

List of Publications

Book chapters:

Sahoo, M.M., Herrmann, I., and Arun, P.V., 2025. 'Explainable ante-hoc approaches for EO data analysis: Opportunities and challenges', in: *Explainable AI for Earth Observation Data Analysis: Challenges, Opportunities and Applications*, CRC Press, Taylor and Francis Group, 148–166 (in print).

Research papers:

Cohen, I., Avnit, A., Sahoo, M.M., Hak, H., Perez-Sancho, J., Spiegelman, Z. and Efroni, I., 2025. Transient restriction of intercellular communication is required for root tip regeneration. *Current Biology*, 35, 3638–3649.e5. <https://doi.org/10.1016/j.cub.2025.06.047>

Sahoo, M.M., Tarshish, R., Tubul, Y., Sabag, I., Gadri, Y., Morota, G., Peleg, Z., Alchanatis, V. and Herrmann, I., 2025. Multimodal ensemble of UAV-borne hyperspectral, thermal, and RGB imagery to identify combined nitrogen and water deficiencies in field-grown sesame. *ISPRS Journal of Photogrammetry and Remote Sensing*, 222, 33–53. <https://doi.org/10.1016/j.isprsjprs.2025.02.011>

Sabag, I., Bi, Y., Sahoo, M.M., Herrmann, I., Morota, G. and Peleg, Z., 2024. Leveraging genomics and temporal high-throughput phenotyping to enhance association mapping and yield prediction in sesame. *The Plant Genome*, 17(3), e20481. <https://doi.org/10.1002/tpg2.20481>

Sahoo, M.M., Kalimuthu, R., PV, A., Porwal, A. and Mathew, S.K., 2023. Modelling Spectral Unmixing of Geological Mixtures: An Experimental Study Using Rock Samples. *Remote Sensing*, 15(13), 3300. <https://doi.org/10.3390/rs15133300>

Sahoo, M.M., Perach, O., Shachter, A., Gonda, I., Porwal, A., Dudai, N. and Herrmann, I., 2022. Spectral estimation of carnosic acid content in *in vivo* rosemary plants. *Industrial Crops and Products*, 187, 115292, <https://doi.org/10.1016/j.indcrop.2022.115292>

Pattathal V, A., Sahoo, M. M., Porwal, A. and Karnieli, A., 2022. Deep-learning-based latent space encoding for spectral unmixing of geological materials. *ISPRS Journal of Photogrammetry and Remote Sensing*, 183, 307–320. <https://doi.org/10.1016/j.isprsjprs.2021.11.008>

Sahoo, M.M. and Pal, B.K., 2017. Geological modelling of a deposit and application using Surpac. *Journal of Mines, Metals, and Fuels*, 65 (7), 417–422.

Conference proceedings:

Sahoo, M. M., Tarshish, R., Sabag, I., Gadri, Y., Morota, G., Peleg, Z., Alchanatis, V. and Herrmann, I., 2025. Sesame yield prediction using UAV-borne hyperspectral imagery, crop traits and genotype category, in: *Stafford, J. V. (Ed.), Precision Agriculture '25*. Wageningen Academic, Barcelona, Spain, pp. 546–552.

- Sahoo, M.M., Tarshish, R., Alchanatis, V. and Herrmann, I., 2024. Comparing hyperspectral and thermal UAV-borne imagery for relative water content estimation in field-grown sesame, in: *Proceedings of the 16th International Conference on Precision Agriculture*. International Society of Precision Agriculture, Manhattan, KS.
- Sahoo, M.M. and Pal, B.K., 2024. A novel approach to remotely detect coal mining sites using hyperspectral images, in: *IGARSS 2024 - 2024 IEEE International Geoscience and Remote Sensing Symposium*. Institute of Electrical and Electronics Engineers Inc., Athens, Greece, pp. 4876–4879. <https://doi.org/10.1109/IGARSS53475.2024.10642544>
- Sahoo, M.M., Tarshish, R., Sabag, I., Peleg, Z. and Herrmann, I., 2024. Sesame yield prediction using hyperspectral reflectance: Determining spectral features and their timeline trends, in: *IGARSS 2024 - 2024 IEEE International Geoscience and Remote Sensing Symposium*. Institute of Electrical and Electronics Engineers Inc., Athens, Greece, pp. 1514–1517. <https://doi.org/10.1109/IGARSS53475.2024.10641238>
- Sahoo, M.M., Rajendran K., Arun P.V., Mathew, S.K. and Porwal A. 2023. Modelling spectral mixing for geological mixtures: Detecting nonlinearly mixed pixels in hyperspectral image of banded hematite quartzite. In *IGARSS 2023- 2023 IEEE International Geoscience and Remote Sensing Symposium*, Pasadena, California, USA, IEEE, pp. 7606–7609. <https://doi.org/10.1109/igarss52108.2023.10283193>
- Arun, P.V., Sahoo, M.M. and Porwal, A. 2023. Graph neural network based interpretable spectral unmixing for hyperspectral unmixing hyperspectral IIRS data onboard Chandrayaan-2 mission. In *IGARSS 2023- 2023 IEEE International Geoscience and Remote Sensing Symposium*, Pasadena, California, USA, IEEE, pp. 4202–4205. <https://doi.org/10.1109/igarss52108.2023.10283097>
- Sahoo, M.M., Singh, S., Rajendran K., Porwal, A., Paul, D. and Mathew, S.K. 2023. Modelling spectral unmixing for planetary surfaces: Mapping anorthite and olivine-rich regions on a lunar surface, In *IPSC 2023 Volume of Abstracts*, Indian Planetary Science Conference 2023, Ahmedabad, India, 22–24 March 2023.
- Sahoo, M.M., Perach, O., Shachter, A., Gonda, I., Porwal, A., Dudai, N. and Herrmann, I., 2022. Carnosic acid content estimation by hyperspectral reflectance of field grown Rosemary plants. In *2022 7th International Plant Phenotyping Symposium*, Wageningen, The Netherlands, 27–30 September 2022.
- Sahoo, M. M., Tarshish, R., Tubul, Y. and Herrmann, I. 2022. Spectral estimation of nitrogen content in in-vivo sesame leaves using regression techniques, In *The First Research Conference of the Israeli Scientific Association for Fruits and Vegetables*, Rehovot, Israel, 10 April 2022.
- Sahoo, M. M., Tarshish, R., Tubul, Y. and Herrmann, I. 2022. Estimation of nitrogen content in sesame with a comparative analysis, In *The First Annual Conference for M.Sc. and Ph.D. Students at the Faculty of Agriculture*, Rehovot, Israel, 21 February 2022.

Sahoo, M. M., Arun, P. V. and Porwal, A., 2021, March. Support Vector Machines for Unmixing Geological Mixtures. In *2021 11th Workshop on Hyperspectral Imaging and Signal Processing: Evolution in Remote Sensing (WHISPERS)*, IEEE, 9484054. <https://doi.org/10.1109/WHISPERS52202.2021.9484054>

Oral presentations:

Arun, P.V., Sahoo, M.M., Suresh, S. and Porwal, A., 2023. Interpretability and explainability of hyperspectral image classification techniques for lunar surface mapping. In *NASA Exploration Science Forum (NESF)-2023*, University of Maryland, Maryland, USA.

Sahoo, M. M., Rajendran, K., Pattathal Vijayakumar, A., Mathew, S. K. and Porwal, A., 2023. Evaluation of Spectral Mixing Techniques for Geological Mixture in a Laboratory Setup: Insights on the nature of mixing, *EGU General Assembly 2023*, Vienna, Austria, 24–28 Apr 2023, EGU23-12226, <https://doi.org/10.5194/egusphere-egu23-12226>

Sahoo, M. M., Pattathal Vijayakumar, A., Herrmann, I., Mathew, S. K. and Porwal, A., 2022. Estimation of point spread function for unmixing geological spectral mixtures, *EGU General Assembly 2022*, Vienna, Austria, 23–27 May 2022, EGU22-8712, <https://doi.org/10.5194/egusphere-egu22-8712>

Sahoo, M.M., Kalimuthu, R., Arun, P.V., Mathew, S.K. and Porwal, A., 2022. SAM guided Half Siamese network model for endmember variability based spectral unmixing of geological materials, IN12B-0266 presented at *2022 Fall Meeting, AGU*, Chicago, IL, USA, 12-16 December 2022.

Sahoo, M.M. and Porwal A., 2020. Modelling Spectral Mixing of Rocks: A Machine Learning Approach, Abstract No.: 3077-2568. In *36th International Geological Congress, Geosciences: The Basic Science for a Sustainable Future* (p. 4013), Delhi, India, 2-8 March 2020.