[28] H. Zhu, H. Cen, C. Zhang, and Y. He, "Early detection and classification of tobacco leaves inoculated with tobacco mosaic virus based on hyperspectral imaging technique," in *Proc. ASABE Annu. Int. Meeting. Amer. Soc. Agricultural Biol. Eng.*, 2016, p. 1.
[29] K. Nagasubramanian, S. Jones, A. K. Singh, S. Sarkar, A. Singh, and B. Ganapathysubramanian, "Plant disease identification using explainable 3D deep learning on hyperspectral images," *Plant Methods*, vol. 15, no. 1, pp. 1–10, 2019.
[30] L. W. Kuswidiyanto, H.-H. Noh, and X. Han, "Plant disease diagnosis using deep learning based on aerial hyperspectral images: A review," *Remote Sens.*, vol. 14, no. 23, 2022, Art. no. 6031.
[31] L. Li, S. Zhang, and B. Wang, "Plant disease detection and classification by deep learning—A review," *IEEE Access*, vol. 9, pp. 56683–56698, 2021.
[32] A. Miglani, S. Ray, R. Pandey, and J. Parihar, "Evaluation of EO-1 Hyperion data for agricultural applications," *J. Indian Soc. Remote Sens.*, vol. 36, pp. 255–266, 2008.
[33] R. N. Sahoo, S. Ray, and K. Manjunath, "Hyperspectral remote sensing of agriculture," in *Current Sci.*, vol. 108, pp. 848–859, 2015.
[34] S. V. Zhelezova et al., "Hyperspectral non-imaging measurements and perceptron neural network for pre-harvesting assessment of damage degree caused by septoria/stagonospora blotch diseases of wheat," *Agronomy*, vol. 13, no. 4, 2023, Art. no. 1045.
[35] W. Gardner, S. M. Cutts, D. R. Phillips, and P. J. Pigram, "Understanding mass spectrometry images: Complexity to clarity with machine learning," *Biopolymers*, vol. 112, no. 4, 2021, Art. no. e23400.
[36] R. Pu, *Hyperspectral Remote Sensing: Fundamentals and Practices*. Boca Raton, FL, USA: CRC Press, 2017.
[37] J. P. Kerekes and J. R. Schott, "Hyperspectral imaging systems," in *Hyperspectral Data Exploitation: Theory and Applications*. Hoboken, NJ, USA: Wiley, 2007, pp. 19–45.
[38] J. E. Fowler, "Compressive pushbroom and whiskbroom sensing for hyperspectral remote-sensing imaging," in *Proc. IEEE Int. Conf. Image Process.*, 2014, pp. 684–688.
[39] C.-I. Chang, *Hyperspectral Data Exploitation: Theory and Applications*. Hoboken, NJ, USA: Wiley, 2007.
[40] A. Bodkin, A. Sheinis, A. Norton, J. Daly, S. Beaven, and J. Weinheimer, "Snapshot hyperspectral imaging: The hyperpixel array camera," in *Proc. SPIE*, vol. 7334, 2009, Art. no. 73340H.
[41] J. Behmann et al., "Specim IQ: Evaluation of a new, miniaturized handheld hyperspectral camera and its application for plant phenotyping and disease detection," *Sensors*, vol. 18, no. 2, 2018, Art. no. 441.
[42] B. Lu, P. D. Dao, J. Liu, Y. He, and J. Shang, "Recent advances of hyperspectral imaging technology and applications in agriculture," *Remote Sens.*, vol. 12, no. 16, 2020, Art. no. 2659.
[43] X. Li et al., "Spectral difference analysis and airborne imaging classification for citrus greening infected trees," *Comput. Electron. Agriculture*, vol. 83, pp. 32–46, 2012.
[44] J. Cao, K. Liu, L. Liu, Y. Zhu, J. Li, and Z. He, "Identifying mangrove species using field close-range snapshot hyperspectral imaging and machine-learning techniques," *Remote Sens.*, vol. 10, no. 12, 2018, Art. no. 2047.
[45] D. Wu and D.-W. Sun, "Advanced applications of hyperspectral imaging technology for food quality and safety analysis and assessment: A review—Part I: Fundamentals," *Innov. Food Sci. Emerg. Technol.*, vol. 19, pp. 1–14, 2013.
[46] W. Ran, J. Jiang, X. Wang, and Z. Liu, "A multi-temporal method for detection of underground natural gas leakage using hyperspectral imaging," *Int. J. Greenhouse Gas Control*, vol. 117, 2022, Art. no. 103659.
[47] J. Yue et al., "A comparison of crop parameters estimation using images from UAV-mounted snapshot hyperspectral sensor and high-definition digital camera," *Remote Sens.*, vol. 10, no. 7, 2018, Art. no. 1138.
[48] M. Dalponte, H. O. Ørka, T. Gobakken, D. Gianelle, and E. Næsset, "Tree species classification in boreal forests with hyperspectral data," *IEEE Trans. Geosci. Remote Sens.*, vol. 51, no. 5, pp. 2632–2645, May 2013.
[49] T. Skauli, P. E. Goa, I. Baarstad, and T. Løke, "A compact combined hyperspectral and polarimetric imager," in *Proc. SPIE*, vol. 6395, 2006, Art. no. 639505.
[50] R. Hruska, J. Mitchell, M. Anderson, and N. F. Glenn, "Radiometric and geometric analysis of hyperspectral imagery acquired from an unmanned aerial vehicle," *Remote Sens.*, vol. 4, no. 9, pp. 2736–2752, 2012.
[51] J. J. Mitchell et al., "Unmanned aerial vehicle (UAV) hyperspectral remote sensing for dryland vegetation monitoring," in *Proc. 4th Workshop Hyperspectral Image Signal Process.: Evol. Remote Sens.*, 2012, pp. 1–10.
[52] A. Lucieer, Z. Malenovskỳ, T. Veness, and L. Wallace, "Hyperuas—Imaging spectroscopy from a multirotor unmanned aircraft system," *J. Field Robot.*, vol. 31, no. 4, pp. 571–590, 2014.
[53] V. Gonzalez-Dugo, P. Hernandez, I. Solis, and P. J. Zarco-Tejada, "Using high-resolution hyperspectral and thermal airborne imagery to assess physiological condition in the context of wheat phenotyping," *Remote Sens.*, vol. 7, no. 10, pp. 13586–13605, 2015.
[54] P. J. Zarco-Tejada, L. Suárez, and V. Gonzalez-Dugo, "Spatial resolution effects on chlorophyll fluorescence retrieval in a heterogeneous canopy using hyperspectral imagery and radiative transfer simulation," *IEEE Geosci. Remote Sens. Lett.*, vol. 10, no. 4, pp. 937–941, Jul. 2013.
[55] W. Zhu et al., "Improving field-scale wheat LAI retrieval based on UAV remote-sensing observations and optimized VI-LUTS," *Remote Sens.*, vol. 11, no. 20, ' 2019, Art. no. 2456.
[56] J. Zhao, Y. Zhong, X. Hu, L. Wei, and L. Zhang, "A robust spectral-spatial approach to identifying heterogeneous crops using remote sensing imagery with high spectral and spatial resolutions," *Remote Sens. Environ.*, vol. 239, 2020, Art. no. 111605.
[57] P. J. Zarco-Tejada, V. González-Dugo, and J. A. Berni, "Fluorescence, temperature and narrow-band indices acquired from a UAV platform for water stress detection using a micro-hyperspectral imager and a thermal camera," *Remote Sens. Environ.*, vol. 117, pp. 322–337, 2012.
[58] A. Habib, Y. Han, W. Xiong, F. He, Z. Zhang, and M. Crawford, "Automated ortho-rectification of UAV-based hyperspectral data over an agricultural field using frame RGB imagery," *Remote Sens.*, vol. 8, no. 10, 2016, Art. no. 796.
[59] D. J. Mulla, "Twenty five years of remote sensing in precision agriculture: Key advances and remaining knowledge gaps," *Biosyst. Eng.*, vol. 114, no. 4, pp. 358–371, 2013.
[60] S. Jacquemoud, F. Baret, B. Andrieu, F. Danson, and K. Jaggard, "Extraction of vegetation biophysical parameters by inversion of the PROSPECT + SAIL models on sugar beet canopy reflectance data. Application to TM and AVIRIS sensors," *Remote Sens. Environ.*, vol. 52, no. 3, pp. 163–172, 1995.
[61] N. Gat, H. Erives, G. J. Fitzgerald, S. R. Kaffka, and S. J. Maas, "Estimating sugar beet yield using AVIRIS-derived indices," in *Proc. Summaries 9th JPL Airborne Earth Sci. Workshop*, 2000, pp. 1–10.
[62] L. Estep, G. Terrie, and B. Davis, "Technical Note: Crop stress detection using AVIRIS hyperspectral imagery and artificial neural networks," in *Int. J. Remote Sens.*, vol. 25, pp. 4999–5004, 2004.
[63] Y.-B. Cheng, S. L. Ustin, D. Riaño, and V. C. Vanderbilt, "Water content estimation from hyperspectral images and modis indexes in southeastern Arizona," *Remote Sens. Environ.*, vol. 112, no. 2, pp. 363–374, 2008.
[64] Q. Ran, W. Li, Q. Du, and C. Yang, "Hyperspectral image classification for mapping agricultural tillage practices," *J. Appl. Remote Sens.*, vol. 9, no. 1, 2015, Art. no. 097298.
[65] S. W. Shivers, D. A. Roberts, J. P. McFadden, and C. Tague, "Using imaging spectrometry to study changes in crop area in California's Central Valley during drought," *Remote Sens.*, vol. 10, no. 10, 2018, Art. no. 1556.
[66] R. Nigam et al., "Crop type discrimination and health assessment using hyperspectral imaging," *Curr. Sci.*, vol. 116, no. 7, pp. 1108–1123, 2019.
[67] A. Palacios-Orueta and S. L. Ustin, "Remote sensing of soil properties in the Santa Monica Mountains I. Spectral analysis," in *Remote Sens. Environ.*, vol. 65, no. 2, pp. 170–183, 1998.
[68] C. Cilia et al., "Nitrogen status assessment for variable rate fertilization in maize through hyperspectral imagery," *Remote Sens.*, vol. 6, no. 7, pp. 6549–6565, 2014.
[69] A. Ambrus, P. Burai, C. Lénárt, P. Enyedi, and Z. Kovács, "Estimating biomass of winter wheat using narrowband vegetation indices for precision agriculture," *J. Central Eur. Green Innov.*, vol. 3, no. 2, pp. 1–9, 2015.
[70] D. Haboudane, J. R. Miller, N. Tremblay, P. J. Zarco-Tejada, and L. Dextraze, "Integrated narrow-band vegetation indices for prediction of crop chlorophyll content for application to precision agriculture," *Remote Sens. Environ.*, vol. 81, nos. 2/3, pp. 416–426, 2002.
[71] J. Liu, J. R. Miller, D. Haboudane, E. Pattey, and K. Hochheim, "Crop fraction estimation from CASI hyperspectral data using linear spectral unmixing and vegetation indices," *Can. J. Remote Sens.*, vol. 34, pp. S124–S138, 2008.
[72] K. Richter, T. Hank, and W. Mauser, "Preparatory analyses and development of algorithms for agricultural applications in the context of the EnMAP hyperspectral mission," in *Proc. SPIE*, vol. 7824, 2010, Art. no. 782407.

Authorized licensed use limited to: FUDAN UNIVERSITY. Downloaded on August 28,2025 at 01:49:24 UTC from IEEE Xplore. Restrictions apply.