

Curriculum Vitae

Keyvan Asefpour Vakilian

Assistant Professor
Head of the Laboratory of Sensors & Biosensors
Department of Biosystems Engineering,
Gorgan University of Agricultural Sciences and Natural Resources (GUASNR)
Member of ASABE, ACS, IEEE, and ISAMEM
Research interests: Postharvest technology, Portable biosensors, Smart agriculture



PERSONAL INFORMATION

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Web of Science Researcher ID: H-2275-2019
Scopus ID: 57217077628

ACADEMIC BACKGROUND

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| 2013-2018 | Degree obtained: Ph.D. in Biosystems Engineering
Department of Agrotechnology, University of Tehran, Iran
Title of dissertation: "Design, Development and Performance Evaluation of an Intelligent Biosensor for the Measurement of Nitrate Ion in Greenhouse Crops". |
| 2010-2012 | Degree obtained: M.Sc. in Agricultural Engineering
Department of Agrotechnology, University of Tehran, Iran
Title of thesis: "Design, Development and Performance Evaluation of a Robot to Measure the Image Textural Features in Greenhouse Cucumber". |
| 2006-2010 | Degree obtained: B.Sc. in Agricultural Engineering
Faculty of Agriculture, Tabriz University, Tabriz, Iran.
Title of project: "Applications of Condition Monitoring in Agricultural Engineering". |

AWARDS

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| 2024 | Among the 2% top researchers of the world for the second consecutive year, reported by Scopus |
| 2023 | Among the 2% top researchers of the world, reported by Scopus |
| 2022 | Outstanding entrepreneur of GUASNR |
| 2022 | Faculty member of the year with the most scientific growth, GUASNR |
| 2018 | Outstanding national Ph.D. graduate selected by Iran's National Elites Foundation (INEF) |
| 2018 | Outstanding Ph.D. dissertation of University of Tehran |
| 2017 | Ph.D. dissertation fund award of University of Tehran Science & Technology Park (3,000 USD). |
| 2017 | Outstanding Ph.D. student of University of Tehran |
| 2015 | Outstanding student selected in Research Festival of University of Tehran |
| 2009 | Top-ranked group leader for "Design and development of an electrical vehicle (ARAS Team)". Tabriz University, Tabriz, Iran |

INTERNATIONAL RESEARCH PROJECTS

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| 2020-2023 | Title: IoT and portable biosensors for environmental pollution monitoring in the Black Sea catchment
Funding organization: Hulla & Co. Human Dynamics K.G, European Union
Amount of funding: 60,000 EUR |
| 2023-present | Title: Design and construction of a portable biosensor to detect biotic and abiotic stresses of plants
Funding organization: ENVIRO TIP Co.
Amount of funding: 38,000 EUR |

RESEARCH PROJECTS FUNDED BY THE PRIVATE SECTOR

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| 2023-2024 | Title: Early detection of environmental stress in cucumber plants using miRNA biosensors
Funder: Zist Fanavar Pishgaman Sina Co. |
| 2021-2022 | Title: Investigating methods of making smart sensors for measuring nitrite in drinking water and canned products
Funder: Zartak Noosh Co., |
| 2020-2021 | Title: The feasibility of using nanomaterials in improving the performance of electrochemical biosensors
Funder: Zist Fanavar Pishgaman Sina Co. |

RESEARCH PROJECTS FUNDED BY THE GOVERNMENT

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| 2024-present | Design and production of an electrochemical nanobiosensor based on SPE coated with gold-chitosan nanoparticles and carbon nanotubes for histamine measurement in tuna fish |
| 2024-present | The effect of chitosan-based edible coatings on the concentration of microRNAs in apple fruit during storage |
| 2023-2024 | A biosensor for detection of heavy metal concentration in the environment |
| 2023-2024 | Performance evaluation of machine learning to determine the storage quality of apple using miRNA biosensor data |
| 2022-2024 | Using microRNA biosensors to detect food stress in plants |
| 2021-2023 | Smart multiplex biosensor for simultaneous measurement of microRNA concentrations in plant tissues |

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2021-2022	A smart portable biosensor for accurate and fast detection of water pollution
2020-2022	Performance of machine learning in improving the specific and selective response of Au-NP biosensors
2018-2019	Performance evaluation of a smart voltammetric biosensor in the monitoring nitrate contamination in water
2016-2018	Prediction of the effect of using chemical fertilizers (potassium chloride, urea and ammonium phosphate) on soil infiltration resistance

EXECUTIVE ACTIVITY

2023 - present	Member of Golestan Province's Elite Think Tank on Sustainable Development (GPETTSD)
2021 - present	Entrepreneurial consultant of the Faculty of Water and Soil Engineering, GUASNR
2022 - present	Member of the International Relations Workgroup, GUASNR

ACADEMIC TEACHING EXPERIENCE

2023	Teaching the short-term course "Digital Agriculture: Prospects and Challenges" at Tuscia University, Italy, under the title of Erasmus+ exchange program
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2017 - present	Teaching several courses at University of Tehran and GUASNR including: Advanced modelling methods (Ph.D.) Image processing and its applications (Ph.D.) Introduction to machine vision (M.Sc.) Measurement and control systems (B.Sc.) Introduction to electronics (B.Sc.) Hydraulic and pneumatic systems (B.Sc.) Physics- Electricity and magnetism (B.Sc.)
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SUPERVISING PHD AND MSC STUDENTS

2023-present	Dissertation title: Managing Phalaenopsis orchid growth and development using light spectrum and machine learning
2023-2024	Thesis title: Optimizing machine learning methods for intelligent biosensors to assess the postharvest quality of products
2022-2023	Thesis title: Construction of a fruit edible coating device and evaluation of its performance on preserving the morphological, physiological and biochemical characteristics of citrus fruits during the storage period
2022-present	Thesis title: Design, fabrication and evaluation of a semi-industrial carrot peeling machine

ADVISING PHD AND MSC STUDENTS

2024-present	Dissertation title: Improving the efficiency of resource consumption in the production of basil plant (<i>Ocimum basilicum</i> L.) in the plant factory system under various light spectrums
2024-present	Dissertation title: Study of the factors involved in the occurrence of hypoxia stress in the hydroponic cultivation system in different genotypes of basil and lettuce
2022-present	Dissertation title: Investigation of the effect of three species of <i>Trichoderma</i> spp on <i>Alternaria solani</i> and <i>Helicoverpa armigera</i> in tomato plant with the help of biochemical evaluations and miRNA concentration measurement
2021-present	Dissertation title: Modeling and optimization of Phalaenopsis orchid in vitro growth and development using machine learning
2020-2023	Dissertation title: Intelligent diagnosis of common tomato plant diseases using color and hyperspectral image processing
2020-2022	Dissertation title: Design and construction of a smart electrochemical biosensor based on gold nanoparticles to determine arsenite in agricultural products
2021-2023	Thesis title: Investigating the effect of mechanical damage and storage period on the morphology, physiology and miRNA concentrations of strawberry
2022-2023	Dissertation title: Design and construction of autonomous mobile robot for agricultural applications
2021-2022	Thesis title: Determining the postharvest quality of tomatoes using miRNA concentrations and machine learning
2021-present	Dissertation title: Construction and evaluation of leafy vegetable harvesting machine with electric automatic sorting capability
2018-2020	Dissertation title: Design and construction of a variable flow sprayer robot based on the volume of the plant mass
2018-2020	Thesis title: Development of an intelligent system to determine the exact time of calcium fertilization in greenhouse tomatoes using image processing
2016-2018	Dissertation title: A farm protection robot tracking system based on image processing
2016-2018	Dissertation title: Designing, manufacturing, and optimization of date harvesting robot
2016-2018	Dissertation title: Design and construction of a prototype of a greenhouse crop harvesting robot
2014-2015	Thesis title: Design and construction of the farm quadrotor robot control system
2014-2015	Thesis title: Design, construction and evaluation of the farm quadrotor robot
2013-2014	Thesis title: Design, construction and evaluation of a robot for estimation of kiwi fruit yield

PATENTS

2023	Portable intelligent biosensor for heavy metals.	Patent pending
2022	Date palm harvesting robot equipped with product estimation system	Patent number: 107357
2016	Rolling ball viscometer equipped with image processing and temperature controller	Patent number: 88368
2012	Intelligent robot for determining texture characteristics of plant leaf images	Patent number: 76309

REVIEWS FOR PEER-REVIEWED JOURNALS

More than 200 review records for various journals verified at Publons/WoS database including:

Computers and Electronics in Agriculture, Publisher: Elsevier
Journal of Food Engineering, Publisher: Elsevier

Journal of Hazardous Materials, Publisher: Elsevier
Journal of Food Process Engineering, Publisher: Wiley

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Journal of Cleaner Production, Publisher: Elsevier
Intelligent Service Robotics, Publisher: Springer
Applied Artificial Intelligence, Publisher: Taylor & Francis
International Journal of Electronics, Publisher: Taylor & Francis
Scientific Reports, Publisher: Nature
IEEE Access, Publisher: IEEE

Plant Cell Reports, Publisher: Springer
Scientia Iranica, Publisher: Sharif University of Technology
Waste Management & Research, Publisher: SAGE
Frontiers in Plant Science

RESEARCH INTERESTS

Design and development of smart sensors and biosensors
Instrumentation systems in agricultural robotic platforms
Machine learning in electrochemical and optical biosensors
Intelligent sensing devices for Internet of Things
Machine vision and image processing for postharvest technology
miRNA biosensors for plant biotic and abiotic stress studies
Enzyme-based intelligent sensing machines
Using nanoparticles in enzyme and miRNA sensors.

SELECTED PUBLICATIONS

- Asefpour Vakilian K.** 2020. Machine learning improves our knowledge about miRNA functions towards plant abiotic stresses. *Scientific Reports (Springer-Nature)*, 10: 3041.
- Asefpour Vakilian K.,** Massah J. 2018. A portable nitrate biosensing device using electrochemistry and spectroscopy. *IEEE Sensors Journal (IEEE)*, 18: 3080-3089.
- Asefpour Vakilian K.** 2019. Gold nanoparticles-based biosensor can detect drought stress in tomato by ultrasensitive and specific determination of miRNAs. *Plant Physiology and Biochemistry (Elsevier)*, 145: 195-204.
- Mohammadi, P., **Asefpour Vakilian, K.** 2023. Machine learning provides specific detection of salt and drought stresses in cucumber based on miRNA characteristics. *Plant Methods (Springer-Nature)*, 19: 123.
- Hashemi Shabankareh S., Asghari A., Azadbakht M., **Asefpour Vakilian K.** 2023. Physical and physiological characteristics, as well as miRNA concentrations, are affected by the storage time of tomatoes *Food Chemistry (Elsevier)*, 429: 136792.
- Dayeh N., **Asefpour Vakilian K.,** Azadbakht M. 2024. A fruit edible coating machine to protect the morphological, physiological, and biochemical properties of citrus fruits. *Food and Bioprocess Technology (Elsevier)*, (In Press).
- Asefpour Vakilian K.** 2020. Determination of nitrogen deficiency-related microRNAs in plants using fluorescence quenching of graphene oxide nanosheets. *Molecular and Cellular Probes (Elsevier)*, 52: 101576.
- Tabibi Z., Massah J., **Asefpour Vakilian K.** 2022. A biosensor for the sensitive and specific measurement of arsenite using gold nanoparticles. *Measurement (Elsevier)*, 187: 110281.
- Massah J., **Asefpour Vakilian K.** 2019. An intelligent portable biosensor for fast and accurate nitrate determination using cyclic voltammetry. *Biosystems Engineering (Elsevier)*, 177: 49-58.
- Asefpour Vakilian K.,** Massah J. 2018. A fuzzy-based decision making software for enzymatic electrochemical nitrate biosensors. *Chemometrics and Intelligent Laboratory Systems (Elsevier)*, 177: 55-63.
- Javidan S. M., Banakar A., **Asefpour Vakilian K.,** Ampatzidis Y. 2023. Diagnosis of grape leaf diseases using automatic K-means clustering and machine learning. *Smart Agricultural Technology (Elsevier)*, 3: 100081.
- Mohammadi P., Massah J., **Asefpour Vakilian K.** 2023. Robotic date fruit harvesting using machine vision and a 5-DOF manipulator. *Journal of Field Robotics (Wiley)*, 40: 1408-1423.
- Asefpour Vakilian K.,** Massah J. 2017. A farmer-assistant robot for nitrogen fertilizing management of greenhouse crops. *Computers and Electronics in Agriculture (Elsevier)*, 139: 153-163.
- Massah J., **Asefpour Vakilian K.,** Shabanian M., Shariatmadari S.M. 2021. Design, development, and performance evaluation of a robot for yield estimation of kiwifruit. *Computers and Electronics in Agriculture (Elsevier)*, 185: 106132.
- Hejazipour H., Massah J., Soryani M., **Asefpour Vakilian K.,** Chegini G. 2021. An intelligent spraying robot based on plant bulk volume. *Computers and Electronics in Agriculture (Elsevier)*, 180: 105859.
- Javidan S.M., Banakar A., **Asefpour Vakilian, K.,** Ampatzidis Y., Rahnama K. 2024. Diagnosing the spores of tomato fungal diseases using microscopic image processing and machine learning. *Multimedia Tools and Applications (Springer-Nature)*, 83:67283-67301.
- Esmaili M., Aliniaefard S., Mashal M., **Asefpour Vakilian K.,** Ghorbanzadeh P., Azadegan B., Seif M., Didaran F. 2021. Assessment of adaptive neuro-fuzzy inference system (ANFIS) to predict production and water productivity of lettuce in response to different light intensities and CO₂ concentrations. *Agricultural Water Management (Elsevier)*, 258: 107201.

FULL LIST OF PUBLICATIONS IN PEER-REVIEWED JOURNALS

- Dayeh N., **Asefpour Vakilian K.,** Azadbakht M. 2024. A fruit edible coating machine to protect the morphological, physiological, and biochemical properties of citrus fruits. *Food and Bioprocess Technology (Elsevier)*, (In Press).
- Javidan S.M., Banakar A., **Asefpour Vakilian K.,** Ampatzidis Y., Rahnama K. 2024. Early detection and spectral signature identification of tomato fungal diseases by RGB and hyperspectral image analysis and machine learning. *Heliyon (Elsevier)*, 10: e38017.
- Asefpour Vakilian K.** 2024. Detecting abiotic stresses in rice plants using a smart optical biosensor based on gold nanoparticles, *Iranian Journal of Biosystem Engineering (University of Tehran)*, 55: 51-69.
- Javidan S.M., Banakar A., Rahnama K., **Asefpour Vakilian K.,** Ampatzidis Y. 2024. Diagnosing the spores of tomato fungal diseases using microscopic image processing and machine learning. *Multimedia Tools and Applications (Springer-Nature)*, 83:67283-67301.
- Javidan S.M., Banakar A., **Asefpour Vakilian K.,** Ampatzidis Y. 2024. Tomato leaf diseases classification using image processing and weighted ensemble learning. *Agronomy Journal (Wiley)*, 116: 1029-1049.
- Mohammadi P., Massah J., **Asefpour Vakilian K.** 2023. Robotic date fruit harvesting using machine vision and a 5-DOF manipulator. *Journal of Field Robotics (Wiley)*, 40: 1408-1423.
- Hashemi Shabankareh S., Asghari A., Azadbakht M., **Asefpour Vakilian K.** 2023. Physical and physiological characteristics, as well as miRNA concentrations, are affected by the storage time of tomatoes *Food Chemistry (Elsevier)*, 429: 136792.
- Sarlaki E., Kianmehr M.H., Ghorbani M., Kermani A.M., **Asefpour Vakilian K.,** Angelidaki I., Wang Y., Gupta V. K., Pan J., Tabatabaei M., Aghbashlo M. 2023. Highly humified nitrogen-functionalized lignite activated by urea pretreatment and ozone plasma oxidation. *Chemical Engineering Journal (Elsevier)*, 456: 140978.
- Javidan S. M., Banakar A., **Asefpour Vakilian K.,** Ampatzidis Y. 2023. Diagnosis of grape leaf diseases using automatic K-means clustering and machine learning. *Smart Agricultural Technology (Elsevier)*, 3: 100081.
- Tabibi Z., Massah J., **Asefpour Vakilian K.** 2022. A biosensor for the sensitive and specific measurement of arsenite using gold nanoparticles. *Measurement (Elsevier)*, 187: 110281.

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13. Massah, J., Nomanfar, P., Dehghani-Soufi, M., **Asefpour Vakilian, K.** 2022. Electrical properties measurement: A nondestructive method to determine the quality of bread doughs during fermentation. *Journal of Cereal Science* ([Elsevier](#)), 107: 103530.
15. Mortazavizadeh F., Fatahi A., **Asefpour Vakilian K.**, Pagliari P.H., Cerdà A., Mirzaei M., Zhang X., Adnan Ikram R.M. 2022. Effects of ash derived from livestock manure and two other treatments on soil moisture content and water infiltration rate. *Irrigation and Drainage* ([Wiley](#)), 71: 1024-1033.
17. Aboonajmi M., Ganjdoost M., Mirsaedghazi H., **Asefpour Vakilian K.** 2021. Effect of power ultrasound treatment on the shelf life of edible mushroom. *Journal of Food Research* ([University of Tabriz](#)), 32: 139-152.
19. Sarlaki E., Kermani A. M., Kianmehr M.H., **Asefpour Vakilian K.**, Hosseinzadeh-Bandbafha H., Ma N.L., Aghbashlo M., Tabatabaei M., Lam S.S. (2021). Improving sustainability and mitigating environmental impacts of agro-biowaste compost fertilizer by pelletizing-drying. *Environmental Pollution* ([Elsevier](#)), 285: 117412.
21. Sarlaki E., Sharif Paghaleh A., Kianmehr M.H., **Asefpour Vakilian K.** 2021. Valorization of lignite wastes into humic acids: Process optimization, energy efficiency and structural features analysis. *Renewable Energy* ([Elsevier](#)), 163: 105-122.
23. Hejazipour H., Massah J., **Asefpour Vakilian K.**, Soryani M., Chegini G. 2021. Design, manufacture and evaluation of automatic spraying mechanism in order to increase productivity. *Agricultural Engineering* (*Scientific Journal of Agriculture* ([Shahid Chamran University](#))), 44: 1-19.
25. **Asefpour Vakilian K.** 2020. Machine learning improves our knowledge about miRNA functions towards plant abiotic stresses. *Scientific Reports* ([Springer-Nature](#)), 10: 3041.
27. Sarlaki E., Sharif Paghaleh A., Kianmehr M.H., **Asefpour Vakilian K.** 2020. Chemical, spectral and morphological characterization of humic acids extracted and membrane purified from lignite. *Chemistry & Chemical Technology* (*Lviv Polytechnic University*), 14: 353-361.
29. Massah J., **Asefpour Vakilian K.** 2019. An intelligent portable biosensor for fast and accurate nitrate determination using cyclic voltammetry. *Biosystems Engineering* ([Elsevier](#)), 177: 49-58.
31. Sarlaki E., Sharif Paghaleh A., Kianmehr M.H., **Asefpour Vakilian K.** 2019. Extraction and purification of humic acids from lignite wastes using alkaline treatment and membrane ultrafiltration. *Journal of Cleaner Production* ([Elsevier](#)), 235: 712-723.
33. Amanabadi S., Vazirinia M., Vereecken H., **Asefpour Vakilian K.**, Mohammadi M.H. 2019. Comparative study of statistical, numerical and machine learning-based pedotransfer functions of water retention curve with particle size distribution data. *Eurasian Soil Science* ([Springer](#)), 52: 1555-1571.
35. Sarlaki E., Sharif Paghaleh A., Kianmehr M. H., Shakiba N., **Asefpour Vakilian K.**, Mirsaedghazi, H. 2019. Post-treatment of lignite-derived humate alkaline extracts using membrane-based technology for high-purity humic acid production. *Journal of Environmental Science and Technology* ([Islamic Azad University](#)), 15147.
37. **Asefpour Vakilian K.**, Massah J. 2018. A fuzzy-based decision making software for enzymatic electrochemical nitrate biosensors. *Chemometrics and Intelligent Laboratory Systems* ([Elsevier](#)), 177: 55-63.
39. **Asefpour Vakilian K.** 2017. Using networks in plant disease diagnosis. *CAB Reviews: Perspectives in Agriculture, Veterinary Science, Nutrition and Natural Resources* ([CAB International](#)), 12: 047.
41. Yazdani N., Osanloo B., Lotfi M., **Asefpour Vakilian K.** 2016. Application of image processing for investigating the effect of nanozeolite and nanosponge on flesh firmness of cold stored cantaloupe. *International Journal of Horticultural Science and Technology* ([University of Tehran](#)), 4: 127-133.
43. Hashemi A., **Asefpour Vakilian K.**, Khazaei J., Massah J. 2014. An artificial neural network modeling for force control system of a robotic pruning machine. *Journal of Information and Organizational Sciences* ([Faculty of Organization and Informatics](#)), 38: 35-41.
45. Jafari M., Sabzevari A., **Asefpour Vakilian K.** 2014. Effects of planting methods on yield and morphological traits of three chickpea cultivars in rain fed conditions. *Russian Agricultural Sciences* ([Springer](#)), 40: 339-343.
47. **Asefpour Vakilian K.**, Massah J. 2013. Performance evaluation of a machine vision system for insect pests identification of field crops using artificial neural networks. *Archives of Phytopathology and Plant Protection* ([Taylor & Francis](#)), 46: 1262-1269.
49. **Asefpour Vakilian K.**, Massah J. 2012. Design, development and performance evaluation of a robot to early detection of nitrogen deficiency in greenhouse cucumber (*Cucumis sativus*) with machine vision. *International Journal of Agriculture: Research and Review* ([ECISI](#)), 2: 448-454.
14. Ghorbani, M., Li, Q., Kianmehr, M.H., Arabhosseini, A., Sarlaki, E., **Asefpour Vakilian, K.**, Varjani, S., Wang, Y., Wei, D., et al. 2022. Highly digestible nitrogen-enriched straw upgraded by ozone-urea pretreatment: digestibility metrics and energy-economic analysis. *Bioresource Technology* ([Elsevier](#)), 360: 127576.
16. Massah J., **Asefpour Vakilian K.**, Shabanian M., Shariatmadari S. M. 2021. Design, development, and performance evaluation of a robot for yield estimation of kiwifruit. *Computers and Electronics in Agriculture* ([Elsevier](#)), 185: 106132.
18. Hejazipour H., Massah J., Soryani M., **Asefpour Vakilian K.**, Chegini G. 2021. An intelligent spraying robot based on plant bulk volume. *Computers and Electronics in Agriculture* ([Elsevier](#)), 180: 105859.
20. Esmaili M., Aliniaiefard S., Mashal M., **Asefpour Vakilian K.**, Ghorbanzadeh P., Azadegan B., Seif M., Didaran F. 2021. Assessment of adaptive neuro-fuzzy inference system (ANFIS) to predict production and water productivity of lettuce in response to different light intensities and CO₂ concentrations. *Agricultural Water Management* ([Elsevier](#)), 258: 107201.
22. Ganjdoost M., Aboonajmi M., Mirsaedghazi H., **Asefpour Vakilian K.** 2021. Effects of power ultrasound treatment on the shelf life of button mushrooms: Digital image processing and microbial counting can reveal the effects. *Food Science & Nutrition* ([Wiley](#)), 9: 3538-3548.
24. Sharifi M., Messiga A.J., **Asefpour Vakilian K.**, Stopford E., Hutchinson T. 2020. Spatial distribution of soil phosphorous fractions following 1-year farrowing sows in an outdoor hog-rearing farm in Eastern Canada. *Environmental Monitoring and Assessment* ([Springer](#)), 192: 322.
26. **Asefpour Vakilian K.** 2020. Determination of nitrogen deficiency-related microRNAs in plants using fluorescence quenching of graphene oxide nanosheets. *Molecular and Cellular Probes* ([Elsevier](#)), 52: 101576.
28. Massah J., Hassanpour F., Hassanpour Z., **Asefpour Vakilian K.** 2020. Experimental investigation of bionic soil-engaging blades for soil adhesion reduction by simulating *Armadillidium vulgare* body surface. *INMATEH-Agricultural Engineering* ([INMA](#)), 60: 99-106.
30. **Asefpour Vakilian K.** 2019. Gold nanoparticles-based biosensor can detect drought stress in tomato by ultrasensitive and specific determination of miRNAs. *Plant Physiology and Biochemistry* ([Elsevier](#)), 145: 195-204.
32. Ghorbani M., Aboonajmi M., **Asefpour Vakilian K.** 2019. The machine vision technology in precision agriculture: A comprehensive review on principles and applications. *Soft Computing Journal* ([University of Kashan](#)), 9: 92-113.
34. Massah J., **Asefpour Vakilian K.**, Torktas S. 2019. Supervised machine learning algorithms can predict penetration resistance in mineral-fertilized soils. *Communications in Soil Science and Plant Analysis* ([Taylor & Francis](#)), 50: 2169-2177.
36. **Asefpour Vakilian K.**, Massah J. 2018. A portable nitrate biosensing device using electrochemistry and spectroscopy. *IEEE Sensors Journal* ([IEEE](#)), 18: 3080-3089.
38. **Asefpour Vakilian K.**, Massah J. 2017. A farmer-assistant robot for nitrogen fertilizing management of greenhouse crops. *Computers and Electronics in Agriculture* ([Elsevier](#)), 139: 153-163.
40. **Asefpour Vakilian K.**, Massah J. 2016. An apple grading system according to European fruit quality standards using Gabor filter and artificial neural networks. *Scientific Study and Research: Chemistry and Chemical Engineering, Biotechnology, Food Industry* ([Bacau University](#)), 17: 75-85.
42. Razzaghi E., Massah J., **Asefpour Vakilian K.** 2015. Mechanical analysis of a robotic date harvesting manipulator. *Russian Agricultural Sciences* ([Springer](#)), 41: 80-85.
44. **Asefpour Vakilian K.**, Abounajmi M., Massah J. 2014. A statistical approach to classify agricultural satellite images using textural features extraction. *Journal of Engineering Studies and Research* ([Bacau University](#)), 20: 17-22.
46. **Asefpour Vakilian K.**, Massah J. 2013. An artificial neural network approach to identify fungal diseases of cucumber (*Cucumis sativus* L.) plants using digital image processing. *Archives of Phytopathology and Plant Protection* ([Taylor & Francis](#)), 46: 1580-1588.
48. Massah J., **Asefpour Vakilian K.** 2013. Statistical modelling of error measurement for diaphragm gas meters at different ambient temperatures. *Acta Technica Corviniensis* ([University Politehnica Timisoara](#)), 6: 97-100.
50. **Asefpour Vakilian A.**, Asefpour Vakilian K. 2012. A new satellite image segmentation enhancement technique for weak image boundaries. *International Journal of Engineering* ([University Politehnica Timisoara](#)), 10: 239-243.

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51. **Asefpour Vakilian K.**, Massah J. 2012. Performance evaluation of CCD and CMOS cameras in image textural features extraction. *Acta Technica Corviniensis (University Politehnica Timisoara)*, 5: 61-64.

52. **Asefpour Vakilian K.**, Massah J. 2012. Non-linear growth modeling of greenhouse crops with image textural features analysis. *International Research Journal of applied and Basic Science (Science Explore)*, 3: 197-202.

PRESENTATIONS AT NATIONAL AND INTERNATIONAL CONFERENCES

1. **Asefpour Vakilian K.** 2024. An intelligent electrochemical biosensor based on optimized machine learning methods for measuring nitrate pollution in water, 16th National Congress on Mechanics of Biosystems Engineering and Agricultural Mechanization, October 2-4, 2024, Mashhad, Iran.

2. Samadi S.M., **Asefpour Vakilian K.**, Javidan S.M. 2024. The role of microRNA compounds in determining some of the post-harvest characteristics of agricultural products, 16th National Congress on Mechanics of Biosystems Engineering and Agricultural Mechanization, October 2-4, 2024, Mashhad, Iran.

3. Dayeh N., **Asefpour Vakilian K.**, Azadbakht M. 2024. A review of the effects of edible coatings to preserve the properties of fruits during storage, 16th National Congress on Mechanics of Biosystems Engineering and Agricultural Mechanization, October 2-4, 2024, Mashhad, Iran.

4. Derakhshan N., Rahnama K., Javidan S.M., **Asefpour Vakilian K.** 2024. Classification of barley plant fungal diseases using image processing and artificial intelligence, 25th Iranian Plant Protection Congress, September 7-10, 2024, Tehran, Iran.

5. Soltaninezhad F., Rahnama K., Javidan S.M., **Asefpour Vakilian K.** 2024. Application of microscopic image processing in the detection and classification of *Trichoderma* spores, 25th Iranian Plant Protection Congress, September 7-10, 2024, Tehran, Iran.

6. Dayeh N., Azadbakht M., **Asefpour Vakilian K.** 2024. A review of methods for fruit edible coating, 13th International Conference of Innovative Technologies in the Field of Science, Engineering, and Technology, April 16-17, 2024, Thessaloniki, Greece.

7. Dayeh N., Azadbakht M., **Asefpour Vakilian K.** 2024. Investigating the effects of edible coatings on fruit postharvest properties, 13th International Conference of Innovative Technologies in the Field of Science, Engineering, and Technology, April 16-17, 2024, Thessaloniki, Greece.

8. **Asefpour Vakilian K.**, Moreau M., Javidan S.M. 2024. An IoT-based smart biosensor for the measurement of nitrate concentration in liquid samples, 20th IEEE International Symposium on Artificial Intelligence and Signal Processing, February 21-22, 2024, Mazandaran, Iran.

9. Javidan S.M., Ampatzidis Y., **Asefpour Vakilian K.**, Mohammadzamani D. 2024. A novel approach for automated strawberry fruit varieties classification using image processing and machine learning, 10th IEEE-International Conference on Artificial Intelligence and Robotics, February 29, 2024, Qazvin, Iran.

10. Nazari A., Mohammadzamani D., Javidan S.M., **Asefpour Vakilian K.**, 2024. A new approach for red grape bunches detection in natural light using color image processing, 10th IEEE-International Conference on Artificial Intelligence and Robotics, February 29, 2024, Qazvin, Iran.

11. **Asefpour Vakilian K.** 2023. Emerging smart biosensors for the specific and ultrasensitive detection of plant abiotic stresses, 15th International Congress on Agricultural Mechanization and Energy in Agriculture, November 1, 2023, Antalya, Turkey.

12. Mohammadi P., **Asefpour Vakilian K.** 2023. Combining digital image processing and machine learning is useful for the early detection of salinity and drought stresses in cucumber, 15th International Congress on Agricultural Mechanization and Energy in Agriculture, November 1, 2023, Antalya, Turkey.

13. **Asefpour Vakilian K.** 2023. A smart electrochemical biosensor for arsenic detection in water, 13th IEEE-International Conference on Computer and Knowledge Engineering, November 1-2, 2023, Mashhad, Iran.

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