

## SERGEY SIVKOV

phone: +79028038294  
e-mail: [ssp.mryau@gmail.com](mailto:ssp.mryau@gmail.com)  
skype: s-sivkov

---

### EDUCATION

#### Perm State University, department of Physics

*Master Degree in Electrical Engineering*

Perm, Russia

Sept 1989–Jun

1994

Specializations:

- Computer Science
- Electronics
- Mathematical Logic

---

### RECENT PUBLICATION

- "Residue Number Systems Quantization for Deep Learning Inference" в WSEAS Transactions on Computers: <https://wseas.com/journals/articles.php?id=8866>
- "Advantages of using an external classifier in cow identification"  
[https://agrovest.psaa.ru/wp-content/uploads/2024/12/agraar\\_vest-4-48.pdf.merged.pdf.ctp](https://agrovest.psaa.ru/wp-content/uploads/2024/12/agraar_vest-4-48.pdf.merged.pdf.ctp)  
[107-113](#)
- "Development and testing of information technology for cattle identification"  
<http://www.skotovodstvo.com/razrabotka-i-testirovanie-informacionnoj-tehnologii-dla-identifikacii-krupnogo-rogatogo-skota>

---

### RECENT PATENTS

- № 2788301 dated 01/17/2023 «Method of object recognition in video surveillance system»
- № 14/049482-17 dated 03/28/2025 «Neural network processing of video stream with hardware implementation of inference based on RNS»
- Received notification of readiness to issue a patent for application 202491136 dated 03/17/2025 "Efficient hardware implementation of a tabular-vector inference unit based on a RNS"
- № 050614 dated 07/30/25 «Digital image processing method»

---

### LEGAL EXPERIENCE

#### Metakom-Alpha

Perm, Russia

<https://metakom.tech>

*Senior Engeneer /Python(PyTorch, OpenCV), C++(OpenCV, CUDA, Boost, Sciter)/Feb 2021–*

Designing and developing framework for CV based systems responsible for small and unclear objects (f.e. fire, smoke, birds) recognition as for real time surveillance cameras as for archive videostreams. Modification of the YOLOv4 architecture to instant detect small objects over long distances.

Darknet53 framework improvements to speed up learning on large datasets. Improvements of the tkDNN framework to allow inferencing P6 models. Design and development of neural networks for identifying cattle and their diseases in video streams, selection and adaptation of an expert system. Optimization of neural networks to speed up inference. Creation of a Thrift RPC layer for interaction with the Web-frontend.

**Morion****<https://morion.ru>***Senior Engeneer /OCaml, C, C++/*

Developing host Ocaml based kernel of L2 switch. Developing host ACL, QoS, firewall support for NPU. Developing Menhir based test suite for our messaging system (it based on zmq and protobuf). Developing backend utilities and their Clish command line support. Developing transaction support and optimizer for NPU messaging. Support x86/ARM OCaml cross-compilation build system with partial integration to jenkins.

Perm, Russia

Dec 2016–

**Prognoz****<https://prognoz.com>**

2016

*Expert /C++(COM, ATL, Boost, MFC, Sciter), SQL3, MDX, Apache Axis/*

Designing and developing dynamic dimensions kernel for Prognoz Platform. Developing initial GUI support for dynamic dimensions kernel. Porting server part of Prognoz Platform to Linux.

Perm, Russia

Dec 2012–Dec

**Aspose Pty Ltd****<https://aspose.com>***Programmer/Java, C#, C++/*

2012

Developing and support Aspose.PDF for Java. Developing bitmap to vector converter for embedding PCL fonts as TTF. Developing test server for project 's needs.

Perm, Russia

Feb 2010–Dec

**PSTU, ITAS****<https://pstu.ru/en>***Senior Lecturer*

Developing and teaching following courses:

- Distributed systems and programming (Erlang/Mnesia, MongoDB, Cassandra/ScillaDB, Hadoop/Spark, C++/Boost/ASIO/PION, CUDA);
- Digital design and computer architecture and interfaces (Verilog, CPLD/FPGA, Arduino). Course based on the classic Harrises book “Digital Design and Computer Architecture”;
- Geoinformation systems. Course based on Samet’s book “The Design and Analysis of Spatial Data Structures”;
- Expert systems (course in English for foreign students);
- Application of neural networks in computer vision.

Perm, Russia

Sep 2008–

**Pemskiy Zavod Mashinostroitel****<https://pzmash.ru/>**

2008

*Acting director of the IT department*

Management of in house software development projects. Management of enterprise LAN administrators. Developing of measures to ensure information security.

Developed software:

- accounting worker's computer relating time spending (C++, Perl, Python, Java /WingS Web Framework/)
- translator from XML-based description of a graph of CAD/CAM objects to PLM system over COM interface (F#)

Perm, Russia

May 2005–Jul

**Complex-S***Lead Programmer, Project manager*

2005

Perm, Russia

Apr 2000–May

Designing and implementing software for complex workflow automation:

- I, Paul Koshkin and Nikita Kislookhin have designed and implemented the Information System for Housing and Communal Services of the Perm city (PostgreSQL, Java, Groovy)
- Under the task of the Main Administration of the State Traffic Security Inspection of the Russian Federation I and Paul Koshkin have developed and have put in operation the software for the gathering, the centralized storage and information search for Municipal Department of Internal Affairs and Department of State Traffic Security Inspection of the Perm region. Our software operates on images of moving in a stream of vehicles produced by the PACs "Sova - 2". At the moment the size of a database closes to 300Gb and it is constant accessible to performance of search inquiries from the moment of the first start in June 2001 (Oracle 9i, PL/SQL, C++, Java)

### **KamaTrade**

*System Administrator, Project manager, Director of the IT department*

Perm, Russia

Aug 1998–May

2003

Developing cost-efficient software with "1C", Scheme, Python and Perl under WinNT operating system.

Developing business-critical analytical system (Oracle 8.1.7i, Java, Perl)

### **PharmMedService**

*System Administrator*

Perm, Russia

Jun 1996–Aug

1998

Administering LAN and NNTP/FTN gate. Developing cost-efficient software with C, C++, and Perl under Unix operating system. Administering regional IP/UUCP network MEDNET.

### **AviaDvigatel**

<https://avid.ru/en>

Perm, Russia

Sept 1993–Jun

1996

*Engineer*

Developed industrial and scientific software applications. Worked in a team of 4 programmers on projects using CAD UniGraphics, OpenGL, and Motif. Worked with PVM (Parallel Virtual Mashine).

---

## **SKILLS AND CERTIFICATIONS**

---

- Project management
- Software development for Unix, MS Windows, WM6 and Android operating systems
- Knowledge and experience in the development on following programming languages (and frameworks):
  1. C, C++ (Boost, STL, OTL, CryptoPP, PVM, MPI, Sciter/HTMLLayout, MFC, WxWidgets, OpenGL, OSG)
  2. Java, Clojure, Groovy (JMS, JMX, XOM, Swing, StringTemplate, WingS, Hibernate, JasperReports, JFreeChart, VisAD, ANTLR)
  3. C# (OpenNetCF, ILNumerics)
  4. Perl, Python, PHP
  5. Ocaml (ocamlgraph, ocamlnet, lwt, ocsigen), F# (WebSharper, FParsec), Scheme
  6. Erlang, JoCaml
- Knowledge of the following markup languages: TeX, LaTeX, HTML/XSLT
- Knowledge and experience in the development on HDL SystemVerilog and Verilog (Icarus, Altera Quartus)
- Knowledge and experience in the development for following DBMS:
  1. PostgreSQL

2. Oracle
  3. MySQL
  4. MS SQL/MDX
  5. MongoDB
- Knowledge and experience in the using of following CAD/CAM/CAE systems:
    1. NX
    2. Inventor
    3. ANSYS
  - Knowledge and experience in the using of following project management and project support systems:
    1. Source Control Mamagment: CVS/SVN/Git/TFS
    2. Issue tracker: Trac/Gemini/Jira/TFS
    3. Distributed build management: TeamCity
  - Knowledge and experience in the using of following mathematical and statistical systems:
    1. GP/PARI
    2. R
  - Foreign languages knowledge:
    1. English (advanced level)
    2. Spanish (beginner level)
  - Certified by Yandex:
    1. ML/CV YY
  - Certified by DeepSchool
    1. 3D Computer Vision
  - Certified by PSTU
    1. Development of intelligent software agents
  - Certified by Intuit.RU:
    1. Design of information systems
  - Certified by TekMetrics/BrainBench:
    1. Master Perl Programmer
    2. Master UNIX Programmer
    3. Master PL/SQL Programmer
    4. Master Java2 Programmer
  - Completed Coursera courses:
    1. Computing for Data Analysis - 99.0% with Distinction
    2. Programming Languages - 92.3%
    3. Data Analysis - 77.2%
    4. Cryptography I - 83.3% with Distinction
    5. Programming Mobile Applications for Android Handheld Systems - 100.0% with Distinction
    6. Machine Learning - 100.0%
    7. Heterogeneous Parallel Programming - 100.0% with Distinction