

Computer Science Projects  
Developed inside (in connection with)

Department of Mathematics, Mechanics  
and Computer Sciences / SFedU

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## Some of our projects

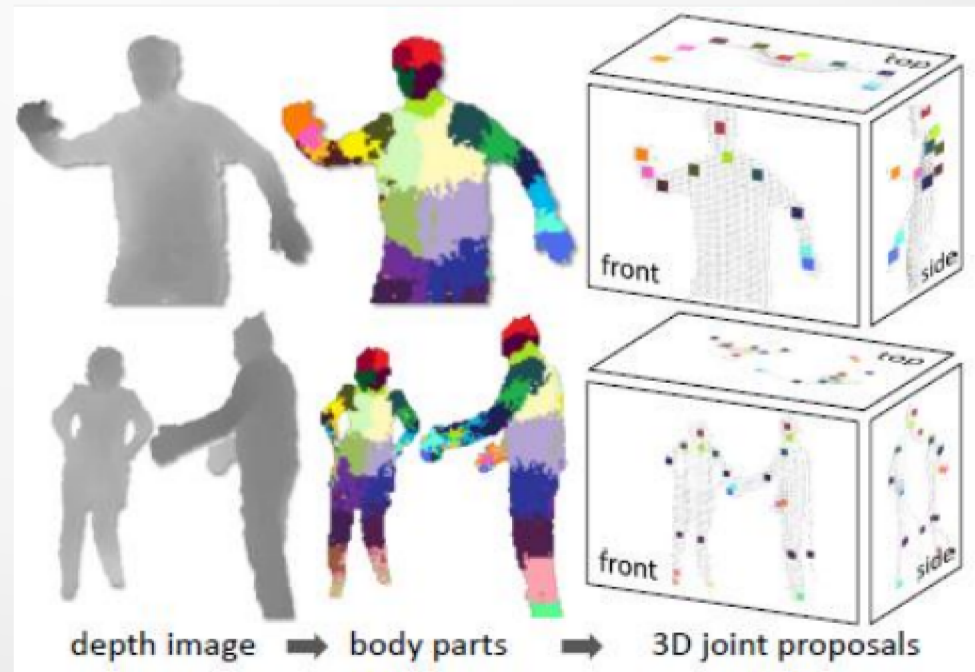
- Bioinformatics (together with Research Institute of Biology / SFedU)
- Computer Vision and Human Behavior (together with Research Institute of Neurocybernetics / SFedU)
- Theoretical Computer Science with Practical Tools: Open Parallelizing System
- Free Educational Resources: PascalABC.NET and ProgrammingABC.NET

# CV: Microsoft Kinect Technology

“Nonintrusive human's functional state monitoring system”

project won

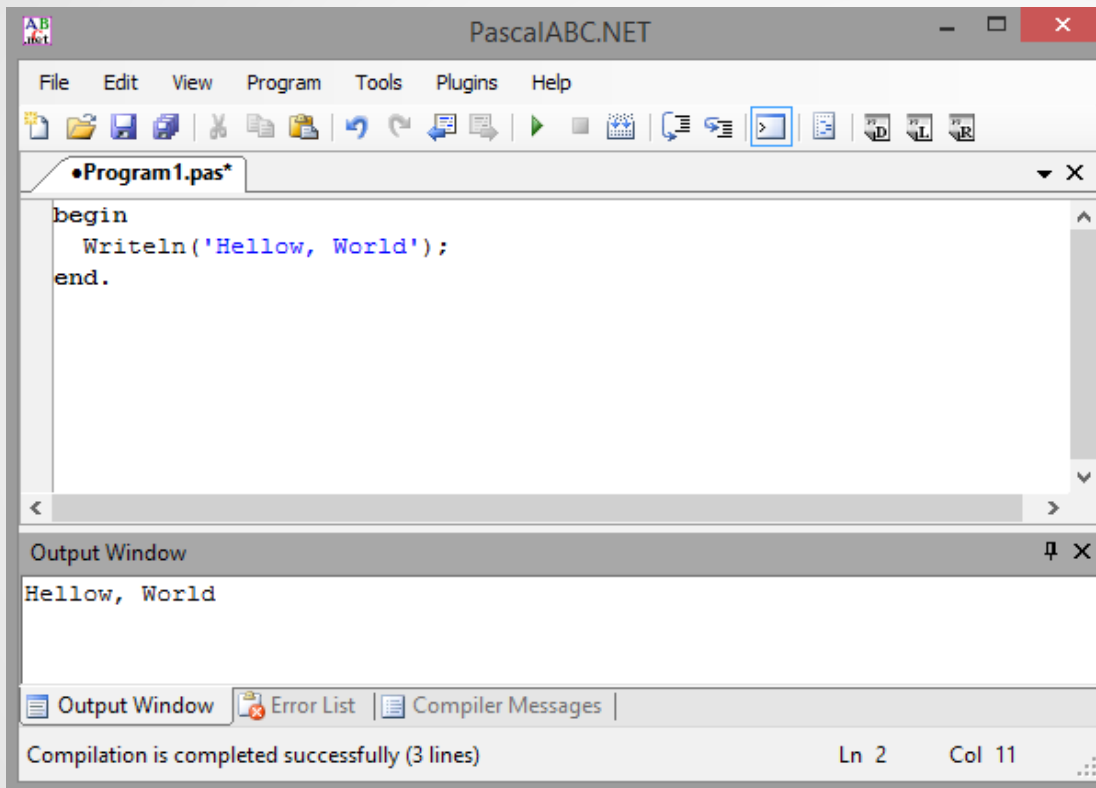
Microsoft Research Computer Vision Contest 2011



# Open Parallelizing System (ops.rsu.ru)

- modern computers are hugely parallel
- how to use this fact in a new software?
  - new programming languages and technologies
  - intellectual compilers from old PLs
- employ many code transformations
- try it online: <http://ops.opsgroup.ru/en/>

# PascalABC.NET: IDE for beginners



- Started in 2002
- Educational purpose PL + Modern GUI (IntelliSense etc.)
- Extended with modern concepts (classes, exceptions, generics, etc. + whole .NET)
- units: Graphics, GUI Form Designer, etc.
- English language in GUI
- <http://pascalabc.net/>

# Programming Taskbook <http://ptaskbook.com/>

The screenshot displays the PascalABC.NET IDE interface. The main window shows a Pascal program named 'Begin4.pas' with the following code:

```
uses PT4;  
  
begin  
  Task('Begin4');  
  
end.
```

Below the code editor, a 'Programming Taskbook [PascalABC.NET]' window is open. It displays the following information:

- Task: Begin4\*
- Student: Ученик
- Results (F2)
- Color (F3)
- Mode (F4)
- Date, time: 21/03 13:39

A blue bar indicates the task status: "Acquaintance with the task; input-output operations were not executed." An "Exit (Esc)" button is visible next to it.

The task description is as follows:

Given the diameter  $d$  of a circle, find the length  $L$  of the circle:  $L = \pi \cdot d$ .  
Use 3.14 for a value of  $\pi$ .

Input data

$d = 9.00$

Example of right solution

$L = 28.26$

- integrated into PascalABC.NET, Microsoft Visual Studio, etc.
- automated testing (shows input, reference output and actual output)
- 1100 learning tasks

# ProgrammingABC.NET: Web Development Environment

ProgrammingABC.Net web development environment (WDE) - Mozilla Firefox

ProgrammingABC.Net web de... +

pascalabc.net/WDE/?file=PT4Templ/Integer3\_en.pas

Google

**WDE** ProgrammingABC.NET  
web development environment

Вы не авторизованы  
Всего посещений: 1145825  
Активных посетителей сегодня: 75

Авторизация

Логин:   
Пароль:

Запомнить меня

Войти

[Забыли пароль?](#)  
[Регистрация](#)

Помощь

[Справка по WDE](#)  
[ЧаВо](#)  
[Справка PascalABC.NET](#)

Управление файлами

```
1 //  
2 // Programming Taskbook (http://ptaskbook.com/)  
3 // Topic: Integers  
4 // Task: Integer3  
5 //  
6 // Press [F9] to run the program  
7 // Use the Read procedure for input data and the Write procedure  
8 //   for output data  
9 //  
10 uses PT4Web;  
11  
12 begin  
13   Task('Integer3_en');  
14   // ----- Insert your solution here -----  
15 end.  
16  
17
```

Задачник PT4

INTEGERS  
Programming language: PascalABC.NET  
Taskbook version: 4.12. Build 05/03/2014  
Task: Integer3<sup>o</sup>  
Date, time: 12/03 03:35

Acquaintance with the task;  
input-output operations were not executed.

A file size is given in bytes. Find the amount of full Kbytes  
of this size (1 K = 1024 bytes). Use the operator of integer division.

Input data

Bytes: 12208

Example of right solution

Full Kbytes: 11

Позиция: Стр 4, Сим

Выполнить

Вывод Ошибки