

Curriculum Vitae

Personal information



Name: Vladimir Kotev Ph.D, eng.

Addresses: Institute of Information and Communication Technologies,
Bulgarian Academy of Sciences (BAS),
Acad. George Bonchev Str. bl.2, Sofia 1113, Bulgaria.

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Nationality: Bulgarian

Date of birth: 25 November 1976

Fields of research: Mechatronic systems, medical and nano robotics. Dynamical modeling and control. Biomechanics

Work experience

Dates: 03.12.2013 – up to present

Postdoctoral fellow under *AcomIn: Advanced Computing for Innovation* project at the Institute of Information and Communication Technologies – BAS. I am conducting research on signal, image processing and intelligent control of robots and mechatronic systems.

Dates: 27.10.2011 – 27.10.2013

Japan Society for the Promotion of Science postdoctoral researcher in medical robotics at the *Gifu University - Japan*. I was working on design, dynamical modeling a simulations, control and development of a drilling and cutting robotized hand-held system for the orthopaedic surgery.

Dates: 04.04.2008 – 26.10.2013

Assistant professor and researcher in Institute of Mechanics - BAS. I worked on design, dynamical modeling and control of robots. Also, I have worked on optimization and intelligent control of robots and precise motion mechatronic systems for micro technological operations.

Dates: 01.02.2005 – 31.01.2008

PhD student in Biomechanics at the Institute of Mechanics – BAS. Applications of the nonlinear dynamical systems and control theory to the molecular biology. Investigation of the qualitative and quantitative behavior of the time delay models describing some signaling pathways and gene-regulation systems.

Dates: 10.09.2002 – 31.01.2005

Mechanical designer and Programmer of CNC lathes at the IMM-Sliven Jsc, /Institute for machine-tools/. I worked on design of parts for metal cutting machines, detailed study, dimension and assembly drawings on Auto CAD. Programming and adjustment of CNC lathes.

Dates: 09.1997 – 07.2002

Student in Mechanical engineering at the Technical University of Sofia, branch Sliven. I was interested in the following subjects: theoretical mechanics, resistance of materials, theory of machines and mechanisms, machine-building technology and CNC machines. I obtained master degree in Mechanical engineering.

Participation in scientific projects

- ✓ Specialized Mechatronic Systems for Micro and Nano Technology;
- ✓ New Methods and Means for Renovating of Extrusion Shafts;
- ✓ Hybrid Ultra Precision Manufacturing Process Based on Positional- and Self Assembly for Complex Micro- Products -HYDROMEL /EU, FP6/;
- ✓ Computational Systems Biology of Cell Signaling – COSBICS Grant No.512060 /EU, FP6/.

Foreign languages

English

Russian

Technical skills and competences

Design of mechanisms, parts and machines. Dynamical modeling and theory of control and nonlinear dynamical systems. Work in international and interdisciplinary teams, good team player, self-motivated, reliable and precise. Lectures on mechanics and mechatronics. I took part in more than 35 papers published in International scientific journals and proceedings of conferences. Also, I have some experience on development, implementation and manufacturing of innovative products.

Computer skills and competences

Autodesk Inventor, MatLAB, C++, C# and Solid Works

Professional and Scientific Awards

Bulgarian academy of Science's award Professor Marin Drinov for young scientists under 35 years in the area of technical science – 2011.

Professional Memberships

Member of the Bulgarian Society of Biomechanics

Member of the Bulgarian Scientists Association

List of selected publications

1. **VI. Kotev**, G. Boiadjiev, T. Mouri, K. Delchev, H. Kawasaki, T. Boiadjiev, "A Design Concept of an Orthopedic Bone Drilling Mechatronics System", *Applied Mechanics and Materials*, vol.: *Advanced Engineering and Materials*, pp: 248-252, 2013.
2. G. Boiadjiev, R. Kastelov, T. Boiadjiev, **VI. Kotev**, K. Delchev, K. Zagurski, Vl. Vitkov, "Design and performance study of an orthopedic surgery robotized module for automatic bone drilling", *The International Journal of Medical Robotics and Computer Assisted Surgery*, 2013.
3. G. Boiadjiev, **VI. Kotev**, K. Delchev, T. Boiadjiev, "Modeling and Development of a Robotized Hand-Hold Bone Cutting Device", *Applied Mechanics and Materials*, Vols. 300-301, pp:479-483, 2013.
4. **VI. Kotev**, G. Boiadjiev, H. Kawasaki, T. Mouri, K. Delchev, T. Boiadjiev, "Design of a hand-held robotized module for bone drilling and cutting in orthopedic surgery", *2012 IEEE/SICE International Symposium on System Integration (SII), Kyushu University, Fukuoka, Japan*, pp: 504-509, 2012.
5. K. Kostadinov, D. Trifonov, M. Al-Wahab, **VI. Kotev**, T. Petrov, "CD-Based microfluidic device for automated immobilization and microinjection of biological cell", *Journal of Micro and Nanosystems*, vol.1, No 3, pp. 236-249, 2011.
6. **VI. Kotev**, D. Karastoyanov, K. Kostadinov, "Micromanipulator for inspection of shafts coating with nano components". *International Conference on Manipulation, Manufacturing and Measurement on the Nanoscale (3M-Nano 2011), 29 August – 2 September 2011, Changchun, China*, 2011.
7. **VI. Kotev**, K. Kostadinov, P. Genova, "Design of incorporated macro-micro robots for macro and micro operations", *8th International conference on informatics in control, automation and robotics (ICINCO 2011), 28-31 July 2011, Noordwijkerhout, The Netherlands. Proceedings ICINCO 2011, vol.2*, pp: 273-276, 2011.

8. P. Genova, **VI. Kotev**, Fl. Ionescu, K. Kostadinov, “Linkage mechanisms with piezo- structured ceramic actuators”, *Proceedings of 2010 International Conference on Optimisation of the Robots and Manipulators, Calimanesti, Romania, 28-30 May, 2010*.
9. D. Trifonov, K. Kostadinov, M. Al-Wahab, **VI. Kotev**, T. Petrov, “Design and investigation of CD-based injection-moulded micro-patterned polymer substrates for cell immobilization”, *the 5th International Conference on MicroManufacturing ICOMM/4M 2010, 05-08.04.2010, Madison, Wisconsin USA*, pp: 379-385.
10. S. Nikolov, V. Petrov, **VI. Kotev**, G. Georgiev, “Mathematical description of time delays in pathways cross talk”, *Handbook of Research on Systems Biology Applications in Medicine*, pp:27-73, 2008.
11. S. Nikolov, J. Vera, **VI. Kotev**, O. Wolkenhauer, V. Petrov, “Dynamical properties of a delayed protein cross talk model”, *BioSystems, vol. 91*, pp: 51-68, 2008.
12. **VI. Kotev**, S. Nikolov, “Stability analysis of time delay model of cross talk between ERK and STAT5 interaction”, *Bioautomation, vol. 7*, pp:90-98, 2007.