
Koorosh Aslansefat



Born: June 13, 1989, Tehran, Iran

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Education

2018 - Present	Ph.D. Student and Researcher in Dependability Modeling and Assessment, Department of Computer Science, University of Hull, Kingston upon Hull, United Kingdom.
2016 – 2018	Researcher in Robotics, Department of Electronic and Computer Engineering, New University of Lisbon, Lisbon, Portugal.
2014 - 2016	Researcher in Performance Assessment, Department of Control Engineering, Shahid Beheshti University (SBU), Tehran, Iran.
2012 - 2014	MSc. in Control Engineering, Shahid Beheshti University (SBU), Tehran, Iran, Total GPA: 16.90 (Ranked 5th)
2007 - 2011	BSc. in Maritime Electronic and Communication, Chabahar Maritime University (CMU), Chabahar, Iran, Total GPA: 15.86/20 (Ranked 1st)
2003 - 2007	Diploma in Mathematics and Physics, Shahid M. Salehi-Shafa, Tehran, Iran, Total GPA: 16.54/20



Language

Persian	Native language
English	Fluent speaking and writing (with TOEFL iBT certificate)
Portuguese	A1/A2



Honors

- ✓ Ranked 1st in Electronic Engineering Department in BSc Degree, Chabahar Maritime University, Iran.
 - ✓ Awarded in the research week for designing electronic system of "CMU" underwater robot, Chabahar Maritime University, Iran, (Dr. H. Khoshsima indicated that CMU is proud of CMU-group), 2011.
 - ✓ Achieving 2nd position in national Olympiad of IDEAS BAAZAR for "Designing a National Game", Amirkabir University of Technology (AUT), Tehran, Iran, Nov. 2015
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Thesis

BSc Thesis: Implementation of Ziegler-Nichols Control Method on AVR Microcontroller for Control Hovering Maneuver of Underwater Vehicle. (One test of this system available on [YouTube](#))
Advisor: Dr. S. Heidari (Mark: 20/20)

MSc Thesis: A Novel Approach for Reliability and Safety Evaluation of Control Systems with Dynamic Fault Tree Advisor: Dr. G.R. Latif-Shabgahi (Mark: 20/20)



Research Interests

- Performance Assessment
 - Data-driven Fault Detection, Diagnosis, and Prognosis
 - Dependability Evaluation and Improvement and Fault Tolerant Design
 - Optimization of Artificial Intelligence Methods and Evolutionary Algorithms
 - Probabilistic Modelling (In particular Markov Modelling)
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Academic Projects

❖ Internships of BSc Degree at Chabahar Maritime University, 2010-2011, Chabahar, Iran

The first internship project: Testing and Commissioning in Different Parts of DSK DSP Based Processor Board, 2010, Ertebatate Pishro Khavarmiane Company, Tehran, Iran.

The second internship project: Survey on Underwater Navigation Systems, 2011, Marine Engineering Department, Sharif Advanced Technologies Incubator (SATI), Tehran, Iran.

❖ Course Project at Shahid Beheshti University, 2013-2014, Tehran, Iran

Stochastic process: Application of Kalman Filter on Underwater Navigation.

Bio-computational: Neural Networks Training by Evolutionary Algorithm (GA, PSO, and ICA) and Comparison with Gradient and Back Propagation Methods. Fuzzy Heading Control of Ship on MATLAB Virtual Reality. Simulation of Growth Forest Fires with Cellular Automaton.

Advanced industrial control: Fault Tolerance in Networks on Industrial Distributed Control Systems

Real-time control: Design for Safety.

Nonlinear control: Robust Feedback Linearization of the Chemical Reactor.

Fault Detection and Identification (FDI): Fault Prognosis and Remaining Useful Life (RUL) Estimation based on Hidden Markov Model (HMM).

MIMO control systems: Evaluating the Effect of Fixed-Point Computing on Control of 3-DOF Underwater Vehicle

MSc. Seminar: Study and Survey on Challenges of Underwater Robot Control



Teaching

1. PCB design with Altium Designer Software, 2010, Scientific Society of Electrical Engineering, Chabahar University, Chabahar, Iran.
 2. PCB design with Altium Designer Software, 2010, Robotics Group, Chabahar University, Chabahar, Iran.
 3. Workshop on Proteus Software, 2010, Chabahar University, Chabahar, Iran.
 4. Workshop on Electronic Systems Design and Control of Autonomous Underwater Vehicles, 2010, Chabahar University, Chabahar, Iran.
 5. **Teacher Assistant** of “Real-Time Control” Course (at Post Graduate level), 2013, Shahid Beheshti University, Tehran, Iran.
 6. **Teacher Assistant** of “Reliable Control Systems” Course (at Post Graduate level), 2014, Shahid Beheshti University, Tehran, Iran.
 7. **Teacher Assistant** of “Real-Time Control” Course (at Post Graduate level), 2014, Shahid Beheshti University, Tehran, Iran.
 8. Dependability modeling and evaluation through Markov theorem, 2014, Shahid Beheshti University, Tehran, Iran.
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Publications

Journal Papers

1. F. Piltan, N. Sulaiman, A. Jalali and **K. Aslansafat**, "Evolutionary Design of Mathematical tunable FPGA Based MIMO Fuzzy Estimator Sliding Mode Based Lyapunov Algorithm: Applied to Robot Manipulator," *International Journal of Robotics and Automation*, vol. 2, no. 5, pp. 317-343, 2011. [Link](#)
2. M. Kamarlouei, H. Ghassemi, **K. Aslansafat** and D. Nematy, "Multi-objective Evolutionary Optimization Technique Applied to Propeller Design," *Acta Polytechnica Hungarica*, vol. 11, no. 09, pp. 163-182, 2014. [Link](#)
3. **K. Aslansafat**, G. R. Latif-Shabgahi and M. Kamarlouei, "A Strategy for Reliability Evaluation of Autonomous Underwater Gliding Robots," *International Journal of Advances in Science, Engineering and Technology (IJASEAT)*, vol. 2, no. 4, pp. 83-89, 2014. [Link](#)
4. **K. Aslansafat** and G. R. Latif-Shabgahi, "A Systematic Approach to Sensitivity Analysis of Fault Tolerant Systems in NMR Architecture," *Journal of Intelligent Procedures in Electrical Technology (JIPET)*, vol. 5, no. 20, pp. 3-14, 2015. [Link](#)
5. G. R. Latif-Shabgahi, **K. Aslansafat** and M. Bahar-Gogani, "Reliability and Safety Modelling in Reliable Systems Supported with Cold Standby Spares by the Markov Model," *Journal of Industrial Engineering*, vol. 49, no. 2, pp. 273-285, 2015. [Link](#)
6. J. Taheri Kalani, **K. Aslansafat** and G. Latif-Shabgahi, "A Systematic Approach to Design and Analysis of Univariate Alarm Systems Using Penalty Approaches," *Journal of Control*, vol. 10, no. 4, pp. 1-15, 2017. [Link](#)
7. A. Sakaki, H. Ghassemi, **K. Aslansafat** and M. Sadeghian, "Optimization of the Drag Force of Planing Boat with Trim Control System Using Genetic Algorithm," *American Journal of Mechanical Engineering*, vol. 5, no. 4, pp. 161-166, 2017. [Link](#)

Submitted Journal Papers

1. **K. Aslansafat**, M. Bahar-Gogani, M. Aliyari-Shoorehdeli and M. Yari, "Performance Assessment and Design for Variable Threshold," *IEEE Transactions on Automation Science and Engineering*, Submitted in May 2017.
2. **K. Aslansafat** and G. R. Latif-Shabgahi, "A Hierarchical Approach for Dynamic Fault Trees Solution through Semi-Markov Process," *IEEE Transactions on Reliability*, Submitted in Feb. 2017.
3. **K. Aslansafat** and G. R. Latif-Shabgahi, "Reliability Evaluation of Reconfigurable NMR Architecture Supported with Hot Standby Spare: Markov Modeling and Formulation," *International Journal of Reliability and Safety*, Submitted in Feb. 2017.

Conference Papers

1. **K. Aslansafat** and G. Latif-Shabgahi, "A Novel Classification for Underwater Robots," in *5th Offshore Industries Conference*, Tehran, Iran, 2013 (In Persian).
 2. **K. Aslansafat** and G. Latif-Shabgahi, "Systematic Methods in Markov Reliability Modelling of Reconfigurable NMR Architecture with Cold Standby Spare," in *16th Iranian Electrical Engineering Students Conference*, Kazerun, Iran, 2013 (In Persian).
 3. **K. Aslansafat** and G. Latif-Shabgahi, "A New Method in Drawing Reliability Markov Model of Reconfigurable TMR Systems with Frequency Formulations," in *5th Iranian Conference on Electrical & Electronics Engineering (ICEEE)*, Gonabad, Iran, 2013 (In Persian).
 4. G. Latif-Shabgahi, B.-G. Mahdi and **K. Aslansafat**, "Formulation the Reliability and Availability of Industrial Systems with Cold Backups," in *3th International conference on Reliability*, Tehran, Iran, 2013.
 5. **K. Aslansafat**, G. Latif-Shabgahi and M. Kamarloie, "Faults Taxonomy in Autonomous Underwater Vehicle and Provide their Fault Tree," in *15th Marine Industries Conference*, Kish, Iran, 2013 (In Persian).
 6. **K. Aslansafat** and G. Latif-Shabgahi, "Reliability and Availability Formulation of NMR Architecture in Reliable Systems," in *9th Maintenance Conference*, Tehran. Iran, 2014 (In Persian).
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7. **K. Aslansafat**, G. Latif-Shabgahi and S. Zaferanchi, "A Systematic Method Sensitivity Analysis of Module Failure in NMR Architecture Based on Fault Tree," in *9th Maintenance Conference*, Tehran, Iran, 2014 (In Persian).
 8. G. Latif-Shabgahi, S. Zaferanchi and **K. Aslansafat**, "MTBF Evaluation of Standby Sparing System by Means of Markov Model," in *6th Iranian Conference on Electrical and Electronics Engineering*, Gonabad, Iran, 2014.
 9. B. Bassari, M. Mohammadi, G. R. Latif-Shabgahi and **K. Aslansafat**, "A Novel Systematic Approach for Reliability Modelling and Evaluation of Reconfigurable NMR Architecture with Stepwise Degradation," in *6th Iranian Conference on Electrical and Electronics Engineering*, Gonabad, Iran, 2014.
 10. S. Zaferanchi, **K. Aslansafat** and G. Latif-Shabgahi, "Availability Evaluation of Wireless Sensor Network through Fault Tree," in *9th Maintenance Conference*, Tehran, Iran, 2014 (In Persian).
 11. G. R. Latif-Shabgahi, S. Zaferanchi and **K. Aslansafat**, "Applications of Wireless Sensor Networks in Marine Industries: Topology, Challenges and New Technologies," in *16th Marine Industries Conference*, Bandar Abbas, Iran, 2014 (In Persian).
 12. M. Bahar-Gogani, H. Ramezani, A. Yazdizadeh and **K. Aslansafat**, "Reliability Evaluation in Propulsion System of Diesel-Electric Locomotive through Fuzzy Fault Tree," in *4th International Conference on Recent Advances in Railway Engineering (ICRARE2015)*, University of Science and Technology, Tehran, Iran, 2015.
 13. N. Chiniforush, **K. Aslansafat** and G. R. Latif-Shabgahi, "Reliability Evaluation of Brake-by-Wire Systems through Temporal Fault Tree," in *National Conference of Technology, Energy and Data on Electrical and Computer Engineering*, Kermanshah, Iran, 2015.
 14. M. Mohammadi, **K. Aslansafat** and G. R. Latif-Shabgahi, "A Novel Monte Carlo Simulation-based Approach for Safety Evaluation of Spare Systems," in *10th Maintenance Conference*, Tehran, Iran, 2015.
 15. M. Mohammadi, **K. Aslansafat** and G. R. Latif-Shabgahi, "Reliability Evaluation of Sliding Standby Spare Systems through Petri Nets," in *10th Maintenance Conference*, Tehran, Iran, 2015.
 16. Z. Ramezani, P. Khajeie, G. R. Latif-Shabgahi and **K. Aslansafat**, "Hierarchical Steady-State Availability Evaluation of Dynamic Fault Trees through Equal Markov Model," in *24th Iranian Conference on Electrical Engineering (ICEE2016)*, Shiraz University, Shiraz, Iran, 2016.
 17. M. Mohammadi, **K. Aslansafat** and G. R. Latif-Shabgahi, "Dynamic Gates Safety Evaluation through Monte Carlo Simulation," in *4th International Reliability Engineering Conference*, Tabriz, Iran, 2016.
 18. Z. Ramezani, G. R. Latif-Shabgahi, F. Fadaei and **K. Aslansafat**, "A New Methodology to Availability Analysis of Dynamic Fault Tree by Using Their Hierarchical Equal Markov Model," in *4th International Reliability Engineering Conference*, Tabriz, Iran, 2016.
 19. M. Bahar-Gogani, **K. Aslansafat** and M. Aliyari Shoorehdeli, "A Novel Extended Adaptive Thresholding for Industrial Alarm Systems," in *25th Iranian Conference on Electrical Engineering (ICEE2017)*, Tehran, Iran, 2017.
 20. **K. Aslansafat**, M. Bahar-Gogani, M. Pourgholi and M. Kamarlouei, "Evaluating the Effect of Fixed-Point Computing on Motion Control of Autonomous Underwater Vehicles," in *25th Iranian Conference on Electrical Engineering (ICEE2017)*, Tehran, Iran, 2017.
 21. **K. Aslansafat**, M. H. Ghodsirad, J. Barata and J. Jassbi, "Resilience Supported System for Innovative Water Monitoring Technology," in *9th IFIP WG 5.5/SOCOLNET Advanced Doctoral Conference on Computing, Electrical and Industrial Systems, DoCEIS 2018*, Costa de Caparica, Portugal, 2018.
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In Hand Papers

1. **K. Aslansafat**, "Study on Combinatorial Sensitivity Analysis of Dynamic Fault Tree through Markov Model Perturbation Method"
 2. J. Taheri-Kalani, **K. Aslansafat** and G. R. Latif-Shabgahi, "Performance Assessment of Alarm Systems"
 3. M. Mohammadi, **K. Aslansafat** and G. R. Latif-Shabgahi, "Markov Path: Theory and its Applications"
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In Hand Book Chapter

H. Ghasemi, M. Kamarlouei and K. Aslansafat, "Faults in Underwater Robots: Fault Diagnosis and Tolerant," in *Underwater Robots*, Tehran, Iran, Amirkabir University of Technology, Coming Soon.



Certificates

Short Courses

1. Fault Detection, Identification & Tolerant in Industrial Systems, 2013, IEEE (Iran Section), Sharif University of Technology, Tehran, Iran (Duration: 6h).
 2. Reliability Analysis of Computer-based Systems using Dynamic Fault Tree, 2014, IEEE, (Mark: 85/100), 2014, IEEE e-Learning Online Course (Duration: 3h).
 3. Fault Diagnosis in Nonlinear Systems, Novel Approaches, 2015, IEEE (Iran Section), Sharif University of Technology, Tehran, Iran (Duration: 6h).
 4. Complex System Reliability and Safety Assessment: Methods, Models and Open Issues, 2016, International Conference of Reliability Engineering, Tabriz, Iran, (Duration: 4h).
 5. Remaining Useful Life Estimation, 2016, International Conference of Reliability Engineering, Tabriz, Iran, (Duration: 4h).
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Long Courses

1. MATLAB (Programming, Simulink, GUI, xTarget PC, Virtual Reality), (Mark: 100/100), 2008, Jahad-Daneshgahi, University of Science and Technology, Tehran, Iran, (Duration: 30h)
 2. PCB & Circuit Design with Protel DXP Software, (Mark: 100/100), 2009, Tehran Institute of Technology, Tehran, Iran, (Duration: 29h)
 3. Digital Circuit Design, (Mark: 85/100), 2009, Tehran Institute of Technology, Tehran, Iran, (Duration: 40h)
 4. FPGA Programming by VHDL, (Mark: 95/100), 2009, Tehran Institute of Technology, Tehran, Iran, (Duration: 45h)
 5. 8051 Microcontroller Programming, (Mark: 100/100), 2009, Tehran Institute of Technology, Tehran, Iran, (Duration: 70h)
 6. AVR Microcontroller Programming, (Mark: 93/100), 2009, Tehran Institute of Technology, Tehran, Iran, (Duration: 50h)
 7. ARM Microcontroller Programming, (Mark: 89/100), 2009, Tehran Institute of Technology, Tehran, Iran, (Duration: 35h)
 8. Practical design with Texas Instrument DSP processors, (Mark: 19.5/20), 2010, Ministry of Industries and Mines, Tehran, Iran. (Duration: 50h)
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Membership

IEEE Student Member: #92606243

Member of National Scientific Student's Organization of Electrical Engineering #920169

Member of Iranian Mathematical Society #939870



Experience

Committee arbitration in 2th National Iranian Intelligent Surface Vehicles Competitions, 2011, Tehran, Iran.

Industrial Research Experiences:

Cooperative member of the national project named "Dependability Evaluation of Iran's National Grid" for Iranian Grid Management Center (IGMC) of ministry of energy in Iran.

Active member of the national project named "Analysis Last Decade Events of Iran's National Grid" Iranian Grid Management Center (IGMC) of ministry of energy in Iran.



Sports

CMAS-ISA 1 Star Diver Certificate, 2011, Chabahar Diving School, Chabahar, Iran.

References

Professor Yiannis Papadopoulos – Email: y.papadopoulos@hull.ac.uk

Professor G.R. Latif-Shabgahi – Email: gh_latif@sbu.ac.ir, latif_shabgahi@yahoo.co.uk

Professor A. Yazdizadeh – Email: a_yazdizadeh@sbu.ac.ir, aryazdizadeh@yahoo.com

Professor M. Aliyari Shoorehdeli – Email: aliyari@eetd.kntu.ac.ir, aliyari@gmail.com
