# CURRICULUM VITAE

## (S. Iman Saedi, Ph.D.)

### Personal Information

First name: Seyed Iman, Last name: Saedi.
Date of birth: December 22, 1981, Mashhad, IRAN; Married, one child.
Emails: isaedi@shahroodut.ac.ir; isaedi@gmail.com.

### Experience Highlights

-Associate Professor (2024-present)**:** Shahrood University of Technology, Shahrood, IRAN.
-Assistant Professor (2017-2024)**:** Shahrood University of Technology, Shahrood, IRAN.
-Visiting Scholar Affiliate (2015–2016): Washington State University, IAREC, Prosser WA, USA.
-Lecturer Faculty Member (2008-2012): Shahrood University of Technology, Shahrood, IRAN.

### Education

-Ph.D. (2017): Agricultural Engineering-Mechanical Engineering of Agricultural Machinery
College of Agriculture & Natural Resources, Tehran University, IRAN.
-M.Sc. (2008): Agricultural Engineering-Mechanics of Agricultural Machinery
Mashhad Ferdowsi University, IRAN.
-B.Sc. (2005), Agricultural Engineering-Agricultural Machinery
Mashhad Ferdowsi University, IRAN.

### Languages

Second language: English (Reading, Writing, Speaking, Listening); Native language: Farsi

### Research Interests

Precision and Automated Agriculture.
Artificial Intelligence, Deep Learning, and Computer Vision in Agriculture.
Irrigation Automation.
Solar Energy and Agri-voltaic Systems.
Controlled Environment Agriculture.

### Teaching

- *Graduate level (Master)*:
Engineering Mathematics / Artificial Intelligence / New Topics in Biosystems Engineering / Solar Energy.

- *Undergraduate level*:
Theory, principles, and operation of tractors and farm machinery / Engineering Statics / Mathematics (Calculus) / Differential Equations / Engineering Vibrations.

### Skills and Techniques

Python programming, Deep learning (CNN, Keras, TensorFlow, PyTorch), MATLAB and Simulink, Data analysis, Computer vision, ANN, Fuzzy logic, Solar design (PV*SOL), Computer-aided design (CATIA), SAS JMP, Office (Word, Excel, PowerPoint), Photoshop.

Last updated: May 4, 2025

**Patents**

-Solar Rotary Hydroponic Cropping Apparatus Equipped with Intelligent Irrigation System. Registered at the *Iran State Organization for Registration of Deeds and Properties, Intellectual Property Centre*. Reg. NO. 96248, Issued: July 24, 2018.

-Poultry Ration Distribution and Delivery System Equipped with an Automatic Digital System. Registered at the *Iran State Organization for Registration of Deeds and Properties, Intellectual Property Centre*. Reg. NO. 95884, Issued: May 29, 2018.

**Publications**

- Makarian, H., **Saedi, S. I.,** Sahabi, H. 2025. *Smart weed recognition in saffron fields based on an improved EfficientNetB0 model and RGB images*. Scientific Reports, *15*. https://doi.org/10.1038/s41598-025-00331-9

- **Saedi, S. I.,** & Makarian, H., 2025. *Development of a deep learning model based on VGG16 network for classifying saffron plants and weeds by color images*. Iranian Journal of Research in Mechanics of Agricultural Machinery. In press.

- **Saedi, S. I.**, Rezaei, M., & Khosravi, H., 2024. *Dual-path lightweight convolutional neural network for automatic sorting of olive fruit based on cultivar and maturity.* Postharvest Biology and Technology, 216, 113054. https://doi.org/https://doi.org/10.1016/j.postharvbio.2024.113054

-Makarian, H., & **Saedi, S. I.,** 2024. *Automated classification of saffron and broadleaf weeds of flixweed and hoary cress using deep learning and color images.* Crop Protection, 106750. https://doi.org/https://doi.org/10.1016/j.cropro.2024.106750

- **Saedi, S. I.**, Rezaei, M., 2024. *A Modified Xception Deep Learning Model for Automatic Sorting of Olives Based on Ripening Stages*. Inventions. 9, 6. https://doi.org/10.3390/inventions9010006.

- **Saedi, S. I.**, 2023. *Determining apple fruit harvest time using color images and deep learning.* Iranian Journal of Research in Mechanics of Agricultural Machinery. vol. 12, No.3.

-**Saedi, S. I.**, Peters, TR., 2022. *Prediction of wind drift and evaporation losses in sprinkler irrigation systems using artificial neural networks.* Iranian journal of irrigation and drainage. vol. 16, No.3, pp 537-549.

- Sadeghi, S. H., **Saedi, S. I.**, Peters, TR., & Stöckle, C., 2022. *Towards Improving the Global Water Application Uniformity of Center Pivots through Lateral Speed Adjustment.* Biosystems Engineering,215, pp 215-227. https://doi.org/10.1016/j.biosystemseng.2022.01.012

- Khosravi, H., **Saedi, S. I.**, Rezaei, M., 2021. *Real-time recognition of on-branch olive ripening stages by a deep convolutional neural network.* Scientia Horticulturae (Amsterdam).287, 110252. doi: https://doi.org/10.1016/j.scienta.2021.110252

- **Saedi, S. I.**, & Khosravi, H. 2020. *A deep neural network approach towards real-time on-branch fruit recognition for precision horticulture*. Expert Systems with Applications, 159, 113594. doi:https://doi.org/10.1016/j.eswa.2020.113594

- Movahednejad, M. H. **Saedi, S. I.**, 2020. *Development of an ANN model for the prediction of plant actual evapotranspiration under a hydroponic growing system*. Iranian journal of irrigation and drainage. vol. 14, No.4, pp 1164-1174.

Last updated: May 4, 2025

- **Saedi, S. I.** Alimardani, R. Mousazadeh, H., 2019. *Development and evaluation of an energy and water efficient intensive cropping system*, INMATEH-Agricultural Engineering. vol. 58, No.2, pp 93-104.

- **Saedi, S. I.** Alimardani, R. Mousazadeh, H., 2018. *Prediction of daily global solar radiation by daily temperatures and artificial neural networks in different climates*, Journal of agricultural machinery. vol.8, No.1, pp 197-211.

- **Saedi, S. I.** Alimardani, R. Mousazadeh, H., Salehi, R., 2018. *Design and development of a solar hydroponic rotary cropping apparatus with an intelligent irrigation system*, Journal of agricultural machinery. vol.8, No.2, pp 279-294.

- Rohani, A. **Saedi, S. I.** Gerailue, H. Aghkhani, M. H., 2015. *Prediction of lateral surface, volume and sphericity of pomegranate using MLP artificial neural network*. Journal of agricultural machinery. vol.5, No.2, pp 292-301.

- Aghkhani, M. H., Abbaspour-fard, M. H., Bayati, M. R., Mortezapour, H., **Saedi, S. I.**, Moghimi, A. 2013. *Performance analysis of a solar dryer equipped with a recycling air system and desiccant chamber*, Journal of agricultural machinery, vol.3, No.2, pp 92-103.

- **Saedi, S. I.**, Aghkhani, M. H., Farzad, A., 2012. *Optimization and Analysis of a λ-Formed Straight Line Linkage for the Design of Reversible Disk Plow*, Journal of agricultural machinery, vol.2, No.2, pp 84-95.

**Presentations**

- **Saedi, S. I.**, Makarian, H., 2024. *An approach based on deep learning and color images to distinguish the saffron plant from its weeds*, 16th National Congress on Mechanics of Biosystems Engineering and Agricultural Mechanization. Mashhad, Iran.

- **Saedi, S. I.**, Rezaei, M., 2023. *Maturity-based classification of olive fruits by RGB images and transfer learning*, 15th National and 1st International Congress on Biosystems Engineering and Agricultural Mechanization. Karaj, Iran.

- **Saedi, S. I.**, 2023. *Recognition of ripe, underripe, and unripe apricot fruit in natural conditions of orchard by RGB images and transfer learning*, 15th National and 1st International Congress on Biosystems Engineering and Agricultural Mechanization. Karaj, Iran.

- **Saedi, S. I.**, 2022. *Determining apple fruit harvest time using color images and deep learning*, 14th National Congress on Biosystem Engineering and Mechanization. Kermanshah, Iran.

- **Saedi, S. I.**, 2022. *A review on convolutional neural networks and their application in color image classification for precision agriculture*, 14th National Congress on Biosystem Engineering and Mechanization. Kermanshah, Iran.

- Movahednejad, M. H. **Saedi, S. I.** Mirzaee Moghaddam, H., 2020. *Modelling canopy actual evapotranspiration for a hydroponic culture based on fuzzy data*, 12th National Congress on Biosystem Engineering and Mechanization. Ahvaz, Iran.

- **Saedi, S. I.**, 2019. *Modeling a fuzzy-based intelligent system for purposeful irrigation process*, 3rd National Conference on Water Resources Management on Coastal Plains. Sari, Iran.

- **Saedi, S. I.**, 2019. *Evaluation of a fuzzy-based intelligent irrigation system in a hydroponic growing system*, 3rd National Conference on Water Resources Management on Coastal Plains. Sari, Iran.

- **Saedi, S. I.**, 2019. *Development and evaluation of a rotary hydroponic growing system*, 11th National Horticultural Science Congress of Iran, Urmia, Iran.

Last updated: May 4, 2025

**- Saedi, S. I.** Mirzaee Moghaddam, H. Movahednejad, M. H., Alimardani, R., Mousazadeh, H., 2018. *Designing an off-grid solar system to supply power for a rotary cropping system in Karaj climate*, 11th national congress on biosystem engineering and mechanization. Hamedan, Iran.

- Rouhani, A. **Saedi, S. I.** Grailu, H. Aghkhani, M. H., 2013. *Prediction of volume, surface area and sphericity of pomegranate using MLP artificial neural network*. 8th national congress on agricultural machinery engineering (biosystems) and mechanization. Mashhad, Iran.

**- Saedi, S. I.**, Aghkhani, M. H., Farzad, A., 2008. *Design & development of a reversible disk plow*. 10th international congress on mechanization and energy in agriculture. Antalya, Turkey.

- Aghkhani, M. H., Abbaspour-fard, M. H., **Saedi, S. I.**, 2008. *Automated steering of tractor and other self-propelled agricultural machineries using visible cable*, International Conference on Science & Technology, Applications in Industry & Education, Malaysia.

**- Saedi, S. I.**, Aghkhani, M. H., Farzad, A., 2008. *Design of a reversible disk plow by synthesis of a 5-bar straight-line mechanism.* 5th congress on agricultural machinery and mechanization, Mashhad, Iran.

**Workshops**

- (Educator): Deep Learning and its Application in Agriculture, 2024
- (Educator): Solar Energy: Principles, System Design, Software & Simulation, 2024
- (Trainee): Advanced Teaching Methods and Techniques, 2019
- (Trainee): Basic Facts and Applications of Precision Agriculture, 2010

**Research Projects**

- Classification of saffron and its important weeds using a strategy based on deep learning and color images to be used in precise management of weeds (Saffron Institute, University of Torbat Heydarieh, Iran. 2024. (Grant number: P/179506).

-Classification of winter wheat and its important weeds through deep learning approach and color images for precision weed management in natural field conditions. Shahrood University of Technology, Iran-2024. (Grant number: RP_S_219444)

-Monitoring fruit growth in orchards using digital images and deep learning-(Semnan Science and Technology Park, Iran-2021).

-Design and development of fuzzy control system of rotary cultivation system with hybrid renewable energy- (INSF: Iran National Science Foundation, 2015. Grant number: 93011269.).

-Performance evaluation of linear move irrigation systems for automation-(Washington State University, USA, 2015).

-Application of artificial intelligence in determination of biophysical properties of fruits (case study: pomegranate) – (Shahrood University of Technology, Iran-2012).

-Design, and development of a solar dryer- (Ferdowsi University of Mashhad, Iran -2010).

-Design, fabrication and evaluation of an automatic marking and tractor steering – (Ferdowsi University of Mashhad, 2007).

**Received Scholarships**

- Sabbatical Scholarship- Ministry of Science, Research and Technology of Iran (2015).

Last updated: May 4, 2025

- Ph.D. Scholarship- Ministry of Science, Research and Technology of Iran (2012).

**Reviewer or Referee**

**JAFR** (Journal of Agriculture and Food Research)**, Sci. Hortic (**Scientia Horticulturae journal), **JSFA** (Journal of the Science of Food and Agriculture), **JAME** (Iranian Journal of Agricultural Machinery Engineering), **Scientific Report** journal**, Connection Science** journal**, INSF** (Iran National Science Foundation), **SSTP** (Semnan Science and Technology Park, Iran).

**Membership Experience**

**ISAMEN** (Iranian Society of Agricultural Machinery Engineering & Mechanization). **ISME** (Iranian Society of Mechanical Engineers). **ANREOI** (Agricultural and Natural Resources Engineering Organization of the Islamic Republic of Iran).

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