

## **Ph.D./Early Stage Researcher (ESR4) position in Multi-modal Image Analysis**

The Warsaw University of Technology in Warsaw, Poland (<https://www.pw.edu.pl>) invites applications for a 3-year full time PhD/Early Stage Researcher (ESR4) position in 3D Data Analysis and Optical Metrology in the context of the EU- Funded Marie Skłodowska-Curie Initial Training Network (ITN) project titled Cultural Heritage Analysis for New Generations (CHANGE) ([www.change-itn.eu](http://www.change-itn.eu)).

The position will be based at the Virtual Reality Techniques Division (VRTD) (<https://ztrw.mchtr.pw.edu.pl>) and the Division of Photonics Engineering (DPE) (<https://zif.mchtr.pw.edu.pl>) in the Institute of Micromechanics and Photonics at the Faculty of Mechatronics, Warsaw University of Technology (Poland).

The recruited researcher will work in a high-level international research environment within the Institute of Micromechanics and Photonics and in close collaboration with other researchers from the CHANGE network. During the 36-month contract, the PhD candidate will spend maximum of 9 months in secondments/internships to the other project partners. The candidate will participate in a rich program of organized research training activities, to prepare for a future career as a scientist, engineer, entrepreneur and innovator, who can assume scientific and technological leadership in the field of data analysis, optical metrology, optomechanics measurement systems, imaging techniques and conservation science.

The recruited candidate will work on distinct but related fields of research within the CHANGE project. The position description is given below, but candidates should nevertheless make it clear in their cover letter to which position they are applying. The position description is also available on the project website <http://www.change-itn.eu/>.

**Position description:** The candidate is expected to work towards Analysis and visualization of multi-modal image data from surface monitoring of cultural heritage (CH). Main objectives are: 1) identification of digital model representations for CH objects from different modalities (surface and volumetric-based ones); 2) development of analysis and visualization methods for selected CH objects, with automated and interactive data processing; 3) validation of developed methods using CH dummies; 4) application of proposed multi-modal analysis and visualization methods in conservation processes (detection and assessment before and after changes). Expected results are: 1) data structure and representation of surface and volumetric data; 2) analysis and visualization methods for multi-modal image data. The candidate will collaborate with the CHANGE partners and other ESRs to validate and understand the results.

**Main supervisor:** Robert Sitnik (Warsaw University of Technology)

**Co-supervisor:** Theoharis Theoharis (Norwegian University of Science and Technology) and  
Noëlle L. W. Streeton (University of Oslo)

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### **Qualifications required for the announced position**

The candidate must:

- Hold a master's degree (or equivalent) within the field of imaging (colour, 3D/4D data, multimodal) or visual data analysis, physics, computer science, electrical engineering or a related discipline, with an average grade of B or better,

Applicants with no letter grades from previous studies must have an equally good academic foundation. Applicants who are unable to meet these criteria may be considered only if they can document that they are particularly suitable candidates for education leading to a PhD degree.

The following are desired:

- Knowledge in vision, imaging and computer graphics science is advantageous,
- Programming skills in C++, Python and/or Matlab desired,
- Experience with cultural heritage imaging/analysis/visualisation is advantageous.

### **Formal regulations**

#### **Eligibility criteria:**

Eligibility for admission will be determined by considering the combination of the candidate's academic qualifications and relevant professional experience according to the qualifications mentioned above.

Candidates who have completed their Master degree in an institution where English is not the language of instruction must present one of the following Secure English Language Test (SELT) results as follows:

- TOEFL Internet-Based (iBT) – minimum 95 with a writing score of at least 24
- Academic IELTS – minimum 6.5 with a minimum of 6.0 in each element
- Advanced Cambridge Certificate at grade C or better.
- The test results must not be older than 24 months on the date of the application deadline.

#### **Selection criteria:**

- Quality of the candidate assessed through the candidate's academic merit and relevant professional experience.
- The candidate should also possess a sound working knowledge of quantitative & qualitative research methods, experimental design, programming and knowledge of statistical methods.

#### **Personal attributes:**

- Excellent oral and written communication skills and an ability to communicate effectively across different stakeholder groups.

- Flexibility and ability to take direction and accommodate feedback from diverse stakeholders.
- Ability to work both individually and in a (virtual) team environment and a high level of personal responsibility, initiative and leadership skills.
- Ability to meet deadlines and produce work of a consistently high standard.
- High motivation for research work and ability to work independently.
- Good organization and communication skills.
- Eager to disseminate research results through publications and presentations at international conferences.

In the evaluation process, emphasis will be placed on education, experience and personal suitability, in terms of the qualification requirements specified above.

**Please note there are strict eligibility requirements that apply to all Marie Skłodowska-Curie Researchers:**

- The candidate must not have resided or carried out his/her main activity (work, studies, etc.) in Poland for more than 12 months in the 3 years immediately prior to his/her recruitment under the project (short stays such as holidays are not counted).
- At the time of recruitment, the candidate must not have been awarded a doctorate degree and must be in the first 4 years of her/his research career.
- The candidate must work exclusively for the project during the employment contract.
- Researchers can be of any nationality. They are required to undertake transnational mobility (i.e. Move from one country to another) when taking up their appointment.

The university is committed to a policy of equal opportunity in employment practices, and we would particularly like to encourage female candidates to apply.

For further information on Marie Skłodowska-Curie schemes and eligibility please visit <http://ec.europa.eu/research/mariecurieactions> and [Guide for Applicants](#).

Applicants must be qualified for admission as PhD students at the Warsaw University of Technology (WUT). See <https://www.pw.edu.pl/engpw/Admissions/Doctoral-Studies> for information about PhD studies at WUT.

**Salary conditions**

PhD students receive a gross salary in PLN, which will be equivalent to EUR 24,000 per annum before tax. In addition, there will be a mobility allowance EUR 6000 and family allowance EUR 5000 per annum before tax. Eligibility for receiving family allowance depends on the family status when the contract starts.

The period of employment is 3 years. Appointment to a PhD position requires admission to the PhD programme in WUT. As a PhD candidate, you undertake to participate in an organized PhD programme during the employment period. A condition of appointment is that you are in fact qualified for admission to the PhD programme within three months.

Appointment takes place on the terms that apply to State employees at any time, and after the appointment you must assume that there may be changes in the area of work.

### **Living and working in Warsaw**

Information can be found via the following links:

- Living in Warsaw: <https://www.pw.edu.pl/engpw/Students-Life>
- About Warsaw University of Technology: <https://www.pw.edu.pl/engpw/University>

### **We offer**

- A prestigious EU fellowship.
- Opportunity to be a part of a team of leading scientists in different fields of academia doing interdisciplinary research (Visual computing, Imaging techniques, Conservation science)
- Opportunity to develop multidisciplinary research skills.
- Excellent training programme covering research within the field of the topic covered in the PhD position.
- Opportunity to establish a professional network.
- Internships and visits to different institutes within industry and academia.
- Employee benefits.

### **To apply**

Applications will be processed through the Warsaw University of Technology. Please send your application in English indicating job offer code no. 2018/ESR4 by email preferably in one pdf file not exceeding 10 MB to [ztrw@mchtr.pw.edu.pl](mailto:ztrw@mchtr.pw.edu.pl). Please DO NOT send applications via email to individual PIs or organisations. Such emails will not be considered.

Application components:

- Curriculum vitae. Include any relevant publications, the names and contact information of 2 references.
- Copies of academic certificates and transcripts.
- A cover letter explaining your motivation and how your skills and experience relate to the research focus of the position.
- A brief research proposal addressing the topic of the research project (2-3 pages)
- English proficiency results (if applicable).

Publications and other academic works that the applicant would like to be considered in the evaluation must accompany the application. Joint works will be considered. If it is difficult to identify the individual applicant's contribution to joint works, the applicant must include a brief description of his or her contribution.

For additional information about the research project, contact:

Main supervisor: Robert Sitnik, phone (+48) 222348489, email: [r.sitnik@mchtr.pw.edu.pl](mailto:r.sitnik@mchtr.pw.edu.pl) or project coordinator Jon Yngve Hardeberg, phone (+47) 6113521, email: [jon.hardeberg@ntnu.no](mailto:jon.hardeberg@ntnu.no)

**Starting date:** September 2019

**Application deadline:** 15 February 2019