

HOSSEIN NAVID

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Education

University of Tehran

Ph.D., Mechanics of Agricultural Machinery

Sep 2005

Dissertation Topic: Modeling of grain flow in combine harvester (John Deere 1165) - Threshing and Separating units

University of Tarbiat Modarres

M.Sc., Mechanics of Agricultural Machinery

Mar 1997

Dissertation Topic: Design of MF399 Gearbox using MF285 model

University of Tabriz

B.Sc., Agricultural Machinery Engineering

Sep. 1993

Dissertation Topic: Tractor Test Standards

Area of Interest

Precision Farming, Smart agriculture, Yield and loss Monitoring, Rout Path Planning, Variable Rate Technology, Automatic Guidance in Agriculture,

Position: Professor

Sep 2005-Present

University of Tabriz/ Department of Biosystems Engineering

Area of Research:

- Smart technologies in agriculture
- Spot spraying
- Seed planter performance monitoring
- Agriculture Production Sorting using Image Processing
- Design and Prototyping of Seed Precision Planters
- Design and Prototyping of loss Monitoring System

Courses: Precision Farming, Agricultural Machines Design, Mechanical Engineering Design, Finite Elements Methods, Choosing and Using of Agricultural Machinery.

Research Experience

Research Assistant

- Supervisor of ITM. Co (Iran Tractor Manufacturing) 2001-2002
- Sabbatical leave, Intelligent machines lab. Oklahoma State University, OK, US. 2013-2014

Projects

- Joint Project with Germany ATB Institute, Precision protection for saver productions
- Design and Production of Seed Planters Performance Monitors, Patented in Iran as a Knowledge-based production
- Design and Construction of Grain Loss Monitoring System
- Design and Construction of Cow Rumination Monitoring System

Trainings/Workshops

University of Tabriz,

2000

- Remote Sensing

Publications

Books

H. Navid and J. Rebaty, 2017, **Introduction for Precision Agriculture**, University of Tabriz press (In Persian).

R. Hassankhani, H. Navid and H. SeyedArabi, 2012, **Potato Sorting in Machine Vision System** (Based on Color, Size and Defect Detection), Lambert Academic Publishing, Germany.

Journal Publications

A. A. Bakhtiari, **H. Navid** and J. Hoseinzad, 2011, A Integer Linear Programming Agricultural Machinery Fleet Selection Model for Multicropping Systems (in Persian), **Agricultural Science and sustainable Production**, Vol. 21(2), No. 1, P. 43-55.

A. A. Bakhtiari, **H. Navid**, J. Mehri, D. D. Bochtis, 2011, Optimal route planning of agricultural field operations using ant colony optimization, **Agricultural Engineering International: CIGR Journal**. Vol.13, No.4.

A. Bakhtiari, **H. Navid** and D. D. Bochtis, 2017, Planning fieldwork pattern for in-field machinery operations using Colonial Competitive Algorithm, **Transylvanian Review**, 18.

A. Bakhtiari, **H. Navid**, J. Mehri, R. Berruto and D. D. Bochtis, 2013, Operations planning for agricultural harvesters using ant colony optimization, **Spanish Journal of Agricultural Research**, 3.

A. ghaffarnejhad, **H. Navid** and H. Karimi, 2024, **Journal of Agricultural Machinery**, Development and Comparison of Interrupt-Based and Analog-to-Digital Converter Algorithms for Seed Counting in Precision Planters, 14(4), 429-443, DOI: [10.22067/jam.2024.85803.1210](https://doi.org/10.22067/jam.2024.85803.1210). (In Persian).

A. ghaffarnejhad, **H. Navid** and H. Karimi, 2024, Optical detection of single and multiple seeding using an innovative shape-recognition algorithm, **Smart Agriculture Technologies**, Vol. (9), DOI: [10.1016/j.atech.2024.100652](https://doi.org/10.1016/j.atech.2024.100652).

A. Yazgi, R.K. Taylor, **H. Navid** and P. Weckler, 2017, Performance Modeling and Seed Releasing Characteristics of a Corn Planter Metering Unit Using Response Surface Methodology, **APPLIED ENGINEERING IN AGRICULTURE**, 32.

A.Mirasi, A. Mahmoudi, **H. Navid**, K. Valizadeh Kamran and M. A. Asoodar, 2019, Evaluation of sum-NDVI value to estimate wheat grain yields using multi-temporal Landsat OLI data, **Geocarto International**.

B. Besharati, **H. Navid**, H. Karimi, B. Behfar, I. Eskandari, 2019, Development of an infrared seed-

sensing system to estimate flow rates based on physical properties of seeds, **COMPUTERS AND ELECTRONICS IN AGRICUL**, 162.

H. Akhtari, **H. Navid**, H. Karimi and K. Dammer, 2025, Deep learning-based object detection model for location and recognition of weeds in cereal fields using colour imagery, **Crop and Pasture Science**, 137.

H. Karimi, **H. Navid**, B. Besharati, H. Behfar, I. Eskandari, 2017, A practical approach to comparative design of non-contact sensing techniques for seed flow rate detection, **COMPUTERS AND ELECTRONICS IN AGRICUL**, 142.

H. Karimi, **H. Navid**, B. Besharati, I. Eskandari, 2019, Assessing an infrared-based seed drill monitoring system under field operating conditions, **COMPUTERS AND ELECTRONICS IN AGRICULTURE**, 162.

H. Karimi, **H. Navid** and A. Mahmoudi, 2012, Detection of damaged seeds in laboratory evaluation of precision planter using impact acoustics and artificial neural networks, **Artificial Intelligence Research**, 1.

H. Karimi, **H. Navid**, A. Mahmoudi, 2015, Online laboratory evaluation of seeding-machine application by an acoustic technique, **Spanish Journal of Agricultural Research**, 13.

H. Navid, H. R. Ghassemzadeh and M. Moghaddam, 2012, Determination of Some Design Parameters for Roller Type Seed Metering Device, **Journal of Agricultural Science and Technology**

H. Navid, HR Ghasemzadeh, S Ebrahimian, B Rezaii and MA Jadidy, 2007. Investigating of Relative Speeds of Metering Device and Seed Singulating Wheel Effects on Vertical Roller Metering Performance (in Persian), **Journal of Agricultural Science**, Vol.19, No. 3, P. 121-128.

H. Navid, R. K. Taylor, A. Yazgi and P. Weckler, 2017, Detecting Grain Flow Rate Using a Laser Scanner, **Transaction of the ASABE**, 2.

H. Navid, S. Ebrahimian, H.R .Gasemzadeh and M.J. Mousavi nia, 2010, Laboratory Evaluation of Seed Metering Device Using Image Processing Method, **Australian Journal of Agricultural Engineering**

I .Eskandari, **H. Navid** and F. Moradi, 2015, Evaluation of Conservation and Conventional Tillage System Using Thermal Infrared Imagery in Dryland Cold Region of Iran, **YYU J AGR SCI**, 3.

I .Eskandari, **H. Navid** and K. Rangzan, 2016, Evaluating spectral indices for determining conservation and conventional tillage systems in a vetch-wheat rotation, **International Soil and Water Conservation Research**, 4.

J. Robati, **H. Navid** and M. Rezaei, 2012. Automatic Guidance of an Agricultural Tractor Along With the Side Shift Control of the Attached Row Crop Cultivator. **Journal of Agricultural Science and Technology**

J. Robati, **H. Navid**, I. Hasanzadeh, and Mahdi Rezaei, 2010, Electro hydraulic control system for precision guidance of a row crop cultivator with position feedback via LVDT, **International Journal of Food, Agriculture & Environment-JFAE** Vol.9 (2): 556 - 560

- M. Feyzi, **H. Navid** and I. Dianat, 2019, Ergonomically based design of tractor control tools, **International Journal of Industrial Ergonomics**, 72.
- M. Khodaei, S. H. Fattahi and **H. Navid**, 2016, Evaluation of FEM modelling for stress propagation under pressure wheel of corn planter, **Agric Eng int: CIGR journal**, 3.
- N. Mohammadi Baneh, **H. Navid** and J. Kaffashan, 2015, Mechatronic components in apple sorting machines with computer vision, **Journal of Food Measurement and Characterization**, 5.
- N. Mohammadi, **H. Navid**, M. R. Alizadeh, H. R. Ghasemzadeh, 2012, Design and Development of a Cutting Head for Portable Reaper Used in Rice Harvesting Operations, **Journal of Applied Biological Sciences** 6(3): 69-75.
- P. Najafi, B. Feizizadeh and **H. Navid**, 2021, A comparative approach of fuzzy object based analysis and machine learning techniques applied to crop residue cover mapping using multispectral Sentinel-2 and digital UVA images, **Remote sensing**.
- P. Najafi, **H. Navid**, B. Feizizadeh and I. Eskandari, 2018, Object-based satellite image analysis applied for crop residue estimating using Landsat OLI imagery, **International Journal of Remote Sensing**, 12.
- P. Najafi, **H. Navid**, B. Feizizadeh and I. Eskandari, 2018, Remote sensing for crop residue cover recognition: A review, **Agric Eng Int: CIGR Journal**,
- P. Najafi, **H. Navid**, B. Feizizadeh, I. Eskandari, T. Blaschke, 2019, Fuzzy Object-Based Image Analysis Methods Using Sentinel-2A and Landsat-8 Data to Map and Characterize Soil Surface Residue, **Remote sensing**, 11.
- R. Hasankhani and **H. Navid**, 2012, Potato Sorting Based on Size and Color in Machine Vision System, **Journal of Agricultural Science** (Published by Canadian Center of Science and Education), Vol. 4, No. 5, P. 235-244.
- R. Hasankhani and **H. Navid**, 2012, Qualitative Sorting of Potatoes by Color Analysis in Machine Vision System, **Journal of Agricultural Science (Canadian Center of Science and Education)**, Vol. 4, No. 4.
- R. Hasankhani, **H. Navid** and H. Seyedarabi, 2012, Potato Surface Defect Detection in Machine Vision System, **African Journal of Agricultural Research**.
- R. Hasankhani, **H. Navid**, 2012, Quantitative Sorting of Potato by Means of Machine Vision System, **International Journal of Agriculture: Research and Review**. Vol., 2 (4), 443-447
- S. H. Fattahi, M. Khodaei and **H. Navid**, 2015, Evaluation of corn planter under travel speed, working depth, pressure wheel and cone index, **Agric Eng int: CIGR journal**, 4.
- S. Taghizade, **H. Navid** and Y. Maghsodi, M. Moghadam Vahed , 2015, Predicting wheat harvest time using satellite images and regression models, **AMA, Agricultural Mechanization in Asia, Africa and Latin America**, 50.

S. Taghizade, **H. Navid**, Mostafa Jamshidifar and Reza Fellegari, 2011, Analysis on simultaneous effect of water access requirements in Regional Water Corporation of West- Azerbaijan and risk factor on cultivation optimal pattern, **Int J Agric & Biol Eng.** Vol(4). No (3) p: 1-7.

S. Taghizade, **H. Navid**, Y. Maghsodi , R. Adiban Harvest chronologic al planning using a method based on satellite-derived vegetation indices and artificial neural networks, **Spanish Journal of Agricultural Research**, 3.

T. Mesri Gundoshmian, H. R. Ghassemzadeh, S. Abdollahpour, **H. Navid**, 2010, Application of artificial neural network in prediction of the combine harvester performance, **International Journal of Food, Agriculture & Environment-JFAE** Vol.8 (2)

Conferences Proceedings

Design and fabrication of grain loss monitoring system in combine, H. Karimi, H. Navid, A. Taheri-hajvandand A. Rostami, **4th International Conference on Trends in Agriculture**, 2010 (in Persian).

Electro-hydraulic control system of an agricultural tractor steering system along with the side shift control of the attached row crop cultivator, J. Robati, M. Rezaei and H. Navid, **4th International Conference on Trends in Agriculture**, 2010 (in Persian).

Electro-hydraulic control system for centimeter precision guidance of a row crop cultivator, J. Robati, **H. Navid** and M. Rezaei, **International scientific conference**, 2011.

Potato Sorting in Machine Vision System, R. Hasankhani, **H. Navid** and H. Seyedarabi, **International Food and Agricultural Congress**, Antalya, Turkey, 2012.

Evaluation and selection among four different types of tractors in 30-90 kW power range by using Analytic Hierarchy Process (AHP) technique, S. Sarkheil and **H. Navid**, **6th National Congress on Agricultural Machinery and Mechanization Engineering**, Tehran-Iran, 2010 (in Persian).

Analysis of operational parameters effects on soil erosion with moldboard plough tillage, M. Naghdian, **H. Navid** and S. Fathi, **First Symposium on Mechanization and New Technology in Agriculture**. Ahvaz-Iran, 2011 (in Persian).

Piezoelectric Sensors for Combine Harvester's Grain Loss monitor, **H. Navid**, A. Taheri, J. Robati, M. Rezai, **3rd International Conference in Agricultural and Food Engineering**, Malaysia, 2016.

Isolating Corn Plant Spacing Variability, A .Yazgi, R .Taylor, **H .Navid** and R. Kochenower, **2015 ASABE Annual International Meeting**, America, 2015.

Evaluation of Corn Seed orientation, R. Taylor, A. Koller, A. Yazgi, I. Ciampiti, A. Schlegel, C. Godsey and **H. Navid**, **2015 ASABE Annual International Meeting**, America, 2015.

Satellite based predicting wheat harvest date using vegetation indexes, **H. Navid**, S. Taghizadeh, Y. Maghsodi, M. Moghaddam Vahed, **XIX World Congress of CIGR**, Antalya, Turkey, 2018.

QFT-Based Yaw Control of Agricultural Tractor Having Automatic Steering System, J .Robati, **H. Navid**, N .Sepehri & M .Rezaei, **CSME International Conference**, Canada, 2012.

Journal and Conference Review

- 4th - 14th ,National Congress on Agricultural Machinery and Mechanization Engineering
- Computers and Electronics in Agriculture
- Journal of Agriculture Science (in Persian)
- Journal of Agricultural Science and sustainable Production
- Iran Agricultural Research (in Persian)
- Agricultural Mechanization (in Persian)
- Maejo International of Science and Technology
- Journal of Electrical Engineering (in Persian)
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Computer and Software Skills

- Finite Elements Methods: ANSYS
- Programming languages: FORTRAN 90, MATLAB, Visual Basic, Python
- Statistical Analysis Tools: SAS, SPSS MSTATC
- Microsoft office(Word, Access, MS Excel, Power Point)
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Language Information and Hobbies

- Language: Persian (Native), Turkish (Native), English (Fluent), Arabic (Fair)
- Hobbies: Mountain Climbing, Reading, Family-oriented and Socio-Cultural Activities