Melih Çakmakcı

Department of Mechanical Engineering
Bilkent University
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EXPERIENCE

Bilkent University, Ankara, Turkey
Faculty of Engineering

Assistant Professor, September 2009- Current
Department of Mechanical Engineering

Responsibilities:
Research and Teaching activities on dynamic systems and control theory. Design and development Vehicle control systems and of smart mechatronic components. Development of the Dynamics Systems and Controls Laboratories. Curriculum Development and Summer Practice coordination.

Founder, *Smart Mechatronic Systems (SMechS) Research Group*. Group's activities focus on design and control of mechatronic systems using the latest theoretical and technological developments in the mechanical design and control theory fields.

Ford Motor Company, Dearborn, MI, USA
Research and Advanced Engineering Division

Senior Research Engineer , April 2005- August 2009
Model Based Vehicle Control Systems Department

Responsibilities:

Lead engineering teams developing dynamic vehicle model-in-the-loop (MIL) and hardware-in-the-loop (HIL) models used in distributed vehicle controller development and testing; present and review development task plans with program and management teams by way of regular meetings.

Achievements/Experience:

Designed, implemented and validated a modular HIL model structure compliant with corporate modeling standards which was implemented for the hybrid electric vehicle project developed for multiple brands and engineered in multiple geographical locations.

Led the development of a fuel cell vehicle simulation model and delivered distributed vehicle system controller model.

Designed a model based control development case for the Ford Flexray in-vehicle communications network standard development project.

Research Engineer, July 2001- March 2005
Vehicle Electronics and Systems Department

Responsibilities:

Carry out development of dynamic vehicle models and control algorithms for novel powertrain systems; perform evaluation, robustness and algorithm integrity analysis of supervisory control systems; optimize complex emulation models for real-time implementation.

Achievements/Experience:

Received Six Sigma Green Belt Certification for successful completion of the "Reduction of System Power Violations for the Production Hybrid Electric Vehicle" project (participated as the team leader).

Developed methods and executed high level functional design verification tests for the production hybrid electric vehicle high voltage battery control algorithms.

Participated in Ford's first Design for Six Sigma project for control system design.

Developed and maintained a software-in-the-loop model for various prototype hybrid electric vehicle supervisory controllers.

Contracted Research Engineer, July 1999- June 2001
Transmission and Engine Systems Department
Vehicle Electronic Systems Department

Responsibilities:

Develop dynamic vehicle models and control algorithms for novel powertrain systems; design, implement and test control algorithms with advanced rapid control prototyping tools (ETAS, dSPACE, SWRI RPECS); carry out experimentation and data acquisition design, calibration and installation of hardware components; develop automatic code generation procedures for hardware-in-the-loop testing and emulations for real-time implementations.

Achievements/Experience:

Implemented a rapid controller prototyping system for the Ford Camless Engine Project.

Designed a real-time laminar flow element error correction algorithm for engine airflow speed density experiments.

Developed throttle characterization, intake manifold and cylinder dynamics under pulsating flow for high fidelity internal combustion engine modeling.

Carried out translation of complex MatrixX/Systembuild models to equivalent Matlab/Simulink models.

Developed a model-to-code process for Ford Research hardware-in-the-loop laboratory.

Investigated fuel efficient alternatives for hybrid electric vehicles by way of performing static and dynamic simulations for various series and parallel hybrid powertrain configurations.

University of Michigan, Ann Arbor, MI, USA
Department of Mechanical Engineering

Research Assistant, September 1997-May 1999

Responsibilities:

Conduct research on modularity and modular optimization of complex dynamic systems; participate in the Design and Integration Team activities at the Engineering Research Center for Re-configurable Machining Systems (ERC/RMS)

Achievements/Experience:

Conducted an industrial survey on the use of Tool Monitoring Systems among North American machine tool manufacturers and end user companies.

Developed a force feedback controller for SCARA robot arm for operation on smooth surfaces.

Carried out inaugural development and administration of the ERC Reconfigurable Manufacturing Systems Website (May 1999- May 2000).

Turkish Aerospace Industries Inc., Ankara, Turkey

Internship, Summer 1996. Worked for the HD-19 Regional Airliner structural design team in the Design and Development Department.

Turk-FIAT Tractor Inc., Ankara, Turkey

Internship, Summer 1995. Surveyed production techniques and quality control systems used across company's manufacturing facilities.

EDUCATION

University of Michigan, Ann Arbor, MI, USA

Ph.D. in Mechanical Engineering, (January 2002-May 2009)
*Dissertation Title: "*Mechatronic Design for Component-Swapping Modularity using Bi-Directional Communication in Networked Control Systems"

Selected Related Coursework: Multivariable Control Systems, Non-Linear Systems and Control, Communication Networks, Vehicle Control Systems.

M. S. in Mechanical Engineering (September 1997- May 1999)
Dissertation Title: "Modular Design of a DC-Motor and Feedback Controller System"

Selected Related Coursework: Modeling and Simulation of Dynamic Systems, Design of Digital Control Systems, Design Optimization, Design of Micro-Electromechanical Systems.

M.E.T.U, Ankara, Turkey

B. S. in Mechanical Engineering, (September 1993-June 1997)

Selected Related Coursework: Design of Control Systems, Dynamics of Machinery, Advanced Mechanical Vibrations and Acoustics, Strength of Materials, Numerical Methods.

Achievements/Experience:

Ranked 1st academically among all graduating ME seniors.

Designed and manufactured a load-carrying vehicle that will operate on non-uniform 3D railway profile as part of a student team

Developed simulation for human body parts in a harmonically excited 2DoF vehicle.

BOOKS & BOOK CHAPTERS

1. Ulsoy, A. G., H. Peng and M. Cakmakci, "Automotive Control Systems", May 2012, Cambridge University Press.
2. Book Chapter in Simulation Foundations, Methods and Applications, 'Simulation-based Engineering', Çakmakcı, M., Kızıltaş, G., Durak U., August 2017, Springer

JOURNAL PAPERS

1. Cakmakci, M., & Ulsoy, G. A. (2009). Improving component-swapping modularity using bidirectional communication in networked control systems. IEEE/ASME Transactions on Mechatronics, 14(3), 307–316. https://doi.org/10.1109/TMECH.2008.2011898
2. Cakmakci, M., & Ulsoy, A. G. (2011). Swappable distributed MIMO controller for a VCT engine. IEEE Transactions on Control Systems Technology, 19(5), 1168–1177. https://doi.org/10.1109/TCST.2010.2080275
3. Ulu, E., Ulu, N. G., & Cakmakci, M. (2014). Development and validation of an adaptive method to generate high-resolution quadrature encoder signals. Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME, 136(3), 034503. https://doi.org/10.1115/1.4026315
4. Ali, Z., Türeyen, E. B., Karpat, Y., & Cakmakci, M. (2016). Fabrication of Polymer Micro Needles for Transdermal Drug Delivery System Using DLP Based Projection Stereo-lithography. Procedia CIRP, 42, 87–90. https://doi.org/10.1016/j.procir.2016.02.194
5. Ulu, N. G., Ulu, E., & Cakmakci, M. (2016). Design and analysis of a modular learning based cross-coupled control algorithm for multi-axis precision positioning systems. International Journal of Control, Automation and Systems, 14(1), 272–281. https://doi.org/10.1007/s12555-014-0125-1
6. Dokuyucu, H. I., & Cakmakci, M. (2016). Concurrent design of energy management and vehicle traction supervisory control algorithms for parallel hybrid electric vehicles. IEEE Transactions on Vehicular Technology, 65(2), 555–565. https://doi.org/10.1109/TVT.2015.2405347
7. Karagoz, M., & Cakmakci, M. (2018). Development of a cross-coupled robust controller for a multi-axis micromachining system. Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME, 140(12), 124501. https://doi.org/10.1115/1.4040443
8. Ristevski, S., & Cakmakci, M. (2019). Planar motion controller design for a modular mechatronic device with heading compensation. Mechatronics, 62, 102257. https://doi.org/10.1016/j.mechatronics.2019.102257
9. Özcan, M., Cakmakci, M., & Temizer, I. (2020). Smart composites with tunable stress–strain curves. Computational Mechanics, 65(2), 375–394. https://doi.org/10.1007/s00466-019-01773-5
10. Guven, E., Karpat, Y., & Cakmakci, M. (2022). Improving the dimensional accuracy of micro parts 3D printed with projection-based continuous vat photopolymerization using a model-based grayscale optimization method. Additive Manufacturing, 57, 102954. https://doi.org/10.1016/j.addma.2022.102954
11. Ristevski, S., & Cakmakci, M. (2023). A self-adjusting and modular supervisory control algorithm for planar dexterous manipulation. Mechatronics, 90, 102936. https://doi.org/10.1016/j.mechatronics.2022.102936
12. Temiz, O., Cakmakci, M., & Yildiz, Y. (2023). Integrated vehicle control using adaptive control allocation. International Journal of Adaptive Control and Signal Processing, 37(7), 1803–1826. https://doi.org/10.1002/acs.3601
13. Keleş, A. F., Temizer, I., & Cakmakci, M. (2023). Space-Time Topology Optimization of Tunable Microstructures. International Journal for Multiscale Computational Engineering. https://doi.org/10.1615/IntJMultCompEng.2023047719

CONFERENCE PAPERS (REFEREED)

1. Cakmakci, M., & Ulsoy, A. G. (2005). Bi-directional communication among “smart” components in a networked control system. Proceedings of the American Control Conference, 1, 627–632. https://doi.org/10.1109/acc.2005.1470027
2. M. Cakmakci and A.G. Ulsoy, "Design of Modular Controllers for Systems with Smart Networked Components," 4th Int. Conf. on Design and Production of Machines and Dies/Molds, Çesme, Turkey, June 2007.
3. Cakmakci, M., & Ulsoy, A. G. (2009). Modular discrete optimal MIMO controller for a VCT engine. Proceedings of the American Control Conference, 1359–1364. https://doi.org/10.1109/ACC.2009.5160005
4. Cakmakci, M., & Ulsoy, G. A. (2009). Improving component-swapping modularity using bidirectional communication in networked control systems. IEEE/ASME Transactions on Mechatronics, 14(3), 307–316. https://doi.org/10.1109/TMECH.2008.2011898
5. Cakmakci, M., & Ulsoy, A. G. (2010). Combined component swapping modularity for a VCT engine controller. Proceedings of the ASME Dynamic Systems and Control Conference 2009, DSCC2009, PART B, 1185–1192. https://doi.org/10.1115/DSCC2009-2510
6. Cakmakci, M., Li, Y., & Liu, S. (2011). Model-in-the-loop development for fuel cell vehicle. Proceedings of the American Control Conference, 2462–2467. https://doi.org/10.1109/acc.2011.5991604
7. Gecer-Ulu,N., Ulu E. and Cakmakci M.,”Development of a Modular Single-axis Slider for High Precision Positioning Applications”, Proceedings of the 15th UMTIK 2012 Conference, Denizli, June 2012.
8. Ulu, E., Ulu, N. G., & Cakmakci, M. (2012). Adaptive correction and look-up table based interpolation of quadrature encoder signals. ASME 2012 5th Annual Dynamic Systems and Control Conference Joint with the JSME 2012 11th Motion and Vibration Conference, DSCC 2012-MOVIC 2012, 2, 543–552. https://doi.org/10.1115/DSCC2012-MOVIC2012-

8661

9. Ulu, N. G., Ulu, E., & Cakmakci, M. (2012). Learning based cross-coupled control for multi-axis high precision positioning systems. ASME 2012 5th Annual Dynamic Systems and Control Conference Joint with the JSME 2012 11th Motion and Vibration Conference, DSCC 2012-MOVIC 2012, 2, 535–541. https://doi.org/10.1115/DSCC2012-MOVIC2012-8660
10. Dokuyucu, H. I., & Cakmakci, M. (2012). Concurrent design of energy management and vehicle stability algorithms for a parallel hybrid vehicle using Dynamic Programming. Proceedings of the American Control Conference, 535–540. https://doi.org/10.1109/acc.2012.6315397
11. Akgun, E., & Cakmakci, M. (2012). Development of a supervisory controller for residential energy management problems. Proceedings of the American Control Conference, 1482–1487. https://doi.org/10.1109/acc.2012.6315097
12. Gecer-Ulu, N., Ulu, E., & Cakmakci, M. (2012). Development of a moduler singleaxis slider system for high precision positioning applications. The 15th International Conference on Machine Design and Production.
13. Ristevski, S., & Cakmakci, M. (2015). Mathematical model for coordinated motion of modular mechatronic devices (mechacells). ASME 2015 Dynamic Systems and Control Conference, DSCC 2015, 2, V002T34A010. https://doi.org/10.1115/DSCC2015-9896
14. Ristevski, S., & Cakmakci, M. (2015). Mechanical design and position control of a modular mechatronic device (MechaCell). IEEE/ASME International Conference on Advanced Intelligent Mechatronics, AIM, 2015-Augus, 725–730. https://doi.org/10.1109/AIM.2015.7222623
15. Türeyen, E. B., Ali, Z., Karpat, Y., Çakmakcı, M., Türeyen, E. B., Ali, Z., Karpat, Y., & Cakmakci, M. (2015). Fabrication of High Aspect Ratio Polymer Structures Using a Digital Micro Mirror Device Based Stereo Lithography Technique. Proceedings of 8th International Conference and Exhibiton on Design and Production of Machines Dies/Molds, 229–234.
16. Türeyen, E. B., Karpat, Y., & Cakmakci, M. (2016). Development of an iterative learning controller for polymer based micro-stereolithography prototyping systems. Proceedings of the American Control Conference, 2016-July, 852–857. https://doi.org/10.1109/ACC.2016.7525020
17. Kerimoglu, S., & Cakmakci, M. (2017). Modeling and cross coupling controller development for a 6DOF laser micro-machining system. Proceedings of the American Control Conference, 2201–2206. https://doi.org/10.23919/ACC.2017.7963279
18. Temiz, O., Cakmakci, M., & Yildiz, Y. (2018). A fault tolerant vehicle stability control using adaptive control allocation. ASME 2018 Dynamic Systems and Control Conference, DSCC 2018, 1, V001T09A002. https://doi.org/10.1115/DSCC2018-8976
19. Temiz, O., Cakmakci, M., & Yildiz, Y. (2019). Adaptive Control Allocation with Communication Delay for In-Wheel Propulsion Electric Vehicles. IFAC-PapersOnLine, 52(20), 157–162. https://doi.org/10.1016/j.ifacol.2019.12.151
20. Cakmakci, M., & Ristevski, S. (2020). An extremum seeking estimator design and its application to monitoring unbalanced mass dynamics. IEEE/ASME International Conference on Advanced Intelligent Mechatronics, AIM, 2020-July, 1543–1548. https://doi.org/10.1109/AIM43001.2020.9158885
21. Leblebicioglu, D., Atesoglu, O., & Cakmakci, M. (2022). Physics-Informed Disturbance Estimation and Nonlinear Controller Design for a Multi-Axis Gimbal System. IFAC-PapersOnLine, 55(37), 530–535. https://doi.org/10.1016/j.ifacol.2022.11.237
22. Cakmakci, M., & Koysuren, M. K. (2022). A Computationally Efficient Control Allocation Method for Four-Wheel-Drive and Four-Wheel-Independent-Steering Electric Vehicles. Proceedings of the American Control Conference, 2022-June, 3044–3049. https://doi.org/10.23919/ACC53348.2022.9867549
23. Koysuren, K., Keles, A. F., & Cakmakci, M. (2023, June 1). Online Parameter Estimation using Physics-Informed Deep Learning for Vehicle Stability Algorithms. IEEE/ASME American Control Conference. http://arxiv.org/abs/2303.00474

RESEARCH FUNDING

1. “Development of a Self Sufficient Modular Mechatronic Device and Its Proof of Concept with a Workpiece Positioning Study." EU REA Marie Curie Reintegration Grant, November 2010-November 2014, Project Budget: €100,000.

2. "Development of a three-axis nano-positioning system through linear motor control". TUBITAK 1001 Scientific and Technological Research Grant, November 2010-November 2012 , Project Budget: 210,000TL.

3. “Development of an MEMS Acoustical Vector Sensor”. Undersecretariat for Defense Industry Grant, August 2013-August 2016, 2,200,000TL. (Collaboration with Meteksan Defense Industries, Inc.).

4. "Development of an Multipurpose Micro Manufacturing System using Modular and Iterative Learning Control Algorithms". TUBITAK 1001 Scientific and Technological Research Grant, October 2013-March 2016 , Project Budget: 183,650TL.

5. “Modeling And Control Of A Two Axis Guidance Unit”, Supported by Aselsan Inc., July 2018-July 2019, 103,250TL.

6. “Development of Electric Vehicle Models”, Supported by Altair-Acrome, July 2021-May2022, 48000TL.

TECHNICAL REPORTS & PRESENTATIONS

1. M. Cakmakci, R.G. Landers and A. G. Ulsoy, “ERC/RMS Technical Report: Results of a Survey on Tool Monitoring Systems,” ERC for Reconfigurable Machining Systems at University of Michigan, 1998. Ann Arbor, MI.
2. M. Cakmakci, M. Mehrabi and A. G. Ulsoy, “State-of-the-art in Reconfigurable Machining Systems, Volume II,” ERC for Reconfigurable Machining Systems at University of Michigan, Ann Arbor, MI.
3. J. Kotwicki and M. Cakmakci, ”LFE Measurement Correction for ESM/MAF Delete Engine Tests,” FRL Technical Memo, September 2000, FRL, Dearborn, MI.
4. M. Jankovic, K. Bailey, S. Cikanek, R. Baraszu, and M. Cakmakci, “Dynamic Model for the DOE LSR Hybrid Electric Vehicle,” FRL Technical Report, 2001, FRL, Dearborn, MI.
5. M. Cakmakci and R. Baraszu, “Xmath/SystemBuild to Matlab/Simulink Migration Process,” FRL Technical Report, 2001, FRL, Dearborn, MI.
6. "Reduction of System Power Violations for HEV", Six Sigma Greenbelt Project Management Review, November 2004, Product Development Engineering, Dearborn, MI.
7. "Proposal for a Rapid HIL Development Process", Department Meeting Presentation, December 2005, FRL, Dearborn, MI.
8. "Model Based Flexray Network Design", Department Meeting Presentation, April 2006, FRL, Dearborn, MI.
9. "Status of Model Based Flexray Project", Chief Engineer Review, July 2006, FRL, Dearborn, MI.
10. “Vehicle Control System Development Process”, University of Michigan ME564 Guest Lecture, October 2006, Ann Arbor, MI.
11. "Status of CISG+ERAD HIL Testbench", Chief Engineer Review, February 2007, FRL, Dearborn, MI.
12. Y. Zhao, Z. Yan, A. Malik, J. Blankenship and M. Cakmakci, “Development of a Hardware-In-The-Loop System for a Hybrid Powertrain Vehicle Control,” FRL Technical Report, 2009, FRL, Dearborn, MI.
13. M. Cakmakci, Y. Li, S. Liu, “Development of a MIL/HIL Oriented Simulink Vehicle Model for Ford Fuel Cell Vehicle Program,” FRL Technical Report, 2009, FRL, Dearborn, MI. (w/ Bilkent U. Affiliation)

TEACHING ACTIVITIES And SERVICE

ME 565 Dynamics

ME 578 Vehicle Control Systems

ME579 Adaptive Control Systems

ME584 Introduction to Mechatronic Systems

ME 102 Systems Engineering

ME341 Dynamics and Controls I

ME342 Dynamics and Controls II

ME440 Automotive Engineering

ME299 and ME399 Summer Practice Coordinator (2010-2014)

PROFESSIONAL & LEADERSHIP ACTIVITIES

Mechanics Track Co-Chair for ASME 2010 ESDA Conference.

Organizer and host of the Ford Research and Advanced Engineering Control Systems Seminars (January 2006-Current),

Organizer and host of the Hardware-in-the-Loop Technical Discussion Series,

Member of the Hybrid and Fuel Cell Research Team Employee Recognition Selection Committee (April 2004-December 2005),

Co-developer and co-investigator, Ford Motor Company – University of Michigan joint research project: "Design for Swapping Modularity Case Study: Series HEV Controller".

Consultant for HIL Testing and Automatic code generation methods for Ford Hybrid Escape program (2005-2006).

Technical Reviewer, American Control Conference, Conference on Decision and Control IEEE Transactions on Mechatronics, ASME Dynamic Systems and Vibrations, Journal of Automatic Control, IEEE Transactions on Control Systems Technology

Member, ASME, IEEE, SAE.

ASME Dynamic Systems and Control Division Webmaster (2012-2013) and Member of the Executive Committee.

Associate Editor to 2015 Dynamic Systems and Control Conference on track topics 'Surface Robotics' and 'Vehicle Motion Control'. March 2015-October 2015

Jury Member for the Best Student Paper Competition at the 2015 Dynamic Systems Measurement and Controls Conference, Oct 2015.

Associate Editor to 2017 Dynamic Systems and Control Conference on track topics 'Fuel Cell Systems'. March 2017-October 2017

GRADUATE STUDENT SUPERVISION

1. Emre Akgün, M.S., "Development Of A Supervisory Controller For Energy Management Problems," Graduated August 2010. Now with ANDRITZ HYDRO GmbH
2. Erva Ulu, M.S., "Mechatronic Design of a Modular Precision Positioning System", September 2010-, Graduated August 2012. Now with Palo Alto Research Inc.
3. Nurcan Gecer Ulu, M.S., "MIMO Control of a 3-Axis Modular Precision Positioning System", Graduated: August 2012. Now with Palo Alto Research Inc.
4. Halil İbrahim Dokuyucu, M.S., "Concurrent Design of Automotive Control Systems- Powertrain + Vehicle Stability Example", September 2010, Graduated August 2012. Now with Ministry of Foreign Affairs.
5. Stefan Ristevski, M.S., "Distributed Positioning of a Workpiece using MechaCells", Graduated: August 2015. Now with CNCtech in Macedonia.
6. Alper Yasin Tiftikci, M.S., Thesis Topic: "Sensing Tip Analysis and Design for an Acoustic Vector Sensor", Graduated: August 2016. Research Engineer, TAI.
7. Erkan Buğra Türeyen, M.S., Thesis Topic: "Mechatronic and Iterative Controller Design for a Multi-Purpose Micro Prototyping System", Expected Graduated: August 2016, Research Engineer, Roketsan.
8. Mümtazcan Karagöz, M.S., Thesis Topic: "Design and Analysis of a Multi-Purpose 3D Micro Positioning System", Graduated: August 2016. Research Engineer, TAI.
9. Serhat Kerimoğlu, M.S., Thesis Topic: "3D Contour Error Minimizing Controller Design for Laser Machining System", Graduated: August 2016. Research Engineer, TAI.
10. Müge Özcan, M.S., Thesis Topic: "Design and Control of Smart Materials", December 2018. (co-advise w/ İ. Temizer)
11. Ozan Temiz, M.S., Thesis Topic: "Control-Oriented Vehicle Dynamics modeling for Electric Vehicles", August 2018.
12. Damla Leblebicioğlu, M.S., Thesis Topic: "Co-Design of an Pan Tilt Mechanism", August 2021
13. Ege Güven, M.S., Thesis Topic: "Mechatronic Modeling and Design of an Micro-Stereolithography Machine", August 2022
14. Kemal Köysüren, M.S., Thesis Topic: "Robust Design of Optimal Vehicle Supervisory Control Systems", Expected Graduation: August 2023
15. A.Faruk Keleş, M.S., Thesis Topic: "Representing Unmodeled Nonlinear Dynamics using Physics-Informed Neural Networks", Expected Graduation: August 2024
16. Doğa Dağ, M.S., Thesis Topic: "Robust Design of Autonomous Supervisory Control Systems", Expected Graduation: August 2024

AWARDS & HONORS

"Outstanding Undergraduate Student of the Year Award," 1996, M. E. T. U., Ankara, Turkey.

President's List of High Honor for Graduation, 1997, M. E. T. U., Ankara, Turkey.

Departmental Achievement Award: "Hybrid Electric Vehicle System Controller Implementation in Matlab/Simulink" 2001, FRL, Dearborn, MI.

Departmental Achievement Award: "Successful Controller Development and Implementation for the CISG-ERAD Hybrid Electric Vehicle Prototype," 2008, FRL, Dearborn, MI.

DSCC 2012 Best Paper in Session Award for paper presentation "Learning Based Cross-Coupled Control For Multi-axis High Precision Positioning Systems", October 2012.

ASME Dynamic Systems and Control Division Service Award, (July 2015)

'Docent in Mechanical Engineering' Degree from Higher Education Council of Turkey, (April 2016)

2016 Inspiring Teacher Award by ME Seniors. (award that is organized and conducted by the graduating seniors to select by voting the faculty member who had the most (positive) influence on their education)

SKILLS

Programming: C/C++, Pascal, Fortran, Java/Javascript, PHP, Python.

EngineeringSoftware:Matlab/Simulink/Stateflow/RTW, MatrixX/SystemBuild/AutoCode, Maple, 20Sim, ETAS/ASCED-SD, dSpace ControlDesk, GT-Power, Maple/Maplesim, Mathematica, Mathcad, Autocad, Cadkey, Pro-Engineer.

OS: Microsoft Windows, OSX, Unix, Linux, QNX, ERCOS-EK.