

= NCIT Summer School - 12th Edition =

### **Period**

29 June - 21 August 2015

### **Website**

<http://cluster.grid.pub.ro/index.php/workshops-and-training-events/74-ncit-summer-school/ncit-summer-school-2014/220-ncit-summer-school-2014>

### **Summary**

The 12th Edition of the NCIT Summer School will take place between June 29th and August 21st 2015, at the University Politehnica of Bucharest. Students will work on projects on three tracks, namely: High Performance Scientific Computing, Embedded Systems & Mobile Programming (Android), and Open Source Code Development. The Summer School will begin with three weeks of intensive training (29.06 - 17.07), bootcamps and invited talks (to be announced) during which students will work individually or in teams. Following the success from previous years we plan on international participation, from several Universities from Europe and Asia.

### **Application**

The selection is done based on submitted CVs & letter of intent. The internships are available (in part) on <http://stagiipebune.ro>. Please use this platform to submit our CV & letter of intent.

### **Location & Schedule**

Computer Science & Engineering Department Faculty of Automatic Control and Computers University Politehnica of Bucharest

Room EF108, First Floor, EF Wing. Room ED202, Second Floor, ED Wing. Room ED218, Second Floor, ED Wing. Room ED422, Fourth Floor, ED Wing. Room EG106, First Floor, EG Wing.

Proposed Agenda: Daily program: 10AM-5PM Lunch Break: 1-2PM

### **Tracks**

#### **High Performance Scientific Computing**

The High Performance Scientific Computing track will mainly focus on the following topics:

1. Automatic Differentiation of Java Programs 2. Scientific Applications in Aerospace and Astrophysics

3. Scientific Applications in Seismology 4. Scientific Applications in Meteorology and Hydrology 5. EagleEye - 3D Model of Romania - Satellite and Map Image Processing 6. 7. Administration and performance tuning in large-scale Computing Clusters

The wiki of this section will be hosted here: <http://cluster.grid.pub.ro/wiki>

## **Embedded Systems & Mobile Programming**

The Embedded Systems and Mobile Programming track will concentrate on the following subjects:

1. Quadcopter Control - autonomous flying robot 2. Swarm Robotics - design, develop and test of swarm algorithms on existing robots 3. Biometric Electromiograph Hand Control 4. Wireless Sensor Networks - measure and monitor and upload environmental parameters to online repositories 5. Robot Control - program and control an autonomous robot using the posture and gestures of a human operator 6. Multicore Association MCAPL applications on distribute PCs (shared memory) and on PC+FPGA combination (message passing) 7. M-learning (mobile learning): modern learning techniques take advantage of the opportunities offered by mobile technologies; besides mobility, portable devices offer native methods of enabling collaboration and information sharing; 8. Remote Control: learn how the sensing capabilities of your mobile device (accelerometer, compass, touch screen) can provide the means to control a drone and a robotic arm; 9. Games and multimedia: put the hardware capabilities of the mobile device to the test and see what it means to create graphical rich applications.

Working on mobile applications (for Android, Windows 8 and BlackBerry OS), students will learn and experiment with features, such as: camera, sensors (movement, light, compass etc.), graphics, text-to-speech, voice commands and many more. Moreover, the students will interact with participants from the other two tracks, gathering ideas for interdisciplinary applications, while working in a diverse and fun social environment.

## **Open Source Development**

The Open Source track technical seminars will cover the topics below:

1. Open Source Software Project Management: Wikis, Bug Tracking 2. Version Control Systems 3. Editors and Efficient Editing 4. Code readability 5. Python 6. Web back-end 7. Web front-end 8. Java 9. Object Oriented Programming 10. Android development

The technical seminars will present tools and technologies coupled with practical activities where participants will get a grip of how and when should they be using them. The wiki of this section will be hosted here: <http://open-source.cs.pub.ro/summer-school/wiki/>

The open source summer school (OSSS) will be a short school taking place for two weeks between the 23rd of June and the 4th of July 2014. The first part will focus on basic skills for working in open source projects while the last part will consist mostly of hackathons where participants will code along the others.

## Team

PhD. Nicolae Tapus - Professor PhD. Emil Slusanschi - Associate Professor PhD. Razvan Rughinis - Associate Professor PhD. Dan Tudose - Lecturer PhD. Mircea Bardac - Lecturer PhD. Razvan Deaconescu - Lecturer PhD. George Milesu - Lecturer PhD. Voichita Iancu - Lecturer MSc. Dan Dragomir - Assistant Professor MSc. Alexandru Olteanu - Assistant Professor MSc. Andrei Voinescu - Assistant Professor MSc. Adriana Draghici - Assistant Professor MSc. Alexandru Herisanu - Assistant Professor MSc. Razvan Dobre - Assistant Professor MSc. Silvia Stegaru - Assistant Professor MSc. Laura Vasilescu - Engineer

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