Dr. Vojislav D. Kalanovic

Curriculum Vitae

Prepared 8/23/2019

PERSONAL AND CONTACT INFORMATION

University Contact Information

Department of Mechanical and Aerospace Engineering
School of Engineering and Applied Sciences
University at Buffalo
1006 Furnas Hall, Buffalo, NY 14260
Tel: 716.645.1417
Email: vojislav@buffalo.edu

Business Contact Information

Flexible Robotic Environment, LLC
300 International Drive
Williamsville, NY 14221
716.626.3469 (Headquarters)
+381-63-523-691 (Factory)
www.fresystems.com

EDUCATION AND TRAINING

Graduate	Clemson University, Dept. of Mechanical Engineering, Clemson, SC	1987 to 1991 Ph.D. in Mechanical Engineering Dynamic Systems, Controls and Robotics
	School of Electrical Engineering University of Belgrade, Belgrade, Yugoslavia	1984 to 1986 M.S. in Electrical Engineering Automatic Control
Undergraduate	School of Mechanical Engineering University of Belgrade, Belgrade, Yugoslavia	1976 to 1982 B.S. Mechanical Engineering/Controls

PROFESSIONAL APPOINTMENTS

2017-Present	Professor of Practice, Department of Mechanical and Aerospace Engineering School of Engineering and Applied Sciences University at Buffalo, Buffalo, NY
1998-2017	Professor of Mechanical Engineering Department of Mechanical Engineering South Dakota School of Mines and Technology Rapid City, SD
2003-2006	Mechanical Engineering Department Chair (**coordinated successful ABET Visit – 2004**)
1997-1998	Associate Professor of Mechanical Engineering, SDSM&T (**Tenured 1997**)
1991-1997	Assistant Professor of Mechanical Engineering, SDSM&T
1987-1991	Research Assistant, Teaching Instructor Department of Mechanical Engineering Clemson University, Clemson, SC
1986-1987	Research Engineer Institute “Kirilo Savic” Belgrade, Yugoslavia
1984-1986	Design Engineer Institute “Automatika” Belgrade, Yugoslavia

ADDITIONAL TRAINING AND CREDENTIALS

2012-Present	Export Leader in SDSM&T
2011-Present	Known Shipper Status - Official Number Awarded
2010-Present	Government Contractor - CAGE Number Awarded
2003-Present	Qualified AEROTECH robotic integrator

2000-Present	Qualified, PARKER robotic integrator
1995-Present	Qualified FANUC robotic integrator
1997	Specialization at 3M - Robotic Abrasive Laboratory
1995	Specialization at FANUC Robotics of North America
1992	Visiting Professor, at the Ecol Centrale de Lille, France
1984	Specialization in System Modeling/Bond Graphs, Institute Industrielle du Nord, Lille, France

MEMBERSHIPS IN PROFESSIONAL SOCIETIES

1993-Present	PI-TAU-SIGMA Honorary Mechanical Engineering Fraternity
1991-Present	Institute of Electrical and Electronic Engineers
1991-Present	International Neural Network Society
1991-Present	Society of Manufacturing Engineers
1989-Present	American Society of Mechanical Engineers
1981-Present	Savez za Automatsko Uparvaljanje i Merenje (SAUM)

ACADEMIC HONORS AND AWARDS

2017	Professor Emeritus of Mechanical Engineering
2000	International Program Committee Member for CIFA (Conference Internationale Francophone d'Automatique)
1997	Invited Chair for the session: Dynamics II and III at the 25th Midwestern Mechanics Conference Rapid City SD
1997	Invited Chair for the session: Robots - Various Nonlinear Control Solutions for the IFAC's Conference on Control of Industrial Systems held in Belfort - France
1994	Biography Included in The Marquis' Who is Who in the Midwest, 24-th edition
1992	Chairman for the WAM-ASME session: Symposium on Advances in Robotics: Applied Robot Control, Anaheim California
1990	Outstanding Graduate Assistant Research Award, by the department of Mechanical Engineering at Clemson University.
1989	Invited Student, Third Topical Meeting on Robotics & Remote Systems, Charleston

PROFESSIONAL, COMMUNITY AND ADMINISTRATIVE SERVICE

2019-Present	Director of Engineering Science MS (Robotics) Program School of Engineering and Applied Sciences University at Buffalo, Buffalo, NY
2017-Present	Director of Robotics Minor School of Engineering and Applied Sciences University at Buffalo, Buffalo, NY
2015-2017	SDSM&T Tenure and Promotion Committee
2003-2017	SDSM&T Ethics Committee Chair
1999-Present	The Future of Rapid City, Leadership Program – Chamber of Commerce
1992-2017	Curriculum Committee
1991-2017	Academic Advisor
1997-2000	SDSM&T Graduate Committee
1997-1990	ASME Dynamic Systems and Control Division – Intelligent Control Panel
1993-2013	Agenda for Excellence Committee
Multiple Assignments	Title III Instruction and Faculty Committee Ivanhoe International Committee NCA-Chapter 5 Committee Technology Fee Committee The Search Committee for the Library Director The Search Committee for the Library Assistant The Minimum Computers Skill Committee GENED Committee Pi-Tau-Sigma ME Honor Society Faculty Coordinator SDSM&T Martial Arts Club Faculty Coordinator

NATIONAL AND INTERNATIONAL COLLABORATION WITH OTHER UNIVERSITIES

2005-Present	Faculty of Electrical Engineering, University of Belgrade, Serbia – Prosthetic Controls and Robotics
2005-Present	Faculty of Mechanical Engineering, University of Belgrade, Serbia - Neural Networks

2005-Present	Center for Multi-Disciplinary Studies, University of Belgrade – Intelligent Control
2003-Present	Faculty of Mechanical Engineering, University of Novi Sad, Serbia Adaptive Control
1999-2000	National Engineering School of Tunis - Fuzzy Logic Control
1999-2000	Hiroshima City University, Japan – Fuzzy Logic Control
1995-1997	SDSM&T and University of Belgrade Student Exchange Program Initiative **- Founder**
1991-1997	Clemson University – Variable Structure Control
1994-1995	University of Tennessee - Intelligent Control
1994-1995	King Fahd University of Petroleum and Minerals, Saudi Arabia - Fuzzy Logic Control
1994-1995	University of Illinois, Urbana – Fuzzy Logic and Variable Structure Control
1993-1996	Ecole Centrale de Lille (ECE), Lille, France – Intelligent Control
1994-1995	Ecole Nationale D'Ingenieurs de Belfort, France – Variable Structure Control
1991-1992	Wright State University – Intelligent Control

RESEARCH INTERESTS

Dr. Kalanovic is specialized in automatic controls and robotics. His research interests focus around intelligent control applications based on: Feedback Error Learning, Variable Structure Systems, Neural Networks, Fuzzy Logic, Space Distributed Modular Robotics, Robotic Path-Planning, Out of Axis 3D Printing, Mini-Factories, "First-Time-Right" Hierarchical Manufacturing Strategies, Additive Manufacturing, and Model Independent Control Strategies.

PUBLICATIONS – PROFESSIONAL JOURNALS AND CONFERENCES

Journals

1. V.D. Kalanovic, D.B. Popovic. Feedback Error Learning Neural Network for Trans-Femoral Prosthesis. *IEEE Trans. On Rehabilitation Engineering*, Vol. 8, No.1, March, 2000.
2. C.H. Jenkins, V.D. Kalanovic, Intelligent Shape Control for Precision Membrane Antennae and Reflectors in Space. *Smart Material Structures*, Vol. 8, 1999.
3. V.D. Kalanovic, C. Jenkins. Fuzzy Control of Membrane Wrinkling. *Intelligent Automation and Soft Computing* Vol. 5, No. 2, 1998.
4. V.D. Kalanovic. Natural Tracking with Prediction-Error Based Parameter Estimation. *Control Systems Magazine* Vol. 17, No.5 October, 1997.
5. D.B. Popovic, V.D. Kalanovic. Output Space Tracking Control for Above-Knee Prosthesis. *IEEE Transactions on Biomedical Engineering*. Vol. 40, No.6. June, 1993.
6. V.D. Kalanovic and D.B. Popovic. Tracking Method for the Control of the Above-Knee Prosthesis. *Avtomatika i Telemekhanika*, Vol 1.1, 993, in Russian.
7. V.D. Kalanovic. An Attempt of a New Approach to the Liapunov Function Generating Problem. *Automatica*, IFAC IA 1.1.0, 3-4/1984.

Conferences and Presentations

1. V.D. Kalanovic, Buck G., Langerman M., Korde U.. Thermal Control of Laser Powder Deposition – Nonlinear Rate Controller. IMACS 2005, Paris France.
2. M. Langerman, U. Korde, V.D. Kalanovic, J. Koester. Laser Deposition Process Design- The Percent Heat Loss Through the Substrate. MPSA 3.2, AeroMat, Orlando, FL, June 2005.
3. U. Korde, M. Langerman, V.D. Kalanovic.Feed forward Process Planning for a Laser Powder Deposition Process. MPSA 3.4, AeroMat, Orlando, FL, June 2005.
4. V.D. Kalanovic. Feedback Error Learning - Physiologically Based Artificial Intelligence. School of Biomedical Engineering, Belgrade, Serbia and Montenegro, July 2005, **invited lecture.**
5. Korde U., Langerman M., Buck G., Kalanovic V.D.. Feed-forward Laser Power Specification for Uniform Cooling of Thin-Walled Parts. Proc. of IMECE 2004, 2004 ASME Int. Mech. Eng. Congress, Anaheim, CA Nov. 2004.
6. Langerman M., Buck G., Korde U., Kalanovic V.D.. Thermal Control of Laser Powder Deposition-Heat Transfer Considerations. Proc. of IMECE 2004, 2004 ASME Int. Mech. Eng. Congress, Anaheim, CA Nov. 2004.
7. V.D. Kalanovic. The Benefits of Industrial Automation. Kraftwerks Conference, Ontario, CA 2002, **an invited paper.**
8. Jenkins C.S., Kalanovic V.D. Issue in Control of Space Membrane/Inflatable Structures. IEEE Aerospace Conf., Montana, 2000.

9. Kalanovic V.D., Padmanabhan K., Jenkins C. S.. A Discrete Cell Model for Shape Control of Precision Membrane Antennae. Adaptive Structures and Material Systems, New York, NY, 1999.
10. Bouslama F., Kalanovic V.D., Benrejeb M..Identification of Dynamic Models for Handwriting System: Application to Character Recognition. TIWSS Tokyo, Japan, 1999.
11. Kalanovic V.D., Jenkins C. S.. Adaptive Shape Control of Precision Membrane Antennae and Reflectors. ASME, WAM, 1998.
12. Kalanovic V.D., Jenkins C. S.. Practical Aspects of Precision Membrane Antennae Shape Control. IEEE SMC, La Jolla, CA, 1998, **an invited paper.**
13. Jenkins C. S., Kalanovic V.D.. Control of Membrane Wrinkling Via Intelligent Control Strategies. 6-th IEEE Conf. On Control Applications, Hartford October, 1997.
14. V.D. Kalanovic. Feedback Error Learning Neural Network for Above-Knee Prosthesis. CIS'97 Belfort - France, May, 1997 **an invited paper**.
15. Jenkins, C.H., Haugen, F., Kalanovic, V.D., and Najdawi, H.F.. Experimental Measurement for Control of Membrane Wrinkling, Spring Conference, Society of Experimental Mechanics, Bellevue, WA 1997.
16. V.D. Kalanovic. Total Energy Extraction from a Class of Nonlinear Systems Via Feedback-Error Learning. Proc. CESA-IMACS - Lille -France, July,1996, **an invited paper**.
17. V.D. Kalanovic. Fuzzy Switching for the Nonlinear Rate Controller. Proc. International Fuzzy Systems and Intelligent Controls Conference, Maui, Hawaii April, 1996.
18. L. Guvenc, V.D. Kalanovic. Adaptive Closed Loop Material Testing Using Fuzzy Logic Control. IEEE, SMC, Proc. Vol. 3, Vancouver 1995.
19. V.D. Kalanovic. Back-Propagation in Feedback Error Learning. Proc. of Neural, Parallel & Scientific Computation Vol. 1, Atlanta, Georgia, 1995 **an invited paper**.
20. V.D. Kalanovic. Fuzzy Tuned Nonlinear Rate Controller for Manipulators. Proc., Vol. 4, IEEE International Conference on Systems, Man and Cybernetics, Le Touquet, France, 1993 **an invited paper**.
21. V.D. Kalanovic, F. W. Paul. Practical Evaluation of the Nonlinear Rate Controller for Robots with Flexible Transmissions. DSC Vol.42 ASME Winter Annual Meeting Anaheim, California. 1992.
22. V.D. Kalanovic, F.W. Paul. Theoretical Considerations for Variable Structure Nonlinear Rate Control of Flexible Drive Systems. DSC-Vol.31 ASME Winter Annual Meeting Atlanta, Georgia, 1991
23. V.D. Kalanovic, F.W. Paul. Nonlinear Rate Control for Robots with Flexible Transmissions. DSC-Vol.26 ASME Winter Annual Meeting Dallas, Texas, 1990.
24. V.D. Kalanovic, D. Popovic. A Possible Solution to the Above Knee Prosthesis Control Problem. Proc. XXX ETAN, Herceg Novi, Yugoslavia, 1986.
25. V.D. Kalanovic. Locomotive Robots. First Int. Seminar "Automat i Robot", Proc. OMO & SAUM Belgrade, Yugoslavia, 1985.

PEER-REVIEWED PUBLICATIONS: REVIEWER

1994-Present
ASME Journal of Dynamic Systems and Controls
IEEE Transactions on Robotics and Automation
IEEE Conference on Robotics and Automation
Harper Collins Publishers
IEEE-SMC and IMACS
Addison-Wesley Publishing Company
McGraw Hill – Publishing Company
Smart Materials and Structures
Neurocomputing
Concurrent Engineering: Research and Applications

THESES AND BOOK CHAPTERS

1. V.D. Kalanovic. Control of Robots with Flexible Transmissions. Ph.D. Dissertation, Dept. of Mechanical Engineering, Clemson University, Clemson SC, 1991.
2. V.D. Kalanovic, N. Cherukuri, C.Y. Zhu, D. Solley, K. Whitley. Preliminary Design of an Automatic Sheet Assembly & Packaging Line. Final Report for the ME 845 Advanced Design course, Department of Mechanical Engineering, Clemson University 1987.

3. V.D. Kalanovic. Synthesis of Liapunov Based Control Algorithm and its Application to the Above Knee Prosthesis Control. M.S. Thesis, School of Electrical Engineering, University of Belgrade, Belgrade, Yugoslavia, 1986.
4. Lj.T. Grujic, V.D. Kalanovic. Control of Thermal Power Plants Under Fixed and Sliding Pressure Working Conditions. A study published for the Yugoslavian Department of Energy by the School of Mechanical Engineering, University of Belgrade, Belgrade, Yugoslavia, 1985.
5. V.D. Kalanovic. The Generation of a Liapunov Function for the First Class Control System with Typical Nonlinearities. B.S. Thesis, School of Mechanical Engineering, University of Belgrade, Belgrade, Yugoslavia, 1982.

RESEARCH FUNDING

Source: SBIR – Phase I
Title: Digital Twin for a CoBot/AV System
Status: Pending
Amount: $220,000
Role: PI

Source: SBIR – Phase I
Title: Digital Twin for Material Metal Laser Deposition (MMLD) AM System
Status: Pending
Amount: $220,000
Role: PI

Source: Department of Air Force
Title: Mobile Landing Pad for Autonomous Remote UAV Launch and Retrieval
Status: Pending
Amount: $600,000
Role: PI

Source: SMART
Title: On Interactive Automation for AM Quality Excellence
Status: Funded, 2018
Amount: $25,000
Role: Co- PI

Source: Army Research Laboratory
Title: Unmanned Aerial Vehicle Development; Development of Class I and Class II Unmanned Aerial Vehicles
Status: Funded, 2009
Amount: $20,000
Role: Co-PI

Source: United States Department of Defense – Army Research Laboratory
Title: Advanced Materials and Processes for Future Combat Systems
Status: Funded, 2006
Amount: $1,794,263
Role: Co-PI

Source: Airforce Research Laboratory
Title: Passive Damping of Lightweight Spacecraft Structures Through Dissimilar Metal Friction Stir Welding
Status: Funded, 2005
Amount: $500,000
Role: Co-PI

Source: National Science Foundation - MRI Program/OSTI
Title: Acquisition of Enhanced Instrumentation for Dynamic Systems Analysis (Laser Vibrometer)

Amount: $150,000
Status: Funded, 1997
Role: Co-Investigator

Source: SDSM&T Fund for Excellence
Title: Improvement of Artificial Neural Systems Laboratory
Amount: $4,600
Status: Funded, 1996
Role: Laboratory Director

Source: SDSM&T Fund for Excellence
Title: Improvement of Artificial Neural Systems Laboratory
Amount: $8,500
Status: Funded, 1994
Role: Laboratory Director

Source: National Science Foundation
Title: Model Independent Rate Controller for Nonlinear Systems
Amount: $70,000
Status: Funded, 1994
Role: PI

Source: ASME Engineering Foundation, Research Initiation Grant
Title: Improving the Natural Tracking Capabilities Via Feedback Error Learning
Amount: $31,000
Status: Funder, 1994
Role: PI

Source: SDSM&T Fund for Excellence
Title: Equipment for Artificial Neural Systems Laboratory
Amount: $25,000
Status: Funded, 1992
Role: Laboratory Director

Source: Industrial Grant from MTS, Inc.
Title: Development of the Laboratory for Artificial Neural Systems
Amount: $7,500 + unlimited collaborative support from MTS
Status: Funded 1991
Role: Laboratory Director

TEACHING – COURSES TAUGHT

1991-Present
Multiple Assignments
MAE 594/490/ IE 483 Robotics II
MAE 593/493 Robotics I
MAE 505 Product Development for Automated Manufacturing
ME 110: Introduction to Mechanical Engineering
ME 221: Dynamics of Mechanisms
ME 261: Introduction to Manufacturing
ME 262: Product Development
ME 262L: Product Development Laboratory
ME 351: Mechatronics and Measurement Systems
ME 351L: Mechatronics and Measurement Systems Laboratory
ME 352: Introduction to Dynamic Systems
ME 376: Mechanical Measurements
ME 376L: Mechanical Measurements Laboratory
ME 397: Mechatronics
ME 397L: Mechatronics Laboratory

ME 390: Special Topics in Mechanical Engineering
ME 423: Mechanical Vibrations
ME 426: Mechanical Vibrations Laboratory
ME 453: Digital Control Systems
ME 456: Digital Control Systems Laboratory
ME 673: Applied Engineering Analysis I
ME 683: Advanced Mechanical System Control
ME 690: Advanced Topics in Mechanical Engineering
ME 773: Applied Engineering Analysis II
ME 781: Robotics
ME 782: Integrated Manufacturing Systems
ME 783: Nonlinear Control Systems
EE 751: Nonlinear Control Systems
ME 221: Dynamics of Mechanisms
ME 261: Introduction to Manufacturing
ME 262: Product Development
ME 262L: Product Development Laboratory
ME 351: Mechatronics and Measurement Systems
ME 351L: Mechatronics and Measurement Systems Laboratory
ME 352: Introduction to Dynamic Systems
ME 376: Mechanical Measurements
ME 376L: Mechanical Measurements Laboratory
ME 397: Mechatronics
ME 397L: Mechatronics Laboratory
ME 390: Special Topics in Mechanical Engineering
ME 423: Mechanical Vibrations
ME 426: Mechanical Vibrations Laboratory
ME 453: Digital Control Systems
ME 456: Digital Control Systems Laboratory
ME 673: Applied Engineering Analysis I
ME 683: Advanced Mechanical System Control
ME 690: Advanced Topics in Mechanical Engineering
ME 773: Applied Engineering Analysis II
ME 781: Robotics
ME 782: Integrated Manufacturing Systems
ME 783: Nonlinear Control Systems
EE 751: Nonlinear Control Systems

GRADUATE STUDENT MENTORING

2017	Committee Member for Mr. Kuntz - Ph.D.
2016	Major Professor for Mr. Sander - M.S.
2015	Major Professor for Mr. Bennett – M.S.
2006	Major Professor for Mr. Obid –M.S
1999	Major Professor for Miss. Padmanabham – M.S.
1999	Committee Member for Mr. Tampi – M.S.
1999	Committee Member for Mr. Roth – M.S.
1999	Committee Member for Miss. Kokosy (France) - Ph.D.
1997	Major Professor for Mr. Skaug – M.S.
1996	Major Professor for Mr. Tseng – M.S.
1996	Committee Member for Mr. Haugen – M.S.
1994	Committee Member for Miss. Li – M.S.
1993	Committee Member for Mr. Prakash – M.S.
1992	Committee Member for Mr. Samathan – M.S.

DIRECT CONTRIBUTIONS TO CURRICULUM

2017-Present	Responsible for the development of Robotics Masters at UB
2017-Present	Responsible for the development of Robotics Minor at SEAS at UB
2015-2017	3D Print Club
2010-2017	Computational Sciences and Robotics Program
2013	Robotics Summer Camp - Coordinator
2006-2010	Co-Founder of the Ph.D. Program at Mechanical Engineering Department
2005-2006	Participant in the formation of NANO-Ph.D. Program at SDM&T

2005 Co-Founder of a Biomedical Engineering Program at SDSM&T
1997 Formed a new course ME 351 – Mechatronics
1997 Formed a new course ME 261 – Introduction to Manufacturing
1996 Formed a new course ME797/CSC 797 Intelligent Control Applications
1995 Formed Artificial Neural Systems undergraduate and graduate laboratory with support from MTS
1994 Formed a new course ME 397 – Expanded Mechatronics
1992 Formed a new course ME 262 – Product Development

ORIGINAL CONTRIBUTIONS IN TEACHING

Currently promoted by the Student Advisory Board at SDSM&T, Classroom Empowerment Method is summarized as follows:

- Principal course objective is that, at the end of the semester, students who are walking "out-the-door" own required knowledge of the material that was presented
- Students are treated as colleagues who are working together with the instructor in order to accomplish a task at hand i.e. knowledge-transfer
- Students participate in the decision process regarding test timing
- There are unlimited numbers of tests that are given within the course. That is, students can take as many retakes as they wish over any and/or all past material
- Only a better grade obtained on a re-take exam improves a current test grade
- Each re-take test is composed with a different set of problems
- Students can re-take tests "off-line" i.e. out of classroom environment
- Homework can be worked on individual basis or in groups
- Homework is considered as an important "off-line" laboratory and it is heavily discussed in class
- Final grade is calculated as an average of individual exams
- Students are able to provide continuous anonymous feedback (SGID) throughout the semester therefore fully influencing the teaching process

INDUSTRIAL AND ACADEMIC INTERACTION

- Responsible for multiple segments of university and industrial interaction at University at Buffalo. This is a unique position at SUNY, 2017-Present
- Formed unique high-tech make-shift laboratories within SDSM&T. SDSM&T is in possession of VDK3000, VDK5000 and VDK6000 systems all contributing to on-going research efforts and graduate education, 2003-2017
- Engineers Make Great Entrepreneurs. Co-Founder, SDSM&T, nation-wide initiative, 2013-2017
- Employed a number of undergraduate and graduate students from SDSM&T on part-time basis in order to work on mechanical design, assembly and testing of new industrial equipment, 1999 – 2017
- Mentoring of design teams, 1997-2017
- Donated over $100,000 of equipment to SDSM&T including an undergraduate controls laboratory with six independent PID stations, 2015
- Donated over $80,000 in funds in support of the ME Ph.D program, 2010-2015
- SDSM&T Publication. "Leading By Example". Hardrock Magazine, Raid City, 2011
- SDSM&T Press Release. "Professor Awarded Third Patent". Rapid City, 2009
- SDSM&T Press Release. "Mechanical Engineering Professor Awarded Fourth Patent". Rapid City, 2009
- "South Dakota Inventor Develops Jewelry Processing Method". US Fed News Service, Including US State News , 2007
- "South Dakota Inventor Develops Jewelry Processing Control System". US Fed News Service, Including US State News , 2007
- "South Dakota School of Mines and Technology Professor's Invention Goes Global". US Fed News Service, Including US State News , 2007
- SDSM&T Publication. "Entrepreneurship in the Classroom". Rapid City, 2006
- Pioneer in technology transfer efforts at SDSM&T. Formed an SDSM&T/Foundation/TechVentures ownership structure within CST, LLC in order to promote University/Industrial ties and Economic Development in South Dakota, 2005
- Pioneer in entrepreneurship at SDSM&T supported actively by: The Office of the President, SDSM&T Foundation, Office of the Dean (at the time - College of Systems Engineering), The Department of Mechanical Engineering, CAMP and AML Centers, 1999

ENTREPRENEURSHIP

2015-Present	Integrat3d, LLC – General Manger, Owner
2004-Present	Flexible Robotic Environment, Division of Bicommerce, LLC - President, Owner (www.fresystems.com)
2001-2004	United Robotic Integrations, LLC – General Manager, Majority Owner
1998-2001	Robotic Systems Integrations, Inc. – President and CEO

ENTREPRENEURIAL ACTIVITIES

- Formed a leader company in modular robotic applications
- P&L responsibilities
- Raised over $1.7 M of operating capital that included coordinating 27 investors
- Created continuous sales in the area of material removal, specifically jewelry polishing and grinding.
- Reinvigorated new product development with leadership changes in general management and engineering, resulting in active sales of new products in 7 different market segments
- Currently involved in following market segments: a) laser deposition, b) direct-write, c) 3D printing, d) material removal and polishing, e) robotic motion control software development, f) aircraft manufacturing (substructure drilling),and g) robotic path-planning
- Consistently achieved the following production metrics improvements: 45% annual productivity improvement, On-Time Delivery (OTD) of 99.4%, and record safety levels in all operations.
- Directed efforts to successfully land DOD, DOE and retail customer contracts including: Wal-Mart, Mt. Rushmore Jewelry, Wright Paterson Air Force Base, Sandia National Laboratories, Aerotech, Xerox-Canada, Xenopus-Canada, Tiffany, Benchmark, Gesswein and Commemorative Brands (repeat customer)
- Synchronized international activities and resources between Bicommerce, LLC, Electronic Design – Serbia, and Technosoft – Serbia
- Organized import/export activities to include: a) international IP regulations, b) labor exchange laws, c) supply chain formations, and d) export/import regulations
- Negotiated and obtained marketing and sales channels through Gesswein Inc.
- Negotiated with Parker-Hannifin the use of their sales and marketing channels and the opportunity to build a true integrator's network for this giant in electro-mechanical industry
- Negotiated with Danaher a licensing software agreement
- Negotiated and obtained a vendor status for A3200 Motion Server with Aerotech Inc.
- Directed and negotiated acquisition of Robotic Systems Integrations, LLC in South Dakota by United Precious Metal and Refining, Inc. from Alden New York
- Organized sale teams for modular robotic solutions
- Established direct marketing and limited sales efforts in the area of robotic palletizing and material removal in the state of New York
- Negotiated the acquisition of my company by United Precious Metal and Refining, Inc. and a move of a purchased enterprise to Alden, NY
- Worked with 3M and Spartanfelt Inc. to successfully develop, sell, and market a new type of tooling for grinding and polishing of precious metals
- Worked with 3M to successfully investigate and finally deploy the use of passive and active force-control tooling tables in precious metal material removal applications

COMMERCIAL PRODUCTS ON THE OPEN MARKET

1. VDK 1200-Jewelry Polishing and Material Removal System
2. VDK1000 -Jewelry Polishing and Material Removal System
3. VDK2000 -Aircraft Substructure Drilling System
4. VDK3000 -Laser Deposition System
5. VDK4000 -Direct Write System
6. VDK5000 -Ultrasound Inspection System
7. VDK6000 -Robotic Cell for Metal 3D Printing and Metal Part Refurbishing
8. VDK7000 -Out of Axes 5DOF 3D Printer
9. Cold-spray unit controller
10. MoDusCAM™ Robotic Path-Planning Software
11. A4000-Hybrid Motion Platform
12. A3200-Motion Server
13. 3D Space Distributed Robotic Solution Concept in Modular Robotics - Flexible Robotic Environment (FRE™)
14. 3D printing of eyewear
15. 3D printing of hearts with congenital defects from imaging data
16. Digital-Twin design for advanced automated manufacturing environments
17. Additive Manufacturing tandem-robot environments

PATENTS, COPYRIGHTS, AND TRADEMARKS

- A4000 Hybrid Run-Time Motion Platform – Copyright Software, December 2015
- MoDusCAM Path Planning Application Programing Interface - Copyright Software, December 2015
- A4000 Hybrid Run-Time Motion Platform - Provisional Patent Awarded in May 2014
- Flexible Robotic Environment, MoDusCAM - Trademarks Awarded, April, 2014
- Positioning Apparatus And Method Incorporating Modular Gimbal Unit And Jewelry Processing System Incorporating The Positioning Apparatus ; US 7,501,603
- Control System And Method For Processing Jewelry And The Like; US 7,300,333 B1, US 7,241,200 B2, US 7,431,632

INDUSTRIAL AWARDS, PRESENTATIONS, AND PUBLICATIONS IN TRADE-RELATED JOURNALS

- Integrator for FANUC robotics
- Integrator for PARKER
- Integrator for AEROTECH
- Solution partner for Solidworks
- A.Richter. Hybrid Machining Expands a Part Designer's Pallet, *Cutting Tool Engineering*, Volume 67 / Issue 1, January 2015.
- V.D.Kalanovic. Inverse-Kinematics Software Helps Design Modular Robots for 3D-Printing, *3D CAD World*. March 1, 2015
- A. Thryft. Combining 3D Printing & CNC Milling in 1 *Machine Design News*. August, 12,2014
- B. Krassenstein. VDK6000, Incredible 6-axis Metal 3D Printer, Milling Machine, Laser Scanner Unveiled, *3D Printer & 3D Printing News*, July 24, 2014
- E.Eitel. Software Designs Modular Robots, *Machine Design*, , June, 6, 2013
- M.Theodore, J.Fielding, V.D.Kalanovic, J. Mirilovic, J. Sears. "VDK 4000 Direct Write System: A new approach to direct write Technology" Nanotech 2010 Conference, Anaheim, CA June 21-25, 2010
- J.W. Sears, V.D. Kalanovic. "New Developments in 3D laser Fabrication of Titanium Components" AEROMAT 10 June, 2009
- R.Piquepaille. A Robotic Jewelry Polishing System *Emerging Tech*, April 23, 2007
- *Technology Trends*, 2009
- *Hello Campus*, 2009
- *Emerging Technology*, 2009
- KELOTV – local news station has done a live story on VDK 1000 system at Mt. Rushmore Jewelry, 2007
- *Advancing Research/Creating Solutions*, The Great Planes Network publication, 2007
- *American Journal of Jewelry Manufacturers* has published, on several occasions, information regarding RSI and its products (2003 – 2005)
- V.D.Kalanovic. "Robots and the Jewelry Industry" VII Triennial International SAUM Conference on Systems, Automatic Control and Measurements, Belgrade, Serbia November 2004, **an invited paper**
- *Argus Leader* has published an article on VDK1000, 2004
- KNBN Rapid City, South Dakota news station has done a live story VDK1000, 2004
- FANUC press release for VDK1000 a new robotic system for grinding and polishing, 2003
- VDK 1000 robotic system **was awarded Best New Technology Award** at the New York Expo in May of 2003
- VDK1000 presented on the World Gold Council's web site, 2003
- *Jewelry Technology*. Publication by World Gold Council, 2003
- V.D.Kalanovic. "Robotics in Precious Metal Polishing", Jeweler's Kraftwerks Conference, Ontario, CA in August, 2002, **an invited paper**
- V.D.Kalanovic. "Robotics in Jewelry Applications", World Expo on Jewelry Manufacturing Equipment, Providence, Rhode Island in April 2001.
- *Rapid City Journal*. Article on VDK 1000, 2001
- Robots for Material Removal Maintain Their Cutting Edge. *Robotics Online* – RIA, 2000
- *Robotics Magazine*, has published an article on VDK 1000, 1999
- *Investment Report,* A Publication of the Rapid City, Chamber of Commerce, January 1999

INDUSTRIAL GRANTS

- Automation of Aircraft Substructure Manufacturing Process, Boeing Phantom, $450,000 - Funded by ARL 2005

ECONOMIC DEVELOPMENT

- Export leader in South Dakota
- Collaborating with Senator Thune's Office in relation to potential commercial visits
- Collaborating with Governor's Office of Economic Development
- Collaborating with US Dept. Of Commerce in relation to potential commercial visits

LANGUAGES

Fluent in: English, French, Italian and Serbian

HOBBIES AND GENERAL INTEREST

- Martial Arts – Taekwondo, First Degree Black-Belt Awarded, 1999
- Kempo – Karate, Yellow Belt Awarded, 2000
- Accordion playing
- Chess
- Opera
- World War I and II History
- Swimming, following professional tennis
- Being a wonderful grandfather to Luka and Nikola

REFERENCES

Available upon request