

Atmospheric Chemistry Division
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Boris V Khattatov

Summary

Applications of optimal control, estimation, and inverse theory to large-scale nonlinear problems in numerical modeling and data analysis. Experience in linear algebra, vector analysis, differential equations, theory of complex variables, statistics, optimal control, variational analysis, neural computing, optimization, genetic algorithms. Background in theoretical mechanics, hydrodynamics, quantum mechanics, electrodynamics, statistical physics, solid-state physics, optics, molecular and chemical physics. Satellite data analysis, chemistry and dynamics, radiation transfer, remote sensing. Web design, scientific visualization, preparation and delivery of publications, presentations, and grant proposals.

Programming languages and applications: Java, C++, C, Matlab, IDL, Fortran-90, Pascal, unix shells, perl, awk, Dreamweaver, Fireworks, Flash, Illustrator, Photoshop.

Operating systems: Linux, AIX, UNICOS, Tru64 Unix, Solaris, IRIX, Windows 98/NT/2000, OpenVMS, MacOS.

System and network administration: Compaq Alphas (Tru64 Unix and OpenVMS), IBM RS/6000, SGI, Intel/Microsoft, Intel/Linux, VAX/VMS, X-terminals, printers and peripherals, LANs, Ethernet, LAT, TCP/IP.

Education

1991 - 1995 State University of New York, Stony Brook, New York.

PhD, Atmospheric Sciences

1985 - 1991 Moscow Institute of Physics and Technology, Moscow, Russia.

Engineer-Physicist, Chemical Physics

Experience

1996 - present National Center for Atmospheric Research, Boulder, Colorado

Scientist

- Development and application of inverse and estimation theory methods to atmospheric sciences. Implementation of Kalman filtering, optimal control principles, and other data assimilation techniques to modeling and satellite data analysis.
- Software development for numerical modeling of atmospheric photochemistry and dynamics, visualization, and satellite data processing.
- Web design.
- Management of IBM, SGI, and Intel/Windows computer systems.
- Preparations of grant proposals, presentations, and publications.

1994 - 1996 Marine Sciences Research Center, State University of New York, Stony Brook, New York

System Administrator

- Management of Compaq Alpha Unix workstations and several OpenVMS VAX/AXP clusters, VAX 6510 and 6310, storage arrays, VAXstations 3100, DEC 3000-400 AXP, VXT 2000 X-terminals, MicroVax, optical storage systems, printers, and various peripheral devices.

- Local area network management (TCP/IP, Ethernet, LAT, DECnet).
- Software and hardware installation, maintenance, network management, backups, and assisting users.

1991 - 1995 Marine Sciences Research Center, State University of New York, Stony Brook, New York

Research Assistant

- Satellite data processing and analysis.
- Software development and scientific visualization for numerical modeling and data analysis.
- Preparations of grant proposals, presentations, and publications.

1989 - 1991 Moscow Institute of Chemical Physics, Moscow, Russia

Research Associate

- Computations of CFC ozone depletion potentials for chemical industry.
- Numerical modeling.
- Design, development, and operation of resonant fluorescence spectrophotometer.
- System management of 12 Intel/Windows computer systems and peripherals.
- Preparation of reports, publications, presentations and visualization of the research results.

Publications

Authored and co-authored a number of peer-reviewed publications in leading journals, books, research reports, and conference presentations

References

Prof. Marvin Geller, Director and Dean, Institute for Terrestrial and Planetary Atmospheres, Marine Sciences Research Center, State University of New York at Stony Brook, Stony Brook, New York.

Dr. Richard Rood, Head of the NASA's Data Assimilation Office, Goddard Space Flight Center, Greenbelt, Maryland.

Dr. Guy Brasseur, Director, Max Plank Meteorological Institute, Hamburg, Germany.

Dr. Hennie Kelder, Group Leader, Royal Dutch Meteorological Institute, De Bilt, The Netherlands.