

JOB OFFER

Position in the project:	PhD student (enrolled in the third-cycle, doctoral studies)
Scientific discipline:	Computer science
Job type (employment contract/stipend):	Stipend
Number of job offers:	1
Remuneration/stipend amount/month ("X0 000 PLN of full remuneration cost, i.e. expected net salary at X 000 PLN"):	<p>Stipend 4500 PLN (= 1060 EUR) per month for 2.5 years.</p> <p>Additionally, PhD students enrolled in the Doctoral School can apply for a PhD scholarship: 2100 PLN per month (ca. 500 EUR) for the first two years, and 3240 PLN (ca. 760 EUR) for up to two additional years. This PhD scholarship is independent from the offer of stipend in this project. Any questions related to the Doctoral School and the PhD scholarship, should be directed to: phd.school@put.poznan.pl</p>
Position starts on:	1 January 2020 or as soon as possible
Maximum period of contract/stipend agreement:	Stipend: 2.5 years, Doctoral School's PhD scholarship: max 4 years
Institution:	<p>Institute of Computing Science, Poznan University of Technology, Poland</p> <p>Institute of Computing Science at Poznan University of Technology has grown to become one of Poland's leading research and teaching institutions in the area of computer science, automatics and robotics (ranked class A). Our research and teaching covers a wide area of topics, including distributed systems, networks, databases, data mining, programming languages, operations research, artificial intelligence, machine learning, and bioinformatics.</p>
Project leader:	dr hab. Inż. Paweł T. Wojciechowski, prof. nadzw.
Project title:	<p><i>"Scalable in-memory data store systems based on mixed-consistency data types and replication algorithms for efficient and anomaly-free data management in the emerging NVM-based computer architectures."</i></p> <p><i>The Project is carried out within the TEAM programme of the Foundation for Polish Science co-financed by the European Union under the European Regional Development Fund.</i></p>
Project description:	<p>The amount of data stored in data centers and processed by cloud services is growing constantly and rapidly. Therefore a new generation of data store systems is required, which will offer high efficiency, availability, and robustness for a large number of concurrent users. The main goal of the project is to propose cutting-edge solutions that can be used to build robust data store systems which scale, i.e., the system throughput grows with an increasing number of nodes or processors. The solutions include novel replication methods and algorithms with support for transactions (taking advantage of multi-core CPUs), replicated data</p>

structures that support both strong and eventual consistency, and novel recovery algorithms, which envisage the use of persistent (non-volatile) memory in the future computer systems. The results of our work will be evaluated formally and experimentally.

We welcome applications from highly motivated and enthusiastic candidates to join our research project. The successful candidate will be expected to make an outstanding contribution to the theoretical and/or practical investigations in this regard. The project is led by prof. Paweł T. Wojciechowski, in collaboration with prof. Fernando Pedone (University of Lugano, Switzerland), a world-leading researcher in the field of distributed systems.

Key responsibilities include:

Research tasks in the project are following:

1. Design, implementation and evaluation of novel NVM-enabled methods and algorithms for distributed synchronization and/or service replication
2. Participation in the development of new conflict-free replicated data types/structures (Acute Cloud Types)
3. Design, implementation and evaluation of novel NVM-enabled recovery methods and algorithms
4. Optimization and evaluation of selected methods and algorithms
5. Preparation of research manuscripts

Assignments of research tasks to the PhD student will be done based on the project needs and student's experience and interests.

Profile of candidates/requirements:

Qualifications:

1. MSc degree (or equivalent) in computer science or relevant science discipline
2. A status of a person who is or will be enrolled in the third-cycle, doctoral studies within the Doctoral School in the Faculty of Computing at Poznan University of Technology, Poland

Knowledge & Experience (Essential):

1. Expertise in distributed systems or database systems
2. Excellent programming and scripting skills (in any high-level programming language, e.g. Java, C/C++, Python)
3. Expertise in using computer clusters and any operating system from the Unix-family

Knowledge & Experience (Desirable):

1. Knowledge of Paxos/Raft and other replication algorithms
2. Knowledge of formal verification methods
3. Expertise in modern computer architecture and computer memory
4. Experience in research manuscript drafting

Personal skills:

1. Ability to independently pursue her/his work

2. Ability to collaborate with others
3. Ability to analyze and work with complex issues
4. Good command of English, both orally and in writing

Please attach in your job application e-mail the following documents:

Required documents:

1. CV including your education history, achievements, relevant professional experience, and knowledge
2. Application letter with a brief description of why you want to pursue research studies towards a PhD degree, about what your academic interests are and how they relate to the project (max. 2 pages long)
3. Scan of the degree certificates and transcripts of the records from your previously attended university-level institution. Attach translations into English or Polish if the original documents are not issued in one of these languages
4. MSc diploma and any other diplomas and theses and, if possible, at most 3 publications or technical reports
5. Names and e-mail addresses of two references (e.g. University professors, managers, or supervisors of MSc/Diploma theses) who can provide the letters of recommendation
6. A scan of a signed statement: "*I hereby authorize Poznan University of Technology, Pl. M. Skłodowskiej-Curie 5, 60-965 Poznań, Poland, to process my personal data for the purposes of job recruitment. Furthermore, I declare that I am aware of the voluntary submission of data and I am informed about the right to access the data and the right to correct it, pursuant to the Article. 6 par. 1 lit. a), and art. 7 par. 1 of Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of individuals with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46 / EC (Regulation GDPR - RODO in Poland).*"

We offer:

1. Employment in the project for the period of 2.5 years (or longer, if the project will be continued)
2. Work in a dynamic research environment, in close cooperation with the research group in the University of Lugano (with a possibility of short-term training visits), as well as with other world-leading researches in Europe through a prospective COST Action
3. Possibility to attend international scientific conferences and present research results
4. A workplace with access to state-of-the-art computing facilities in the Institute and at the Poznan Supercomputing and Networking Center (90th in the world's TOP500 in June 2016)

The application procedure consists of two steps:

Please submit the following documents to:

- 1) Send all required documents (enlisted above) and any questions related to the research project to the Principal

	<p>Investigator, Paweł T. Wojciechowski:</p> <p>mailto:Pawel.T.Wojciechowski@cs.put.edu.pl</p> <p>In case your application will be accepted for further consideration, you will be invited for an interview by phone or videoconference. If you will get a positive opinion, then you should apply to the Doctoral School (2nd step).</p> <p>2) Send an application to the Doctoral School. All required information about the Doctoral School is provided via e-mail: phd.school@put.poznan.pl</p> <p>Please note that to be employed in the Project as a PhD student, you MUST be admitted to the Doctoral School in the Faculty of Computing at Poznan University of Technology. Also, please note the application to the Doctoral School is independent from the application to the project.</p>
Application deadline:	<p>As soon as possible, but not later than December 15, 2019.</p> <p>We expect the employed person to start working in the project as soon as possible thereafter.</p>
For more details about the position please visit (website/webpage address):	<p>http://www.cs.put.poznan.pl/persistentdatastore</p>
Euraxess job/stipend offer (in case of PhD and postdoc positions):	<p>https://euraxess.ec.europa.eu/jobs/462693</p>

Due to the entry into force of Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016, the institution that carries out the recruitment process, i.e. Poznan University of Technology, Pl. M. Skłodowskiej-Curie 5, 60-965 Poznań, Poland, requires the consent to the processing of candidate's personal data for the purposes of carrying out the recruitment procedure, choosing the employee, and, if applicable, entering into an employment contract with Poznan University of Technology. Therefore a job application must include a signed statement mentioned in the list of required documents.