

R.M.R.D. ABEYRATHNA



ACADEMIC QUALIFICATIONS

M.Sc. in Agricultural and Bio-systems Engineering - Postgraduate Institute of Agriculture, University of Peradeniya (UOP), Sri Lanka (2016- 2017)

- Cumulative grade point average- **3.94/4.00**
- Research project- Development of an arduino robotic arm feeding mechanism for spices milling process

B.Sc. in Agricultural Technology and Management - University of Peradeniya (2011 - 2015)

Second Class Honours (Upper Division)

- Final grade point average - **3.41/4.00**
- Majoring module: Agricultural and Bio-systems Engineering
- Final year project- Design and development of far infrared rice flour gelatinizer

ACHIEVEMENTS

- Best innovative research in Undergraduate research symposium, Faculty of Agriculture, UOP - 2015

WORK EXPERIENCE

Lecturer 2018 up to date	Department of Agricultural Engineering, Faculty of Agriculture (FoA) , UOP
Assistant Lecturer 2018 and 2016	Department of Agricultural Engineering, (FoA) , UOP
Teaching Assistant 2017 - 2018	Department of Agricultural Engineering, (FoA) , UOP
Research Assistant 2017	Ruhunu Foods (Pvt.) Ltd., Kandy, Sri Lanka

CONTACT

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CAREER SUMMARY

Teaching Process Control and Automation, Engineering Drawing, and Farm Machinery

Undergraduate research project supervision and mentoring students

RESEARCH INTERESTS

Deep Learning Systems, Machine Learning systems, Process Control and Automation, Embedded Systems, Orchard Robotics and Autonomous Navigation of Agricultural Vehicles

SKILLS

Computer software: AutoCAD, Illustrator, SketchUp, Solidworks, MATLAB, MPLAB, Fusion 360, Proteus, and 3D printing

Microcontroller programming: PIC, Arduino, Raspberry P and Jestson

Languages: Fluent in Sinhala (native) and

English

REFEREES

Professor K. S. P. Amaratunga

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University of Peradeniya
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Professor M.I.M. Mowjood

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Emeritus Professor K.G.A. Goonasekara

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Sri Lanka.
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TEAM WORK

- Power & Audio Visual committee member - UOP International Research Sessions - 2019
- E-Learning committee member - FoA, UOP – 2020
- Coordinating committee member - World Bank funded Faculty Development, FoA - 2019
- Co-controlling examiner - General Certificate Examination Advanced Level, Technology stream – 2018
- Chairman - Technical Evaluation Committee, Postgraduate Institute of Agriculture, UOP - 2019

AS A TRAINEE

- Short-term Program of Innovative Asia- Shibaura Institute of Technology - 2020
- In-plant Trainee - Ruhunu Foods (Pvt.) Ltd. - 2015
- In-plant Trainee - Hayleys Agriculture - 2015
- Out-Bound Training programme – 2015
- Residential training on developing leadership qualities and positive thinking, Ministry of Higher Education – 2011

EXTRA CURRICULAR ACTIVITIES

Sports and Games;

- Carrom Team member - UOP - 2014 to 2015 and won half colours in 2014 and 2015
- Member, Second runner-up Carrom team - Inter- University Games - 2015

Membership in student societies;

- Member, Art Circle, FoA, UOP – 2013-2015
- Member, Buddhist Society, FoA, UOP – 2013-2015
- Committee member of Inventors Club, FoA, UOP – 2015

ON-GOING COLLABARATIVE RESEARCH PROJECTS

- Design and development of robotic platforms for orchard fruit harvesting
- Autonomous navigation of speedy sprayer using 3D camera and LiDAR
- Green house automation based on deep learning applications

PUBLICATIONS

Full papers

Abeyrathna, R. M., Nakaguchi, V. M., Minn, A., & Ahamed, T. (2023). Recognition and Counting of Apples in a Dynamic State Using a 3D Camera and Deep Learning Algorithms for Robotic Harvesting Systems. *Sensors*, 23(8), 3810. <https://doi.org/10.3390/s23083810>

Abeyrathne R.M.R.D., Ekanayake E.M.A.C., Amaratunga K.S.P.(2020). Industrial Robotic Arm for Chilli Milling Process. *International Journal of Innovative Technology and Exploring Engineering (IJITEE)*. 9(12): 130-133.

Abeyrathna, R.M.R.D., Amaratunga, K.S.P., & Kariyawasam, H.K.P.P. (2017). [Design and Development of a Far Infrared Rice Flour Gelatinizer](#). *International Journal of Scientific and Research Publications*. 7(1): 36-40.

Abeyrathna, R.M.R.D. & Amaratunga, K.S.P. (2017). [Use of heat pump dehumidifiers on industrial drying of chili](#). *International Journal of Scientific and Research Publications*. 7(12): 105-110.

Sewwandi U.G.C., Ekanayake E.M.A.C., Amaratunga K.S.P., Fernando A.J., **Abeyrathne R.M.R.D.**(2019). Drying Characteristics of Katuwelbatu (*Solomon virginianum* L.) during Heat-Pump Drying. *International Journal of Scientific & Engineering Research*. 10(10): 1670-1672.

Ekanayake E.M.A.C., Amaratunga K.S.P., Kariyawasam H. K.P.P., Fernando A. J., **Abeyrathna R. M. R. D.**, (2019) Design and Development of a Closed Cycle Heat Pump Drying System for Industrial Drying of Rice and Chili. *Journal of Scientific and Engineering Research*, 6(12), pp. 1-7.

Book chapters

Abeyrathna, R.M.R.D., Ahamed, T. (2023). Autonomous Robots in Orchard Management: Present Status and Future Trends. In: Ahamed, T. (eds) IoT and AI in Agriculture. Springer, Singapore. https://doi.org/10.1007/978-981-19-8113-5_17

Munirah Hayati Hamidon, Mohammad Hussain Seyar, P.D. Kahandage, Victor Massaki Nakaguchi, Arkar Minn, Ailian Jiang, **R M Rasika D Abeyrathna** and Tofael Ahamed* (2023). IoT × AI: Introducing Agricultural Innovation for Global Food Production. In: Ahamed, T. (eds) IoT and AI in Agriculture. Springer, Singapore. https://doi.org/10.1007/978-981-19-8113-5_1

Abstracts

R.M. Rasika D. Abeyrathna., Nakaguchi Victor Massaki., Ryoza Noguchi., Tofael Ahamed, 2022 Grasping Estimation of Apples for Harvesting from Standardized Orchard Using Yolo-based Object Detection and Mask-RCNN, Conference: Japanese Society of Agricultural Informatics (JSAI).

R.M Rasika D. Abeyrathna., Tofael Ahamed, 2022. D Pose Estimation using Realsense Camera based on YOLOv3 Darknet for Robotic arm Manipulation. 80th Annual Meeting on The Japanese Society of Agricultural Machinery and Food Engineers (JSAM).

Wickramahewa W.H.T.D., Amaratunga K.S.P., **Abeyrathna R.M.R.D.**, Mowjood M.I.M., Kariyawasam H.K.P.P. & Ekanayake E.M.A.C. (2021). Design and Development of a Coffee Roaster and a Controlling System to Follow Roasting

Profiles. *Proceedings of the Faculty of Agriculture Undergraduate Research Symposium*. Peradeniya: University of Peradeniya.

Sandanuwan W.I., Amaratunga K.S.P., Mowjood M.I.M., **Abeyrathna R.M.R.D.**, Kariyawasam H.K.P.P. & Ekanayake E.M.A.C. (2021). Design and Development of a Far-Infrared Tea (*Camellia sinensis*) Dryer. *Proceedings of the Faculty of Agriculture Undergraduate Research Symposium*. Peradeniya: University of Peradeniya.

Bandara K.M.L.C., Mohotti A.J., Ranil R.H.G., Amaratunga K.S.P.1, **Abeyrathna R.M.R.D. &** Ekanayake E.M.A.C. (2021). Development of a Robot Arm for a Drone based Selective Tea Harvester. *Proceedings of the Faculty of Agriculture Undergraduate Research Symposium*. Peradeniya: University of Peradeniya.

Prabath W.M.H.J., Samarakone T.S., Hulugalla W.M.M.P., **Abeyrathna R.M.R.D.**, Silva F.H.C.A.& Ekanayake E.M.A.C. (2021). Infrared Thermography as a Method to Evaluate the Heat Stress in Weaned pigs: Relationship between Infrared Measured Body Surface Temperature and Rectal Temperature in Weaned Pigs. *Proceedings of the Faculty of Agriculture Undergraduate Research Symposium*. Peradeniya: University of Peradeniya.

Amarasinghe A.A.P.S., Amaratunga K.S.P., **Abeyrathna R.M.R.D.**, Mowjood M.I.M., Kariyawasam H.K.P.P. & Ekanayake E.M.A.C. (2021). Modeling and Simulation of the Temperature Profile Inside Coffee Beans Roasted under Far-Infrared Radiation. *Proceedings of the Faculty of Agriculture Undergraduate Research Symposium*. Peradeniya: University of Peradeniya.

Chandrasekara K.A.H.D., Nissanka S.P., **Abeyrathna R.M.R.D.** & Vidana Gamage D.N. (2021) Validation of Implexx Sap Flow Sensor to Determine the Crop Water usage of Oil Palm (*Elaeis guineensis*). *Proceedings of the Faculty of Agriculture Undergraduate Research Symposium*. Peradeniya: University of Peradeniya.

Dasanayake, P.D.M.S.C.B., Amaratunga, K. S. P., Jayatissa, D.N., **Abeyrathna, R. M. R. D.**, Ekanayake, E.M.A.C., & Pusseatthe, P.G.U.P.D. (2019). Design and Development of an Automated Weighing and Grading Machine for Industrial Applications. *Proceedings of the Faculty of Agriculture Undergraduate Research Symposium*. Peradeniya: University of Peradeniya.

Athapaththu A.M.C.M., Amaratunga, K. S. P., **Abeyrathna, R. M. R. D.**, Ekanayake, E.M.A.C., & Pusseatthe, P.G.U.P.D. (2019). Application of Image Processing in Sorting Pepper at Industrial Scale. *Proceedings of the Faculty of Agriculture Undergraduate Research Symposium*. Peradeniya: University of Peradeniya.

Jayarathna R.P.H.N., Amaratunga, K. S. P., **Abeyrathna, R. M. R. D.**, Ekanayake, E.M.A.C., & Pusseatthe, P.G.U.P.D. (2019). Design and Development of a Controlling System to Compensate Discharge Variation due to Material Column Height inside the Silos. *Proceedings of the Faculty of Agriculture Undergraduate Research Symposium*. Peradeniya: University of Peradeniya.

Dissanayaka D.M.V.S., Amaratunga, K. S. P., Mowjood M.I.M., **Abeyrathna, R. M. R. D.**, Ekanayake, E.M.A.C., & Pusseatthe, P.G.U.P.D. (2019). Design and Development of a Smart Water Monitoring and Control System for Paddy fields. *Proceedings of the Faculty of Agriculture Undergraduate Research Symposium*. Peradeniya: University of Peradeniya.

Madubhashitha D.D.S., Amaratunga, K. S. P., **Abeyrathna, R. M. R. D.**, Ekanayake, E.M.A.C., & Pusseatthe, P.G.U.P.D. (2019). Design and Development of Sorting Machine for Black Pepper. *Proceedings of the Faculty of Agriculture Undergraduate Research Symposium*. Peradeniya: University of Peradeniya.

Chathuranga L.G.R., Amaratunga, K. S. P., **Abeyrathna, R. M. R. D.**, Ekanayake, E.M.A.C., & Pusseatthe, P.G.U.P.D. (2019). Development of a Dense-phase Pneumatic Transport System for Paddy. *Proceedings of the Faculty of Agriculture Undergraduate Research Symposium*. Peradeniya: University of Peradeniya.

Sewwandi U.G.C., Amaratunga, K. S. P., **Abeyrathna, R. M. R. D.**, Ekanayake, E.M.A.C., & Galahitiyawa D.D.K. (2019). Evaluation of Drying Characteristic of Katwelbatu (*Solonom virginianum*) Plants by Parts in Heat Pump Drying. *Proceedings of the Faculty of Agriculture Undergraduate Research Symposium*. Peradeniya: University of Peradeniya.

Wijenayake, H. K. G. S. R., Amaratunga, K. S. P., & **Abeyrathna, R. M. R. D.** (2018). Design and Development of a Raw Material Mixing System for an Automated Curry Powder Milling Process. *Proceedings of the Faculty of Agriculture Undergraduate Research Symposium*. Peradeniya: University of Peradeniya.

Dharmathilaka, G. K. A. D. M., Amaratunga, K. S. P., & **Abeyrathna, R. M. R. D.** (2018). Design and Development of an Extruder to Make a Low-Density Polyethylene filament for 3D printing from Waste Material. *Proceedings of the Faculty of Agriculture Undergraduate Research Symposium*. Peradeniya: University of Peradeniya.

Usgalhewa, H.P., Amaratunga, K. S. P., & **Abeyrathna, R. M. R. D.** (2018). Development of an Algorithm for Automation of Chilli Feeding Mechanism in Chilli Milling Process for Industrial Application. *Proceedings of the Faculty of Agriculture Undergraduate Research Symposium*. Peradeniya: University of Peradeniya.

Sandaruwan, K. A. C., Amaratunga, K. S. P., & **Abeyrathna, R. M. R. D.** (2018). Design and Development of a Continuous Steaming System for Parboiling Paddy. *Proceedings of the Faculty of Agriculture Undergraduate Research Symposium*. Peradeniya: University of Peradeniya.

Ekanayaka, E. M. A. C., Amaratunga, K. S. P., Kariyawasam, H. K. P. P., & **Abeyrathna, R. M. R. D.** (2016). Development of a Robotic Arm Feeding Mechanism for Chilli Milling Process. *Proceedings of the Faculty of Agriculture Undergraduate Research Symposium*. Peradeniya: University of Peradeniya.

Premachandra, R. T. B. S., Amaratunga, K. S. P., Gunawardana, M., Kariyawasam, H. K. P. P., & **Abeyrathna, R. M. R. D.** (2016). Evaluation of Raw Rice Production Process for the Improvement of Head Rice Yield in CIC Rice Processing Plant at Maho. *Proceedings of the Faculty of Agriculture Undergraduate Research Symposium*. Peradeniya: University of Peradeniya.

Bandara, H. L. A. P. G. I. L., Amaratunga, K. S. P., Kariyawasam, H. K. P. P., & **Abeyrathna, R. M. R. D.** (2016). Design and Development of a Closed Cycle Heat Pump Drying System for Industrial Drying of Rice and Chilli. *Proceedings of the Faculty of Agriculture Undergraduate Research Symposium*. Peradeniya:

University of Peradeniya.

Kumara, M. G. M., Amaratunga, K. S. P., Kariyawasam, H. K. P. P., & **Abeyrathna, R. M. R. D.** (2016). Design and Development of a Closed Cycle Heat Pump Drying System for Industrial Drying of selected Spices. *Proceedings of the Faculty of Agriculture Undergraduate Research Symposium*. Peradeniya: University of Peradeniya