



WORLD OPEN LABS

THE BEST INTERNSHIPS ABROAD



SOME OF SUGGESTED INTERNSHIP TOPICS FOR SUMMER 2020 (as of 01.11.2019)

SUPERCOMPUTER COMPLEX OF LOMONOSOV MOSCOW STATE UNIVERSITY, MOSCOW, RUSSIA

- **System monitoring sensor**

Write a sensor program that periodically sends a certain parameter of the status of the software and hardware environment to the monitoring system. Low-level programming in C++.

- **Monitoring data visualization**

Processing and displaying system data (processor load, degree of parallelism, cache misses, etc.), the dynamics of parallel tasks. To complete the assignment: you need to know or learn a high-level language (python/ruby), extract data from a DBMS, launch a web server, make a web page for display;

- **Files to a supercomputer**

Implement efficient download/upload of large files from/to a supercomputer.

RUDN UNIVERSITY, MOSCOW, RUSSIA

- **Economics. The nature and distinctive features of the economic system in Russia**
- **Shadow economy**
- **International economy: globalization in world trade and Finance.**
- **International economy: Russia and Europe**
- **Economy of the Middle East and North Africa, features of GCC development, International payment systems and instruments**
- **Russia in the global space market: a model for increasing exports to developing countries**

NATIONAL RESEARCH UNIVERSITY «MOSCOW POWER ENGINEERING INSTITUTE», MOSCOW, RUSSIA

- **Face recognition**

Development of a facial recognition system using the principal component method and artificial convolutional neural networks. Comparison of the obtained results, analysis of advantages and disadvantages of the methods (Matlab, Python)

- **Image enhancement**

Application development, ensuring the elimination of the linear blurring in the photos. The spectral analysis of the image is performed, the expected frequency response of the filter eliminating the noise is revealed, filtering and evaluation of the result is performed (Matlab, Python)

VAVILOV INSTITUTE OF GENERAL GENETICS, RUSSIAN ACADEMY OF SCIENCES, MOSCOW, RUSSIA

- **Identification of the informative epigenetic age markers and determination of their methylation status on human DNA samples.**



ITMO UNIVERSITY, SAINT-PETERSBURG, RUSSIA

INTERNATIONAL INSTITUTE «PHOTONICS AND OPTICAL INFORMATION TECHNOLOGY»

Femtosecond optics and femtotechnology:

- **Terahertz application in non-destructive quality control and diagnostics**

Development of new methods to analyse food quality by THz radiation. Development of new methods to visualise hidden objects. Development of new THz diagnostic methods in art restoration.

- **THz imaging and holography**

New methods of terahertz imaging and its scientific and technical applications

Terahertz Biomedicine:

- Terahertz spectroscopy
- Terahertz tomography
- Development of methods for medical diagnostics:

The main area of focus – diagnostics of socially important human diseases using ultrashort pulse optical methods (femtosecond lasers and terahertz radiation) for non-invasive monitoring and early diagnostics of structural and functional changes in human hard and soft tissues, as well as in cell cultures, testing of physiologically active biomolecules for presence of endogenous risk factors for disease development, pathological processes in a broad spectrum of tissues (epithelial tissues, intravascular disorders and bone tissues), and for evaluation of therapy effectiveness.

INTERNATIONAL SCIENTIFIC AND RESEARCH INSTITUTE OF BIOENGINEERING

- New polymer-based materials for biomedical application, intended for contacting between nature media with living organism, which is quite necessary for regenerative medicine.
- Biocompatible, resorbable materials for development of new directions in medicine - cellular and fabric engineering, creation of artificial implants.
- Drug delivery;
- Nanomedicine;
- Biosensors;
- Biotechnology

PRICES – 2020 FOR STUDENT INTERSHIPS IN LEADING RUSSIAN UNIVERSITIES

Registration fee	540 USD
Accommodation in a student hostel 1-2-bedroom, self-service	from 15 USD/ night
Research internship for a period of 3-5 weeks:	
- for a scientific group of 3- 4 students, internship on a shared topic	from 1480 USD/ 3 weeks/ each student
- individual professional training in the laboratory/ research center under the supervision of professors and academicians of the Russian Academy of Science	from 4440 USD/4 weeks, 5360 USD/5 weeks
- individual professional training under the guidance of professors from leading universities of Moscow and St. Petersburg	from 2790 USD/3 weeks

