



Rasool Khodabakhshian

Ph.D. (Ferdowsi University of Mashhad, Mashhad, Iran)

Research Interest:

Postharvest Technology
Food Process Engineering
Precision Farming

Image Processing
Hyper/multispectral imaging
Design of farm machinery

Education:

Tsinghua University, Beijing, China, Mar.2015- Sep. 2015

Visiting researcher, department of automation

Project Title: “Determination of ripeness and internal defects of pear using NIR hyperspectral imaging”, Advised by Dr. Liu Yebin,

Ferdowsi University of Mashhad, Mashhad, Iran, Jan.2012- Jan. 2016

Ph.D, Mechanics of Biosystem Engineering

Dissertation Title: “Determination of pomegranate ripeness and internal defects using VIS-NIR multispectral imaging”, Advised by Dr. Bagher Emadi, GP 18/20

Ferdowsi University of Mashhad, Mashhad, Iran, Oct. 2007-Sep. 2009

Master of Science, Agriculture Machinery Engineering

Dissertation Title: “Determination of effective physical, mechanical and aerodynamic properties on processing of sunflower seed and its kernel”, Advised by Dr. Bagher Emadi, GP 20/20

Seminar title: “Determination of the modulus of elasticity of grains”, Advised by Dr. Bagher Emadi, GP 19/20

Shahid Bahonar University of Kerman, Kerman, Iran, Oct. 2003-Sep. 2007

Bachelor of Science, Agriculture Machinery Engineering

Dissertation Title: “Design, manufacturing and Evaluation of the pistachio hulling machine”
GP 18/20

Research experience:

- Nov. 2007-Feb 2008: Investigating of Variable Rate Technology in Agricultural Machinery, Ferdowsi University of Mashhad, Mashhad, Iran, Advisor: Dr. Mohammad Hossein Abbaspour Fard.

- Feb. 2008-Feb. 2009: Manufacturing of pistachio hulling machine, Ferdowsi University of Mashhad, Mashhad, Iran, Advisor: Dr. Mohammad Reza Bayati.

- May. 2008-Sep. 2008: Designing a hydraulic table for surgery of small domesticated, Ferdowsi University of Mashhad, Mashhad, Iran.

- Aug. 2008-Nov 2008: Performance of Predictive maintenance and condition monitoring in off road machinery, Ferdowsi University of Mashhad, Mashhad, Iran.

- Aug. 2008-Nov 2008: Using of Preventive maintenance in Agricultural Machinery, Ferdowsi University of Mashhad, Mashhad, Iran.

- Feb. 2009-May 2009: Using of RFID technology in greenhouse, Ferdowsi University of Mashhad, Mashhad, Iran.
- Apr. 2010-May 2011: Experimental Comparison of Applying Different Theories in Elasticity for Determination of the Elasticity Modulus of Agricultural Produce, Pumpkin Seed as a Case Study, Ferdowsi University of Mashhad, Mashhad, Iran, Advisor: Dr. Bagher Emadi.
- Feb. 2010-Nov 2010: Prediction of Repair and maintenance costs of farm tractors by using of Preventive maintenance, Ferdowsi University of Mashhad, Mashhad, Iran.
- Apr. 2010-May 2011: Determination of mechanical properties of safflower seed, Ferdowsi University of Mashhad, Mashhad, Iran.
- Aug. 2012- Apr. 2013: Evaluation of internal quality characteristics of date by Raman spectroscopy, Ferdowsi University of Mashhad, Mashhad, Iran.
- Mar.2015- Sep. 2015: Determination of ripeness and internal defects of pear using NIR hyperspectral imaging, Tsingjua University, Beijing, China.

Publication:

Journal paper

- Khodabakhshian, R., Emadi, B., Khojastehpour, M. and Golzarian, M.R. 2016. Rapid determination of quality of pomegranate aril by Visible/Near infrared spectroscopy, Journal of Food news technologies (In Persian), 2(8), 103-114.
- Khodabakhshian, R., Emadi, B., Khojastehpour, M. and Golzarian, M.R. 2016. Handling and frictional characteristics of pomegranate arils as a function of fruit maturity, International Food Research Journal, under publication.
- Khodabakhshian, R., Emadi, B., Khojastehpour, M. and Golzarian, M.R. 2016. VISIBLE-NIR INFRARED SPECTROSCOPY FOR POMEGRANATE FRUIT QUALITYASSESSMENT: CHEMOMETRICS AND COMMON PREPROCESSING METHODS, Annals Food Science and Technology, 17(1), 224-238.
- Khodabakhshian, R., Emadi, B., Khojastehpour, M. and Golzarian, M.R. 2016. Carob moth, *Ectomyelois ceratoniae*, detection in pomegranate using visible/near infrared spectroscopy, Computer and electronics in agriculture, 129, 9-14.
- Khodabakhshian, R., Emadi, B., Khojastehpour, M. and Golzarian, M.R. 2016. Aerodynamic separation and cleaning of pomegranate arils from rind and white segments (locular septa), Journal of the Saudi Society of Agricultural Sciences, DOI:10.1016/j.jssas.2016.01.003.
- Khodabakhshian, R., Emadi, B., Khojastehpour, M., Golzarian, M.R. and Sazgarnia, A. 2016. Nondestructive evaluation of maturity and quality

parameters of pomegranate fruit by Visible/Near infrared spectroscopy. *International Journal of Food Properties*, DOI:10.1080/10942912.2015.1126725.

- Khodabakhshian, R., Emadi, B., Khojastehpour, M., Golzarian, M.R. and Sazgarnia, 2016. Development of a multispectral imaging system for online quality assessment of pomegranate fruit. *International Journal of Food Properties*, DOI:10.1080/10942912.2016.1144200.
- Khodabakhshian, R. and Emadi, B. 2016. Determination of ripeness stages of Mazafati variety of date fruit by Raman spectroscopy. *Journal of Agricultural Machinery (In Persian)*, 6(1): 201-213.
- Khodabakhshian, R. and Emadi, B. 2016. Mass model of date fruit (cv. Mazafati) based on its physiological properties. *International Food Research Journal*, 23(5): 2070-2075.
- Khodabakhshian, R., Emadi, B., Khojastehpour, M. and Golzarian, M.R. 2015. Determining quality and maturity of pomegranates using multispectral imaging, *Journal of the Saudi Society of Agricultural Sciences*, DOI:10.1016/j.jssas.2015.10.004
- Khodabakhshian, R. and Emadi, B. 2015. Development of a FEM model to determine mechanical behaviour of pumpkin seed. *International Journal of Food Properties*, 18(2): 231-240
- Khodabakhshian, R. 2013. A review of maintenance management of tractors and agricultural machinery: preventive maintenance systems. *Commission of Agricultural and Biosystems Engineering (CIGR)*, 15(4):147– 159.
- Khodabakhshian, R. 2012. Elastic behavior of sunflower seed and its kernel. *Commission of Agricultural and Biosystems Engineering (CIGR)*, 14(4):173– 178.
- Khodabakhshian, R. 2012. Mechanical strength and physical behavior of pumpkin seed. *Thai Journal of Agricultural Science*, 45(1): 37 – 43.
- Khodabakhshian, R., Emadi, B. and Abbaspour Fard, M.H. 2012. The effect of variety, size and moisture content of sunflower seed and its kernel on their terminal velocity, drag coefficient and Reynold's number, *International Journal of Food Properties*, 15(2): 262 – 273. (ISI)
- Khodabakhshian, R. and Shakeri, M. 2011. Investigation on some mechanical aspects of safflower seed to the design of processing equipment. *Journal of Agricultural Technology*, 8(1): 39 – 48.
- Abbaspour Fard, M.H., Khodabakhshian, R., Emadi, B. and Sadrnia, H. 2011. Evaluation the effects of some relevant parameters on elastic modulus of pumpkin seed and its kernel. *International Journal of Biomaterials*, 2(2): 1 – 6.

- Khodabakhshian, R., Emadi, B., Abbaspour Fard, M.H. and Saeidirad, M.H. 2011. Modeling the fracture resistance of sunflower seed and its kernel as a function of moisture content, variety, size and loading orientation. *International of Food Engineering*, 7(3): 1 – 17. (ISI)
- Khodabakhshian, R. and Bagher, E. 2011. Determination of the Modulus of Elasticity in Agricultural Seeds on the Basis of Elasticity Theory. *Middle-East Journal of Scientific Research (MEJSR)*, 7(3): 367 – 373. (ISI).
- Emadi, B., Khodabakhshian, R., Abbaspour Fard, M.H. and Sadrnia, H. 2011. Experimental Comparison of Applying Different Theories in Elasticity for Determination of the Elasticity Modulus of Agricultural Produce, Pumpkin Seed as a Case Study. *Journal of Agricultural Technology*, 7(6): 1495 – 1508.
- Khodabakhshian, R. and Shakeri, M. 2011. The physical attributes of safflower seed as a function of moisture content. *Electronic Journal of Polish Agricultural Universities*. 14(3): 1 – 6. (ISI).
- Khodabakhshian, R. and Shakeri, M. 2011. Prediction of repair and maintenance costs of farm tractors by using of Preventive Maintenance. *International Journal of Agriculture Sciences*, 3(1): 39 – 44.
- Khodabakhshian, R., Emadi, B. and Abbaspour Fard, M.H., 2010. Gravimetric properties of sunflower seeds and kernels. *World Applied Sciences Journal*, 8(1): 119 – 128. (ISI)
- Khodabakhshian, R., Emadi, B. and Abbaspour Fard, M.H., 2010. Comparison of Geometrical properties of sunflower seeds and kernels cultivars. *World Applied Sciences Journal*, 9(4): 437 – 447. (ISI)
- Khodabakhshian, R., Emadi, B. and Abbaspour Fard, M.H., 2010. Frictional behavior of sunflower seed and its kernel as a function of moisture content, variety and size. *Journal of Agricultural Science and Technology*, 4(3): 83 – 94.
- Khodabakhshian, R., Emadi, B. and Abbaspour Fard, M.H., 2010. Mechanical properties of sunflower seed and its kernel, Azargol variety as a case study, under compressive loading. *Journal of Agricultural Science and Technology*, 4(2): 34 – 40.
- Khodabakhshian, R., Emadi, B. and Abbaspour Fard, M.H., 2010. Some engineering properties of sunflower seed and its kernel. *Journal of Agricultural Science and Technology*, 4(4): 38 –46.
- Khodabakhshian, R., Bayati, M.R., Shakeri, M. and Khojastepour, M. 2010. Design and manufacture of a pistachio peeling machine. *World Applied Sciences Journal*, 11(8): 930 – 937. (ISI)

- Khodabakhshian, R., Bayati, M.R., Shakeri, M. and Khojastepour, M. 2010. Systematic Design of a Pistachio Hulling Machine. Asian International Journal of Science and Technology in Production and Manufacturing Engineering (AIJSTMPE), 3(2): 7 – 13.
- Khodabakhshian, R. and Bayati, M.R. 2011. Investigation into the effects of impeller vane patterns and pistachio nut size on hulling efficiency of pistachio nuts using a centrifugal huller. Food Processing & Technology Journal, 2(3): 1 – 4.
- Khodabakhshian, R., Bayati, M.R. and Shakeri, M. 2011. Performance Evaluation of a Centrifugal Peeling System for Pistachio Nuts. International Journal of Food Engineering, 7(4): 1 – 12. (ISI)
- Khodabakhshian, R., Emadi, B., Abbaspour Fard, M.H., Saeidirad. M.H., 2009. Determination of effective physical, mechanical and aerodynamic properties of processing of sunflower seed and its kernel, Iranian Journal of biosystem engineering (In Persian), 42 (1).
- Khodabakhshian, R., Shakeri, M. and Baradran, J. 2009. Preventive maintenance in Agricultural Machinery, Asian International Journal of Science and Technology in Production and Manufacturing Engineering (AIJSTMPE), 2(2): 11 – 16.
- Khodabakhshian, R. 2012. Poisson's ratio determination of pumpkin seed and its kernel as a function of variety, size, moisture content and loading rate. Commission of Agricultural and Biosystems Engineering (CIGR), 14(3): 203 – 209.

Conference paper

- Khodabakhshian, R., Emadi, B., Khojastepour, M., Golzarian. M.R., Combination of conventional imaging and spectroscopy methods for food quality evaluation. 4th International Workshop on Computer Science and Engineering, United Arab Emirates, Dubai, 2014.
- Khodabakhshian, R., Quality inspection of agricultural produce by X-ray technology. 8th National Conference on Agriculture Machinery Eng. & Mechanization, Iran, Mashhad, 2014.
- Khodabakhshian, R., Emadi, B., Quality grading systems based on internal properties of agricultural produce. 8th National Conference on Agriculture Machinery Eng. & Mechanization, Iran, Mashhad, 2014.
- Khodabakhshian, R., Emadi, B., The evaluation of some physical, chemical properties of Mazafati date fruit in the different stages of maturity. 8th National Conference on Agriculture Machinery Eng. & Mechanization, Iran, Mashhad, 2014.

- Khodabakhshian, R., Emadi., Determination of the Modulus of Elasticity of pumpkin seed on the Basis of Elasticity Theory. 7th National Conference on Materials Engineering for Advanced Technologies, Iran, Isfehan, 2012.
- Methodical Design of a Soybean Dehuller [11th International Congress on Mechanization and Energy in Agriculture (TRAKAGENG 2011).
- Khodabakhshian, R., Emadi, B., Abbaspour Fard, M.H., Saeidirad. M.H., Aerodynamic properties of sunflower seed, kernel and its hull affected by moisture content and size, Azargol variety as a case study, International Agricultural Engineering Conference (IAEC)-2009 Bangkok (Thailand) 7-10 December.
- Khodabakhshian, R., Emadi, B., Abbaspour Fard, M.H., Saeidirad. M.H., Moisture dependent geometrical properties of sunflower seed, International Conference on chemical, Biological and Environmental Engineering (CBEE 2009), Singapore, October 9-11 2009.
- Khodabakhshian, R., Emadi, B., Abbaspour Fard, M.H., Saeidirad. M.H., Physical and aerodynamic properties of sunflower seed, Fandoghi variety as a case study, Synergy and Technical development (Synergy 2009), Hungary, 30 Agust-2 September.
- Khodabakhshian, R., Shakeri, M., Baradaran, J., Using of condition monitoring in maintenance programs of agricultural machinery. 5th International Conference on Maintenance, Iran, Tehran, 2008.
- Khodabakhshian, R., Shakeri, M., Baradaran, J., Performance of preventive maintenance and condition monitoring in off road machinery. 5th International Conference on Maintenance, Iran, Tehran, 2008.
- Khodabakhshian, R., Shakeri, M., Baradaran, J., Investigating of maintenance Strategies. 5th National Conference on Agriculture Machinery Eng. & Mechanization, Iran, Mashhad, 2008.
- Khodabakhshian, R., Shakeri, M., Baradaran, J., Decreasing of maintenance costs in agricultural machinery by using of MCM. 5th National Conference on Agriculture Machinery Eng. & Mechanization, Iran, Mashhad, 2008.
- Khodabakhshian, R., Shakeri, M., Baradaran, J., Estimation of faults and diagnostics for MF-285 tractor. 3rd National Conference on Condition Monitoring, Iran, Tehran, 2008.
- Khodabakhshian, R., Velayati, E., Hosseiny, S.A., Using of machine vision in agricultural machinery. 1st Conference on Modern Technologies in Agriculture and Natural Researches, Iran, Rasht, 2008.
- Khodabakhshian, R., Shakeri, M., Hosseiny, S.A., Using of variable rate technology in precision farming. 1st Conference on Modern Technologies in Agriculture and Natural Resources, Iran, Rasht, 2008.
- Khodabakhshian, R., Velayati, E., Hosseiny, S.A., Effect of Residue management on nutrient elements of soil. 1st Iranian Students Congress of Agricultural Sciences and Natural Resources, Iran, Rasht, 2008.

- Khodabakhshian, R., Shakeri, M., Condition monitoring of agricultural machinery by oil analyze. 6th National Conference on Agriculture Machinery Eng. & Mechanization, Iran, Karaj, 2010.
- Baradaran, J., Shakeri, M., Khodabakhshian, R., Using of mechatronics for designing of three point hitch of tractors. 1st Conference on Modern Technologies in Agriculture and Natural Researches, Iran, Rasht, 2008.
- Hosseiny, S.A., Khodabakhshian, R., Abbaspour Fard, M.H., Automation and environmental control systems in greenhouse, 1st National Conference on greenhouse, Iran, Esfehan, 2009.
- Baradaran, J., Shakeri, M., Khodabakhshian, R., Using of RFID technology in greenhouse. 1st National Conference on greenhouse, Iran, Esfehan, 2009.
- Khodabakhshian, R., Shakeri, M., Using of NDT technology for condition monitoring of water tanks, 4th National Conference on Condition Monitoring, Iran, Tehran, 2009.
- Khodabakhshian, R., Emadi, B., Abbaspour Fard, M.H., Saeidirad. M.H., Mechanical behavior of sunflower seed and its kernel. 6th National Conference on Agriculture Machinery Eng. & Mechanization, Iran, Karaj, 2010.

Honors:

- Jul. 2008: To patent an invention of the pistachio hulling machine in Iran, Number: 50134
- Jul. 2008: To patent an invention of the surgery table for small domesticated animal in Iran, Number: 52528
- Feb. 2009: My paper" using of variable rate technology in agricultural machinery" was selected as the superior poster paper in agriculture conference on precision farming by committee.
- I was selected as prestigious author by Food Processing & Technology journal, 2011
- Rank 1st in the Iranian Nationwide mechanic of agricultural machinery PhD Entrance Exam among more than 1500 participants, 2012

Language:

- English proficiency: very good.
- I have completed an advanced English program in Hafez International
- Language Institute, Mashhad, Iran.

Work Experience:

- Nov. 2008- Oct. 2009: Toos Fadak Company (Manufacturer of sprayer, rectangular baler and fertilizer), Mashhad, Iran, I am an engineer and in charge of designing and quality-controlling the products.
- Dec. 2007-Nov 2008: Ferdowsi University of Mashhad, Mashhad, Iran, I was a part of team which tested agricultural machinery for center test of agricultural machinery.

- Oct. 2009- Mar 2015: ARA VALVE company, Mashhad, Iran, I am a production manager in an ARA VALVE company that produces Industrial Valves.

- Sep. 2015- Until now: Keyhan Sanat Ghaem, Mashhad, Iran, I am a Quality Assurance Manager.

Computer Skills:

Programming: C, Pascal, MATLAB

Technical Software: Office, SPSS 16, Solidworks, AUTOCAD, ABACUS, ANSYS.