

# Resume

First name: **DANKO**  
Last name: **PRIIMAK**  
Education: BS in EE  
Address: Almaty, Kazakhstan  
E-mail: [www.inventrace.com/contact.html](http://www.inventrace.com/contact.html)  
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- 35+ years of experience in new product development, including design and manufacturing of electronic and mechanical products and systems. Specific research and development activities in analog and digital electronics, industrial electronics, manufacturing processes. Team leader in root-cause analysis activities across a number of different fields and industries.
- Development, fabrication and installation of electronic systems, devices, modules, development of new techniques, programming, web design.
- R&D in: Analog & digital electronics, industrial electronics, manufacturing processes.
- Unusual thinking and encyclopedic knowledge, as a result - position of generator of ideas..
- High motivation / initiative/ creativity in problem solving; ability to devise viable technical solutions.
- Highly innovative in creating competitive electronic and mechanical devices.
- Proficiency, achieved in the result of continuous self-education.
- High ability for work and advanced sense of responsibility for results and project deadlines.
- Computer proficiency.
- Troubleshooting ability.

## Publications:

- 27 scientific and technical articles.
- Author of invention "Priimak's amplifier for microphone", Certificate of Inventor, USSR N 1176456, 1985.
  - Patent of Kazakhstan # 33050 "Autonomic Liquid Purification System", 2000.
  - US Provisional Patent Application "Adjustable Lighting Device", 2001
  - US Patent Application "Reverse Ignition Cartridge", pending. Publication No. US-2002-0195017-A1, Publication Date 12/26/2002.
  - US Patent "Surface Mount Testing System". Publication No. US 7839157 B2  
Publication Date 11/ 23/2010

## References:

### **Craig Hillman**

DfR Solutions, CEO and Managing Partner

Phone Number: (301) 474-0607      5110 Roanoke Place, Suite 101 College Park, MD 20740

### **Nathan Blattau**

DfR Solutions, Vice President

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### **George W. Grantham**

Reddline Systems, Inc., Director of Hardware Engineering

Phone Number: (603) 626-0500      Manchester, NH

### **Fred Nasser**

Reddline Systems, Inc., Director of Sales & Repair

Phone Number: (603) 626-0500      Manchester, NH

## Professional activity:

11/2007 – Al-Farabi Kazakh National University,  
up to Institute for Combustion Problems  
present 172 Bogenbay Batyr St., Almaty, Kazakhstan  
Nano-Carbon Materials Laboratory,  
Combustion Problems Laboratory

### **Lead Specialist**

#### Research & Development:

1. Automation of research experiments.
2. Investigation of nanoparticle structure in voltaic arc and development of new effective methods of

nanoparticles synthesis.

3. Investigation of acoustic vibration on combustion of rocket fuel.

4. Design and fabrication of high frequency heating device for melting and vaporization of metals.

5. Design and fabrication of hardware/software system for investigating interactions of flame with acoustic oscillations. Writing computer program (LabView ) to control amplitude and frequency of acoustic oscillator in time with synchronous recording parameters of acoustic field with microsecond resolution.

6. Study of electrical conductivity of the cold flame in local areas of its volume. Design of dynamic probe for isolating local mini-current on the background of significant bulk current. Development and fabrication of front amplifier of super low currents.

7. Writing computer program, visualizing temperature surface profile of object by its colored photo- or video- digital image.

8. Design of control blocks for thyristors, triacs, brush and stepper motors, LEDs etc.

Experimental work performed:

- developed, manufactured and implemented a combination of electronic blocks of automatic device control;

- developed software for high speed pre-processing of the data blocks of unlimited size with simultaneous application of mathematical filters to reduce the amount of information output to a level suitable for further processing in Excel and Origin.

- developed software for computer control of physical parameters in experimental installations;

- developed method of generation of low current voltaic arc in gaseous and liquid media;

- designed and manufactured experimental device for nanoparticles generation in low-current arc;

- synthesized nanoparticles of several metals and their oxides (including encased nanoparticles) using experimental device developed;

- designed, developed and produced experimental device for generating rocket fuel flame in acoustic self-vibration mode;

- designed and manufactured photometric intensity detector of energy release by flame, with microsecond resolution;

- developed and implemented method of visualization of periodic processes by conventional still camera instead of using ultra-fast camera recording (shooting).

06/2005 – DfR Solutions, 5110 Roanoke Place, Suite 101 College Park, MD 20740  
03/2007 04/2006

**Director, New Product Development**

1. NPD department management.

2. Consulting in:

- electronic devices for failure analysis;

- schematics functioning;

- power devices behavior including IGBT, FET, Triac;

- complex (thermal + mechanical + electrochemical) processes in aluminium electrolytic capacitors;

- thermal devices behavior.

3. Sole and only works at this position:

- developed schematics and design for unique device for electrolytic capacitor ripple current group testing  
\_problem solving: high (>1 MHz) frequency of ripple current, high (>100 A in summary) value of ripple current;

- developed schematics and design for unique device for capacitor pulse discharge group testing  
\_problem solving: high (>2000 A in summary) value of pulse current;

- controller for thermal cycling device: 200 degree Celsius per minute performance, ~ 10ms time response, up to 0.001 degree Celsius accuracy; works included:

\_design of schematics of multichannel digital controlled PWM regulator for heater, by using heater as a temperature sensor

\_design of USB opto-isolated module

\_writing program for interface 'computer – controller', Visual Basic

\_design of printed circuit board ready for mass production

\_fabrication of the controller

\_writing complete end-user software package.

06/2005

DfR Solutions, 5110 Roanoke Place, Suite 101 College Park, MD 20740

**Senior Member, Technical Staff**

Regular work was performed on failure analysis in electronic and mechanical parts in contract research projects.

Developed new electronic schematics of:

- Surge protector for input circuit of data acquisition devices;
- Data multiplexer /reed switches selector/optoisolated parallel computer port interface;
- High sensitivity, low noise, ESD protected latch arrays with group adjustable threshold;
- Multi-channel, computer controlled, fast response (~10ms) precision temperature controller.

Suggested methods of:

- testing of protective circuit in manufactured electronic product;
- spectroscopic detection of lost of electron emission substrate in high pressure, short arc xenon lamps;
- spectral analysis of electrical signal for detection corona discharge in small closed volumes.

Responsible for product development:

- Step Stress Surge Tester – Turnkey solution for qualifying tantalum and polymeric capacitors;
- Accelerated Tester – Monitoring and feedback temperature control for power cycling of SMT;
- SIR Tester – Development of periodic and continuous monitoring system of high resistance test coupons.

Special work performed included:

- measurement of integral heat conductance along the length (end-to-end) of long thin samples of composite materials:
  - \_development of new technique of measurements, allowing automatically compensate influence of heat losses, which value exceeded many times the heat flow to be measured
  - \_development and fabrication of new measuring device, allowing special (required by protocol) distribution of heat flows
  - \_design of PSpice model of measuring device
  - \_performing a series of measurements and calculations of heat conductance values with high accuracy;
- schematic design and fabrication of the device for oscilloscope monitoring, measurement of critical voltage and estimation of intensity of partial discharges in capacitors, based on my invention “Primak's amplifier for microphone”;
- measurement of comparative contact electrical conductance of metal powders:
  - \_development of new technique of measurements, providing high reproducibility of the results
  - \_design and fabrication of experimental measuring device
  - \_performing measurements.

10/2003 -  
02/2005

Reddline Systems, Inc., Manchester NH (now – Reddwerks Corporation, Austin, TX)

**Research Engineer**

Types of work being performed:

- Research in wireless feeding (powering + communications) to electronic devices. Design and fabrication of pilot model of wireless system , that produce low energy losses, high transmission coefficient and deep separation of energetic and information streams. Design voltage controller + power switch + automated charger for alternative (emergency) power feeding, using sealed lead-acid batteries.
- Engineering analysis of electronic assemblies, subject to repair, reconstruction of incoming controlling signals. Writing of computer programs, that imitate controlling devices. Design and fabrication of interface electronic modules to provide connection between computer ports and devices that are being repaired.
- Design and fabrication of machine with high frequency heating of cutting tool for shaped cutting of thermoreactive plastics. Design and fabrication of cutting instrument, high frequency heating unit, hand band-lever drive. Processing of series lots of items made on this machine.
- Design and fabrication of interface stand with contact system for PCB microprocessor programming.
- Research of heat distribution dynamics in thermoreactive plastics at local heating conditions. Development of technique for creating narrow heated zone with sharp boundaries in plastics. Design and fabrication of device with ultra-thin infra-red emitter, excited by controllable high frequency current, for zone-heating of plastics. Design and fabrication of tool for bending plastic for a certain angle. Development of technique of bending plastic items without time losses on heating of blanks. Fabrication of series of items using the tools made.
- Design and fabrication of appliances for processing parts on milling machine. Fabrication of series of items on milling machine using appliances made.
- Troubleshooting and repair of electronic devices, performing precision mechanical work.

- 01/2002 - **Web Designer (volunteer)**  
08/2003 Creating new design for web site of Town of Milford, NH (HTML, FrontPage, DreamWeaver, EditPlus2, Photoshop, Fireworks) : ([www.ci.milford.nh.us](http://www.ci.milford.nh.us))  
[2003 NH Internet Award](#) for the Best NH's municipal site – March 2003.
- 01/2001 - **Work and study at home**  
12/2001 1) Work at home on patent applications:  
Reverse Ignition Cartridge (Utility Patent Application, US) - pending;  
Water Purification System (#33050, Kazakhstan, 2002);  
Adjustable Lighting Device (Provisional Patent Application, US);  
2) Self-education in programming, web design (HTML, C++, JAVA);  
3) English Courses at Adult Learning Center, Nashua NH 01/2001 – 2003
- 11/1996 - **Self-employment – contractor**  
11/2000 Design, fabrication / testing of the following devices/appliances:  
1) High Precision Electronic Temperature Regulator (0.001 degree) with smooth temperature change, based on my new (not patented yet) schematics, with no operational amplifiers;  
2) Universal Office/Home Security System, powered by Phone line current, with automatic dial-up of phone number and transmitting alarm message in different emergency cases, able to inform the owner via phone about appliances left turned on;  
3) A series of electronic light switches increasing life-time of incandescent bulbs up to 15-20 years:  
- switch for automatic short-term turning on lights on stairs;  
- switch for automatic switching lights (on and off) in bathrooms, closets, mini-storages;  
- sensor-switch for office lighting;  
4) Alarm device, attached to the phone line and producing alarm signal in case of any type of unauthorized intrusion (tapping), including eavesdropping along the phone line;  
5) A series of high sensitivity eavesdropping (watching-out) devices for private detective agencies with amplified automatic level control, high sensitivity to low signals and no sound defects for loud signals as well, based on my unique electronic circuits:  
- miniature radio-microphone (1 mile range), wireless device for reception of voice data from phone wires and their transmission to sensible receiver;  
- undetectable long-life eavesdropping device with accumulator (rechargeable from solar battery) with beam-transmission of information in optical range;  
6) Magnetic field sensor for automatic lines (based on Hall Effect) with sensitivity up to 1 foot (standard sensitivity – 1 inch);  
7) Simple and Efficient Transducer (single-phase to three-phase voltage) – power supply for three-phase electromotors.  
And a dozen more others...
- 05/1994 - "IRTYSH-RELCOM, Ltd",  
11/1996 **Chief Engineer**  
(INTERNET provider in PAVLODAR – city with 300,000 population).  
6 employees under my supervision: System Analyst (Linux), Programmer (C, C++, FoxPro, Java), Hardware Engineer, Electrical Technician (telephones), 2 operators:  
- Design, maintenance and current updating of Network System (500 customers), including mail server, Web-server, Data server (FoxPro), group modem (16 units), dedicated channels;  
- System administration and maintenance of customers' computers and modems, customers' software upgrading and maintenance;  
My own developments/designs for this employer:  
- new module of associative search, with accelerated (100-1000 times faster) info search (FoxPro programming);  
- remote control device for converting group modem to initial point (state) via phone line;  
- device for adapting foreign modems in phone lines of Russian standards;  
- Modem Test & Control Stand, with simulator of telephone lines;  
- UPS (uninterrupted power supply) for Network equipment.
- 01/1993 - **Contractor**  
05/1994 Design and Development of:  
- electronic circuit and design of electronic microphone for phones;

- electronic scheme for loud-speaking phone;
- device "artificial mouth" for testing electronic microphones;
- linear amplifier for telefaxes;
- electronic temperature regulator for electric appliances (coffee-pot, etc.);
- graphics editor "REPIC" (program).

04/1991 "VISM" Corporation

01/1993 **Process Engineer**

(supervised 5 to 15 contractors / part time employees)

Development and design of consumer electronics appliances by order of Slavgorod Plant of Radio Components:

- Rechargeable Device for Nickel-Cadmium and Lead-Acid Batteries with automatic pre-discharging and subsequent accelerated recharging (with constant voltage on every cell during the whole cycle);
- Designed Electronic Generator and High Intensity Acoustic Generator based on small-sized piezoelectric ceramics plate;
- Developed design, fabrication technology and testing method of electronic bell (for home use);
- Developed pressure casting dies for plastic body of electronic bell;
- Developed method of protecting electronic equipment from spontaneous combustion and protection device on this basis.

02/1990 – Venture "NEMO"

03/1991 **Electronics Engineer**

Organization of production of consumer goods based on the author's developments and technical solutions:

- Device for sealing plastic films with electronic control unit;
- Developer for black / white negative films;
- Cutting machine for glass sheets;
- Light-synchronizer for camera flashes ;
- Electronic Temperature Regulator for Solderer;
- Fretworks and furniture accessories, simulating wood engraving, made from production waste (no hardwood, just wood flour).

01/1986 – Pavlodar Tractor Factory(PTZ)

02/1990 **Electrician, 6 category -> Electrical Design Engineer:**

- Designed sealing machine for polyethylene (plastic) films;
- Developed ready to use, superfine-granular smooth developers for black/white negative films;
- Designed electronic light-synchronizer for camera flash-lamps;
- Developed technology and fabricated electronic-mechanical Automatic Test Stand for electromotors (AC & DC);
- R&D on chip formation processes under vibrational deep drilling of metal;
- R&D on structural stability of metal cold press-out matrixes at high pressures.

09/1982 – Pavlodar Palace of Pioneers

12/1985 **Instructor in Electronics/Cybernetics:**

Some developments were awarded prizes at different exhibitions.

Pavlodar Automobile Association

**Electrician, 5 category:**

- Designed Induction Dispatcher Communication System, for monitoring and correcting bus traffic;
- Designed Test System for automatic search of defects (faults) in automobile voltage regulators;
- Designed Automobile Electronic Voltage Regulator with high reliability level.

Assembly & Launching Association "Kazspetsavtomatika"

**Senior Engineer, Head of Design & Development Bureau:**

- Designed Loud-speaking Communication System (for industrial use / 10, 20 and 30 persons);
- Designed Quick-acting "Watch-dog" for protecting power supply units from short circuits.

Pavlodar Design Institute for Automatic Control Systems (PKIASU)

**Electronic Engineer -> Senior Electronic Engineer**

Design and Development of:

- communication system for production executives;
- system of coding and loud-speaking communication "director - secretary";
- electronic system "Plan - Fact" for check-up and ergonomic control of processes on assembly line for tractors.

Pavlodar Tractor Factory (PTZ):

**Electrician 4 category:**

Pavlodar Design & Technological Institute for Automation of Assembly Works in Machine Building (PKTIAM): Design Technician, Electrician, Senior Electric Engineer.

- design of optical system and electronic block for photo-relay with counter-rays, for monitoring of small-size products on assembly line;
- R&D in product transference in vibrobunkers, design of thyristor block for generating optimum vibrations in vibrobunkers.

Studies at the College of Electrical and Mechanical Engineering

Pavlodar city, Kazakhstan.