

**Expression of Interest**

**for hosting Marie Skłodowska – Curie Postdoctoral Fellow**

**at the University of Lodz**

**1. DEPARTMENT INTERESTED IN HOSTING POSTDOCTORAL FELLOWS**

|  |
| --- |
| Faculty: **Faculty of Mathematics and Computer Science**Department: **Department of applied computer science**Contact person – potential Supervisor (name, e-mail address, position in organisation, phone number): **Artur Hłobaż,** **artur.hlobaz@uni.lodz.pl****, Assistant professor** Website: **https://www.uni.lodz.pl/pracownicy/artur-hlobaz** |

2. **SCIENTIFIC AREA:**

☐ Chemistry
☐ Economic Sciences
**X** Information Science and Engineering
☐ Environmental and Geosciences
☐ Life Sciences
☐ Mathematics
☐ Physics
☐ Social Sciences and Humanities

**3.** **SHORT SUMMARY OF THE HOSTING DEPARTMENT:**

|  |
| --- |
| **Activities and expertise***Faculty of Mathematics and Computer Science is one of the main scientific centers in Lodz employing recognized specialists in various branches. The Department of Applied Computer Science conducts research in the field of algorithmics (decision trees, hash tables, etc.), image processing, combinatorial games, applications of computer science, cryptography and security of networks and computer systems.***Involvement in EU-funded research and training programmes/actions/projects**n/a**Key research facilities***The main research facility is the building of Faculty of Mathematics and Computer Science***Intersectoral secondments options[[1]](#endnote-1)**☐ YES **X** NO |

**4. PROPOSED PROJECT TOPIC**

|  |
| --- |
| *The aim of the topic is to design/build a hardware version of the SDEx encryption method using the BLAKE3 hash function.* *The current research on the method was performed on its software implementation. As a result of research and comparison of the method to the AES algorithm with a 128-bit key and at least the same level of security, it turned out that the SDEx method with the BLAKE3 hash function is several times faster than AES. Based on literature research, designing its hardware version may provide even better and more interesting results, especially in terms of speed.* *A description of the SDEx method can be found at this link: https://ijet.pl/index.php/ijet/article/view/10.24425-ijet.2022.139848* |

**5. VALID FOR THE FOLLOWING HORIZON-MSCA--PF CALL:**

☐ 2023 **X** 2024 **X** 2025 ☐ 2026 ☐ 2027

MSCA Postdoctoral Fellowships are selected by EC on the basis of annual calls for proposals. Forthcoming and open calls for proposals can be found on the Funding & tender opportunities Portal of the European Commission

**6. DO YOU CONSIDER THE NEED OF ON-SITE MEETING DURING THE APPLICATION PROCESS?**

☐ YES **X** NO

1. Within non-academic organizations (enterprises, hospitals, government institutions, cultural institutions, non-governmental organisations such as foundations, associations or other legal entities) – may be planned during the project provided they are in line with the Guide for applicants regulations of the corresponding call. [↑](#endnote-ref-1)