skill set you already acquired (for instance in your master level research) as well as techniques and methodologies you are interested in to learn and apply in your PhD research;

- *Research proposal – Attachment B* <u>(In English, PDF format: it is mandatory to use the relative template in section "Attachments").</u> Your proposal should therefore include:
  - ➤ the title of the Research Project, together with an outline of the research project, must include a) discussion of the state of the art of the project proposal; b) Aims and Objectives of your envisaged research; c) a discussion of research methodology.

Other documents (facultative) to be included in the application if available:

- The PDF <u>of up to</u> **three** of your best publications (excluding theses);

- <u>up to a maximum of 2 academic reference letters</u> written in English provided by an university professor or by a researcher of research institutions, describing the work carried out and the quality of the same (*the letters MUST be signed*). The letters can be sent per email directly by the referees to the email address PhD_CS@unibz.it (please indicate in the subject of the email: "Reference for "*NAME and SURNAME*" of the candidate)

For the grants funded by external partners (FBK and Ministry), separate ranking lists will be established containing candidates who are also eligible according to the general ranking and who in addition have a scientific profile that is particularly suited to the specific topics associated to these grants.

ATTACHMENTS

Please download the two word files. Fill them in and upload them in the portal as **PDF file**.

Please <u>not exceed</u> the maximum number of characters indicated in each document!

- Attachment A – Presentation Letter CS-unibz
- Attachment B – Research Proposal CS-unibz

ADMISSION PROCEDURE

The selection is based on:

- the evaluation of each applicant's profile based on their curriculum vitae, qualifications, presentation letter and research proposal;
- the coherence with the research themes identified in the faculty's specific part of the call;
- the evaluation of the reference letters and the publications, and
- an interview.

The following points will be awarded:
- up to a maximum of *50 points* for the curriculum, qualifications and publications:
  - Educational and working curriculum (up to 35 points)

- Experience abroad, participation at summer schools and conferences, contribution to research projects, scholarships (up to 10 points)
- Publications (up to 5 points)

- up to a maximum of 5 points for the reference letters;

- up to a maximum of 10 points for the presentation letter and the research proposal on the basis of congruence with the research topics proposed in the call.

The Evaluation Committee will select the best applicants on the basis of a comparative assessment. Candidates that have obtained at least **45 points** in the evaluation of their application documents will be admitted to the next stage of the selection process. This will consist of an interview in which also the knowledge of English of the applicant will be assessed. The interviews will take place in video-call (Skype, MS Teams, etc.). Up to a maximum of **35 points** will be awarded for the interview.
The final score is the sum of the score for the evaluation of the application documents, and of the score for the interview. The maximum score obtainable is 100.

Applicants that have obtained a final score of at least **70/100** are considered eligible. Eligible applicants will be ranked according to their final score. The top eligible applicants will be admitted according to the number of available places with and without grant, according to their order in the ranking list. The remaining eligible applicants will be put on a waiting list. Applicants in the waiting list will be admitted to the program in case an already admitted applicant is not available or withdraws their application.

TUITION FEES
Fees amount to **€ 167,50**
Applicants admitted in the PhD programme must confirm the study place according to the following deadlines:
- **applicants with grant:** starting from October,13th 2022 until October, 20th 2022;

In order to confirm your study place, you need to log on to the application portal https://aws.unibz.it/exup/ and pay the tuition fees (EUR 167.50) by one of the methods indicated on the portal by the deadline indicated above.

If you do not respect this deadline, you will automatically lose your study place.
If, by paying the instalment you have confirmed the study place, there will be no refund of the tuition fees unless you are a non-EU applicant resident abroad and you do not receive the necessary documents from the Italian authorities in your country.