Alexei Ioudovski

Alexei Ioudovski has over 30 years of experience in Electro-Optics, Imaging and Video Systems, and Software development. Prior to establishing Vega Imaging Technologies in 2003 as a technology consultancy company, he worked as a VP, Product Development with Noble Vision Robotics Corporation. Alexei spent 7 years with Semiconductor Insights and Symagery Microsystems as a Manager, Software Development and Optical Engineering, and as a Project Leader, Optical Quality Inspection Systems with PressTech Controls Ltd. Prior to his industrial experience Alexei was involved in scientific research in Remote Sensing and published 11 papers on computer simulation of video and imaging systems.

Since 2004 Alexei has consulted in the Intellectual Property field, providing technical support for licensing, technology and patent evaluation, and reverse engineering.

PROFESSIONAL EXPERIENCE

05/2003 – present **President, Vega Imaging Technologies Inc. (Ottawa, Ontario, Canada)**

Planning and directing all aspects of the company's business activities and performing consultancy services. Vega Imaging Technologies offers consulting services in the Intellectual Property areas by supporting licensing, performing technology and patent evaluation services, reverse engineering and report preparation. Vega Imaging Technologies assists customers in need to perform technical due diligence by an independent consultancy, and OEM's seeking to utilize or improve their products.

Successfully assisted clients in licensing campaigns in the following technology areas:

- Video and Image Compression standards: JPEG, MPEG-2, MPEG-4 (part 2 and Part 10/H.264/AVC), H.265, VC-1, V8
- Consumer products: Video and Imaging Systems (cameras, phones, tablets, PC)
- Digital TV systems (STB, HD TV), standards: ATSC and DVB
- Multimedia content delivery standards (MPEG-DASH, 3GP-DASH) and systems: IPTV, Video on Demand, Content Delivery Networks, Multimedia servers
- 2D/3D graphics: standards (OpenGL, DirectX, OpenCL, etc.), and implementation in software and in hardware (GPU) in mobile devices and computers
- Video and image acquisition and pre- and post-processing techniques
- Developed test applications and test data for functional tests and for producing evidence of use of video and imaging technologies
- Software and firmware reverse engineering – consumer products

01/2004 – 12/2004 **Vice President, Product Development**
Noble Vision Robotics Corp. (Ottawa, Ontario, Canada)

Planned and directed all aspects of the company's product development policy and objectives for robotic systems and machine vision modules. Researched products enhancements and product redesign.
Evaluated the potential and practicality of products in development. Developed software architecture, programming, and integrating imaging systems and control systems. Prepared product specifications, project plans and development schedules.

05/2002 – 06/2003 **Project Manager, Imaging Technologies**
Impuls computergestützte Bildanalyse GmbH (Munich, Germany)

Lead all aspects of Image Processing software development for Auto-Identification and Industrial Quality Inspection Systems: Specifications, Architecture, Customer requirements analysis, Programming.
Developed image processing modules for decoding bar codes and 2D symbols for Matrix Vision GmbH**.**
Ported image processing software from MS Windows to a smart camera running Embedded Linux. Data Matrix reader was successfully demonstrated at VISION 2002 in Stuttgart, and was included in the new release of Image Processing Software Development Kit (mvIMPACT™) by **Matrix Vision GmbH.**

10/2001 – 04/2002 **Project Leader, Print Quality Inspection Systems**
PressTech Controls Ltd. (Hemel Hempstead, Hertfordshire, UK)

Lead a multi-disciplinary team (Software, Electronics, Optics, and Mechanics) in the development of a Web Inspection System (Color Print Quality Control). Accomplishments:

- Prepared short- and long-term cost reduction plans (cameras, mechanical components, industrial PCs)
- Drafted a patent application with a detailed description of the inspection system.
- Completed feasibility studies for a variation product for narrow web applications.
- Debugged and optimized a Dynamic Link Library interface between image acquisition and processing boards (MaxPCI, Datacube) and an NT service that handles COM and DCOM objects (C/C++).
- Performed evaluation of many lighting techniques to optimize image acquisition using DALSA digital color line-scan cameras.

06/1994 – 09/2001 **Manager, Software Development and Optical Engineering**
Symagery Microsystems, Inc. (Kanata, Ontario, Canada)

Managed and lead Software Development Team in development of several embedded (StrongARM, Windows CE) and PC based Machine Vision applications: Evaluation Systems for a CMOS imaging sensor, and a 1- and 2-Dimensional imaging barcode and symbology reader (a miniaturized hand-held device). Accomplishments:

- Built a multi-disciplinary Software Development Team: PC applications, embedded software, image processing, data encoding/decoding
- Developed an interface between a CMOS Imager Evaluation System and a framegrabber (Viper Digital, Coreco) using Coreco's API and image acquisition libraries (C/C++)
- Debugged and tested GUI to control the CMOS imager registers through serial port (RS-232) and real-time image display (MFC, ActiveX controls, multi-threaded application)
- Coordinated specifications and developments between integrated circuit, module development, optics and software groups
- Established schedules, project plans and performed employee performance and salary reviews

Lead Opto-mechanical design of miniature imaging components for barcode and 2D symbol readers (objective lenses, illumination modules, optical targeting components, and housing). Accomplishments:

- Performed feasibility studies, selected design service providers, and prepared Statements of Work and Design Services Agreements
- Supervised the design of prototypes and re-design for medium to high volume production
- Performed verification of optical components
- Performed verification and characterization of CMOS sensors (sensitivity, noise level, FPN, PRNU, resolution, etc.) and optical components (objective lenses, illumination, and targeting systems).

06/1994 – 05/1999 **Manager, Software Development**
Semiconductor Insights, Inc. (Kanata, Ontario, Canada)

Lead the design of a system for automated design analysis of integrated circuits based on the analysis of multiple image data from SEM (Scanning Electron Microscope). Accomplishments:

- Lead a multi-disciplinary team: chemical processing (de-layering) of integrated circuits; software development: automated control software for an SEM (Scanning Electron Microscope); GUI development; image processing, layout and schematics data analysis and format conversion
- Developed algorithms and software modules for: Processing of images of integrated circuits Combining images to form layers (image stitching) Pattern recognition, feature extraction (IC layout)
- Extraction of schematics from transistor level database Recognition and extraction of standard and
- non-standard CMOS logic gates; methods to store and display extracted vector data in industry standard layout formats (e.g. GDSII format) Spatial data analysis (IC layout), and for optimized partitioning of schematics (CMOS logic gates).
- Participated in architecture design, system integration, maintenance, and support
- Prepared patent application for the system and for a Gate Extractor – a unique method to extract hierarchical CMOS logic gates from a transistor level database (sole inventor)
- Project was awarded by SCOAP (Society of Canadian Office Automation Professionals) in 1998

09/1993 – 06/1994 **Programmer (Consultant)**
Canadian Hydrographic Service (Ottawa, Ontario, Canada)
Accomplishments:
Re-designed and improved a GIS (Geographic Information System) for ocean mapping and production of navigation charts. Re-designed and optimized source code (FORTRAN and C) on SPARC workstations, ported source code for handling topographical data files from VAX/VMS to SPARC workstations (Solaris).

07/1982 – 05/1993 **Software/Systems Engineer, Research Fellow**
Satellite Data Research Centre (Moscow, Russia)

Accomplishments:

- Designed the Geographic Information System for the sea surface temperature mapping using data from NOAA series of satellites in Visible, Infra-Red and UHF ranges: noise reduction, pattern recognition and sea surface parameter retrieval (surface colour, temperature and wind speed)
- Developed an algorithm for interpretation of data obtained from space-borne SLIR (Side-Looking Imaging Radar and SAR (satellites: SEASAT, RADARSAT, METEOR)
- Designed algorithms and software for computer synthesis of signals and images with the specified statistical parameters, and for statistical analysis of remotely sensed data (2D/3D scenes)
- Developed algorithms and software for computer simulation of active (laser) and passive (visible, IR) imaging systems. Designed software for computer simulation of Electro-optical guidance systems.

EDUCATION

Master's Degree in Applied Sciences (Optics, Electro-optical Engineering) – Moscow University of Geodesy and Cartography, 1977-1983

PROFESSIONAL AFFILIATIONS

Member of Institute of Electrical and Electronics Engineers (I.E.E.E.) since 1997
Member of Association for Computing Machinery (ACM) since 2005
Member of Licensing Executives Society (LES, Canada and US) in 2007-2011

PATENTS

US patents (with co-authors):
5,694,481 "Automated Design Analysis System for Generation of Integrated Circuit Schematics" (1997)
6,236,746 "Method to Extract Circuit Information" (2001)
8,107,718 "Method, System, and Apparatus for Use In Locating A Structure In An Integrated Circuit" (2012)

Canadian patent (with co-authors):
CA 2216900 "Method to Extract Circuit Information" (2001)

Two Canadian and one US patent (sole inventor) applications are in process.