

# Nikolai V. Shokhirev

## Skills Matrix

( With various levels of proficiency: **1- Excellent** (> 5 years); **2- Good** (3 - 5 years); **3-Moderate** (< 3 years ) ,  
Total > 15 years)

### Information technologies

- Platforms, Servers
  1. **Windows: 9x, NT, 2000, 2003, XP - 7, Net 1.1 - 4.0**
  2. Unix/Linux, Apache (1.x, 2.x), IIS 4-6
  3. Embedded XP, Mono, Java
- Computer Languages (Object-oriented, Procedural, Scripting):
  1. **Delphi (v.3 to 7, 2006 - XE, .Net), C# (1.1 - 4.0) , Pascal, Fortran (v. 4 to 77, 95)**
  2. C++ (no MFC) , VB.Net (1.1, 2.0), PHP (v. 4, 5), JavaScript , VBScript
  3. Java, C, VB6, Perl, Ruby, Python
- Programming tools
  1. **Delphi (v.3 to 7, 2006 - XE. .Net), MS VS (v 6, 2003 - 2010)**
  2. C++Builder (v.5, 6, 2007, XE)
  3. Kylix (v. 2, 3), JBuilder, Eclipse, DevC++, KDevelop, Lazarus
- Databases
  1. **MS SQL Server 7/2000 - 2008, Interbase/Firebird, SQL**
  2. ADO.Net, MySQL 4/5, SQLite 2/3
  3. Oracle 8/9/10/11, DB2, Paradox, Access
- Programming techniques
  1. **GUI, Unit testing, HTML, XML, XSL, VCL, Web Services**
  2. ASP.Net, Multi-threading, COM/ActiveX, IPC, Sockets (TCP/IP), CSS, DHTML
  3. Web forms, Qt, wxWidgets, Tk, UML, AJAX
- Application Software Engineering - Software development life-cycle
  1. **Code/Bug management: Star Team**
  2. Code management: Source Safe & Vault
  3. Code/Bug management: FogBugz, SVN, Mercurial

### Numerical methods, Algorithms

- Data analysis and processing
  1. **Signal processing (DSP), Interpolation, Extrapolation, Filtering, Prediction, Time series, Statistical analysis, PCA, SVD, Fourier analysis.**
  2. Incorrect inverse problems, Analysis of accuracy and resolution and the domain of reliable reconstruction.
  3. Wavelet analysis, Pattern recognition, Hidden Markov Models, Dynamic programming, Neural networks, Cryptography, Data mining.
- Analytical, modeling tools
  1. **Mathematica 4/5.**
  2. MatLab (v. 5 to 7).
  3. R.
- Simulation and modeling
  1. **Dynamic and Stochastic modeling, Differential Equations (ODE, PDE), Integral equations, Monte Carlo.**

- Optimization
  1. **Quasi-Newton (Variable metric), Conjugate gradient (Fletcher-Powell), Fitting (Levenberg-Marquardt).**
  2. Genetic and Evolutionary algorithms, Differential Evolution.

## Science, Research, Engineering, Teaching

- Mathematics
  1. **Linear algebra, Calculus, Differential equations (ODE, PDE), Probability theory, Integral equations.**
  2. Green's function method, Integral equations, Statistics, Stochastic differential equations.
- Physics, Chemistry
  1. **Quantum mechanics, Spectroscopy (Optical, NMR, EPR), Quantum/Computational chemistry, Cheminformatics/Bioinformatics.**
  2. X-Ray scattering, Diffraction, Statistics, Kinetics, Spin chemistry (CIDNP, CIDEP).
  3. Solid-state physics, Aerosol science, Thermodynamics.
- Quantitative research and development
  3. Financial engineering, Statistics, Stochastic algorithms, Data analysis, transformation and processing, Performance valuation, Pricing and Statistical algorithms, Time-zone synchronization.
- TRIZ - Theory of inventive problem solving
  2. Directed evolution of technical systems, Anticipatory failure determination, Brainstorming facilitation.
- Teaching
  2. **Quantum chemistry, Spectroscopy (NSU)**
  3. Numerical methods, Algorithms ([Inst. Kinetics](#)).
  4. See also my online [ABC Tutorials](http://www.shokhirev.com/nikolai/abc/ABCtut.html) (<http://www.shokhirev.com/nikolai/abc/ABCtut.html>).