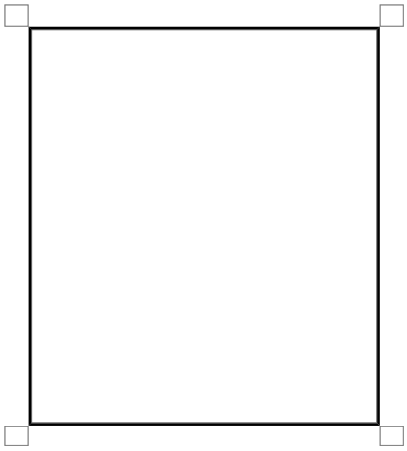

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Education

- M.Appl.Math., Moscow State University, Faculty of Computational Mathematics and Cybernetics, Moscow
- Diploma in English Language, Moscow Institute of Foreign Languages, Moscow
- Ph.D. in Applied Mathematics, Computer Center of the Russian Academy of Science, Russia

Academic Awards

- The Outstanding Research Award, 2006, Thammasat University
- The Very Good Research Award, 2007, Thammasat University
- The Very Good Research Award, 2009, Thammasat University

Research Areas

Robotics, Image processing, Pattern Recognition, Grid generation.

Research Interests

Software for Optimization of the Tool-Path of Industrial Milling Robots

Innovations in the field of mechanical engineering have enhanced the involvement of milling robots in various manufacturing processes. Nowadays, computer guided milling machines are employed to produce free-shape

surfaces in mass manufacturing industries such as automobile, airplane, ship-building, etc. However, several physical phenomena, such as machine kinematics, thermal effects, static and dynamic loading, and common-cause failures often affect the quality of the desired surface. Although recent research papers have displayed a number ofadvanced methods to improve the characteristics of machining, a robust algorithm to generate the optimal tool-pathfor geometrically complex workpieces is still an open problem.

Image/Signal Reconstruction

Image processing and restoration has revolutionized the fields of medicine, space exploration, geology, andoceanography. A fundamental issue of image restoration is identification of the distortion in the presence ofobservation noise. However, it is well known that small variations of the initial data could lead to solutions far from acorrect one. Moreover, the performance of the identification procedures critically depends on the assumptions regarding the size and the shape of the distortion. Therefore, an efficient procedure should be smart enough toperform an appropriate regularization and to recognize the size and the pattern of the distortion. These features areparticularly important in the case of multi band wavelet based schemes since the procedure can not be decomposedwith regard to filtered components of the image. The up-to-date Literature on Image Processing clearly indicates theneed for further research.

Grid Generation Technologies

Grid generation techniques emerged as a sub-discipline of Computational Fluid Dynamics in the early seventies. Nowadays grid generators are among the major components employed by versatile codes in Geometrical Modeling, Computer Graphics, CAD/CAM, Structural Analysis, Aerodynamics and Computational Fluid Dynamics. However, inspite of considerable efforts and a long time spent on curvilinear and moving grid generation, the theoretical principles have not been yet established. Grid generation today is still much more of an art than a science. Since many different approaches exist and are being used, creative craftsmen are needed to operate the various packages. Therefore, from an industrial point of view, issues surrounding efficient implementation, interactive, graphical user interface, visualization and software engineering in grid generation are of paramount importance.

Theses Supervised

Master Thesis Supervised

2008: Yoichi Nakaguru. Simultaneous Localization and Mapping with Shi-Tomashi Point Features.

Doctoral Theses Supervised

2005: Annupan Rodtook. Adaptive Noise Removal and Wavelet Moments for 2D Pattern Recognition.

2006: Weerachai Anotaipaiboon. New Algorithms for Tool Path Generation and Optimization for Five-Axis Milling Machines.

Current: Ahmarn Mudcharoen. Tool Path Generation and Optimization for Six-Axis Machining.

Current: Sirikan Chucherd. Segmentation and Recognition of Architectural Distortion in Mammogram Images.

Current: Yoichi Nakaguru. Snakes for Segmentation of Complex Objects.

Current: Samart Moodleah. Optimization of Cutting Operations of 5 Axis Milling Machines.

Work Experiences

- 1999-Present: SIIT
- 1994-1999: Visiting Professor, King Mongkut’s Institute of Technology Ladkrabang (KMITL), Thailand
- Associate Professor (Part-time), Asian Institute of Technology (AIT), Thailand
- 1981-1994: Associate Professor, Computer Center of the Russian Academy of Science, Russia

List of Publications

- Cattleya Duanggate; Bunyarit Uyyanonvara; Stanislav S. Makhanov; Sarah Barman and Tom Williamson. (2011). Drusen Detection based on Scale-space with Feature Stability. In *Proceedings of Medical Image Understanding andAnalysis 2011 (MIUA-2011)*, 14-15 July 2011, King's College, London, U.K. pp. 317-321.
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- Chucherd, S. and S.S. Makhanov (2011). Multiresolution phase portrait analysis for segmentation of ultrasound images for detection of breast cancer. In *International MultiConference of Engineers and Computer Scientists (IMECS 2011)*, Hong Kong. 16-18 March 2011, pp. 460-465.
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