



## CURRICULUM VITAE



### **Dr. Samsuzana Abd Aziz**

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### **Education**

1. PhD. Agricultural Engineering, 2008, Iowa State University. USA
2. M.S. Agricultural Engineering, 2004, Iowa State University. USA
3. B. S. Electrical Engineering, 2002, Universiti Teknologi Malaysia.

### **Areas of Interest**

1. Agricultural and Biosystems Instrumentation

### **Professional Qualification/ Membership/ Affiliation**

1. Executive Committee, Malaysian Society of Agricultural Engineers (MSAE) 2013-2016
2. Editorial Board Member, Information Processing in Agriculture 2014- present
3. Executive Committee, IEEE Young Professionals (IEEE YP) 2013-2015
4. Member, Institute of Electrical and Electronics Engineers (IEEE)
5. Graduate Member, Board of Engineers Malaysia (BEM)
6. Member, American Society of Agricultural and Biological Engineers (ASABE)
7. Member, Institute of Engineers Malaysia (IEM)

### **Appointments**

| <b>Position</b>   | <b>Duration</b>              |
|---|------------------------------|
| 1. Head, Department of Biological and Agricultural Engineering, Faculty of Engineering, UPM                 | January 14, 2013 to date     |
| 2. Research Coordinator, Department of Biological and Agricultural Engineering, Faculty of Engineering, UPM | August 2009 to January 2013  |
| 3. Senior Lecturer, Department of Biological and Agricultural Engineering, Faculty of Engineering UPM       | December 2008 to date        |
| 4. Teaching Assistant, Department of Agricultural and Biological Engineering, Iowa State University, USA    | August 2007– December 2007   |
| 5. Research Assistant, Department of Agricultural and Biological Engineering, Iowa State University, USA    | August 2005– November 2008   |
| 6. Tutor, Department of Biological and Agricultural Engineering, Faculty of Engineering, UPM                | January 2002– December 2008; |

## Publications

### Journals (30 recent journals)

1. K. Hamdan, **S. Abd Aziz**, F. Z. Rokhani, A. Yahya and B. L. Steward. Detection of Sludge Contamination in Crude Palm Oil Using Dielectric Spectroscopy. *Transactions of ASABE* 2015 (In Press). (IF=0.974) Q3
2. T. A. Ishola, A. Yahya, A. R. M. Shariff, **S. Abd Aziz**, A novel variable rate pneumatic fertilizer applicator. *Instrumentation Science and technology*. 42(4): 369-384, 2014. (Scopus)
3. C. H. Fizura, **S. Abd Aziz** and S. Hafizan. Effect of Diesel Contamination on Capacitance Values of Crude Palm Oil. *Journal of Engineering Science and Technology* 3(9):286-292, 2014. (Scopus)
4. M. M. Maina, M. S. M. Amin, M. K. Rowshon, W. Aimrun, **S. Abd Aziz** and M. Yazid. The Water Balance Model and Shallow Water Table Contribution in Irrigated Lowland Rice in Tanjung Karang Irrigation Scheme in Malaysia. *Philipp Agric Scientist*. 97(3): 68-72, 2014. (Agricultural Engineering Abstracts)
5. M. M. Maina, M. S. M. Amin, M. K. Rowshon, W. Aimrun, **S. Abd Aziz** and M. Yazid. Assessment of Crop Nutrients Content of irrigation water in Tanjung karang Rice Irrigation Scheme. *Journal of Food, Agriculture, and Environment* 12(2), 2014. (IF= 0.435)
6. R. E. Putri, A. Yahya, N. M. Adam, **S. Abd Aziz** and T. A. Ishola. Calibration and Accuracy Determination of a Microwave Type Sensor for Measuring Grain Flow. *Journal of Advanced Materials Research*, 931-932: 1592-1596, 2014. (Scopus).
7. A. Y. Khaled, **S. Abd Aziz**, F. Z. Rokhani. Development and Evaluation of an Impedance Spectroscopy Sensor to Assess Cooking Oil Quality. *International Journal of Environmental Science and Development* 5(3):299-302, 2014. (Indexed by CAS, CABI, DOAJ, Crossref, ProQuest)
8. D. Jamaluddin, **S. Abd Aziz**, N. A. Ibrahim. Dielectric Based Sensing for Banana Ripeness Assessment. *International Journal of Environmental Science and Development* 5(3):286-293, 2014. (Indexed by CAS, CABI, DOAJ, Crossref, ProQuest)
9. M. M. Maina, M. S. M. Amin, M. K. Rowshon, M. Yazid, W. Aimrun, **S. Abd Aziz**. Effects of Crop Evapotranspiration Estimation Techniques and Weather Parameters on Rice Crop Water Requirement. *Australian Journal of Crop Science*. 8(4): 495-501, 2014. (Scopus)
10. T. A. Ishola, A. Yahya, A. R. M. Shariff, **S. Abd Aziz**. An RFID-Based Variable Rate Technology Fertilizer Applicator for Tree Crops. *Journal of Applied Sciences* 13(3):409-415, 2013. (Scopus)
11. T. A. Ishola, A. Yahya, A. R. M. Shariff, **S. Abd Aziz**. and C. S. Chuan. Effects of Operational Variables on Rotary Valve Metering System for a Variable Rate Technology Fertilizer Applicator for Oil Palm. *Journal of Applied Sciences* 13(3):479-484, 2013. (Scopus)
12. **S. Abd Aziz**, B. L. Steward A. Kaleita and M. Karkee. Assessing the Effect of DEM Uncertainty on Erosion Rate Estimation in Agricultural Field. *Transaction of ASABE Journal* 55(3): 785-798. 2012 (IF =1.03)
13. T. A. Ishola, A. Yahya; A. R. M. Shariff and **S. Abd Aziz**. A new concept of variable rate technology fertilizer applicator for oil palm. *International Journal of Agronomy and Plant Production* 2(5):181-186, 2011
14. M. H. Ghassemi, A. Yahya and **S. Abd Aziz**. A track type oil palm fresh fruit bunch in-field transportation for low bearing capacity peat terrain. *Journal of Agricultural Machinery Science* 7(1):7-12, 2011.
15. S. E. Roodi, A. Yahya and **S. Abd Aziz**. A track type oil palm fresh fruit bunch in-field transportation for low bearing capacity peat terrain. *Journal of Agricultural Machinery Science* 7(2):185-190, 2011.
16. K. Hamdan, **S. Abd Aziz**, F. Z. Rokhani. The Effect of Temperature on Dielectric Properties of Crude Palm Oil at Radio Frequencies. *International Journal of Engineering and Technologies* 8(1):21-24, 2011.
17. **S. Abd Aziz**, B. L. Steward and M. Karkee. Using Spatial Uncertainty of Prior Measurements to Design Adaptive Sampling of Elevation Data. *Transaction of ASABE Journal* 53(2): 349-357, 2010 (IF =1.03, Received ASABE Honorable Mention Paper Award 2011). Q3

18. **S. Abd Aziz**, B. L. Steward, M. Karkee and L. Tang. Utilizing Repeated GPS Surveys from Field Operations for Development of Agricultural Field DEMs. *Transaction of ASABE Journal* 52(4):1057-1067, 2009 (IF =1.03) Q3
19. M. Karkee, B. L. Steward, L. Tang and **S. Abd Aziz**. Quantifying sub-pixel signature of paddy rice field using artificial neural network. *Computers and Electronics in Agriculture* 65: 65-76, 2009 (IF =1.85) Q1
20. M. Karkee, B. L. Steward and **S. Abd Aziz**. Improving quality of public domain digital elevation models through data fusion. *Biosystems Engineering* 101:293-305, 2008 (IF =1.35) Q2

#### Conference Proceedings (30 recent Conference Proceedings)

21. M.N.A. Uda, C.M. Hasfalina, **S. Abd Aziz**, S. Faridah, I. Zamri, B. Siti Noraini, W. Nur Sabrina, U. Hashim. Comparison Study of Two Different Isolation and Purification Method for Rice Tungro Bacilliform Virus (RTBV). *Agriculture and Agricultural Science Procedia*, Volume 2, 2014, Pages 107-112 (Scopus)
22. D. Jamaludin, **S. Abd Aziz** and D. Ahmad. Application of Impedance Spectroscopy Sensing for Leaf Water Status. *Proceedings of International Conference of Agricultural Engineering*. 6-10 July 2014, Zurich, Switzerland.
23. A. Y. Khaled and **S. Abd Aziz**. Impedance Sensor Probe for Degradation Assessment of Cooking Oil. *Proceedings of International Conference of Agricultural Engineering*. 6-10 July 2014, Zurich, Switzerland.
24. D. Jamaludin, **S. Abd Aziz**, D. Ahmad, H. Jaafar. Impedance Characteristics of Labisa pumila Plant Water Stress. *Proceedings of National Conference on Agricultural and Food Mechanization*. 20-22 May 2014, Kota Kinabalu, Sabah.
25. M. M. Sairin, S. Mahmood, N. N. Ahmad Nizar, **S. Abd Aziz**, D. Mat Hashim and F. Z. Rokhani. Potential of Dielectric Spectroscopy Measurement for Lard Detection. *Proceedings of IEEE Region 10 Technical Symposium*. 14-16 April 2014, Kuala Lumpur. (Scopus)
26. F. Mohamad, S. Mahmood, N. N. Ahmad Nizar, **S. Abd Aziz**, D. Mat Hashim and F. Z. Rokhani. Investigation on Interdigitated Electrode Design for Impedance Spectroscopy Technique Targeting Lard Detection Application. *Proceedings of IEEE Region 10 Technical Symposium*. 14-16 April 2014, Kuala Lumpur. (Scopus)
27. M. M. Mohd, M. A. Mohd Soom, M. R. Kamal, A. Wayayok, **S. Abd Aziz** and M. Yazid. Application of Web Geospatial Decision Support System for Tanjung Karang Rice Precision Irrigation Water Management. *International Conference on Agriculture, Food and Environmental Engineering*, 15-16 Jan. 2014, Kuala Lumpur
28. C. H. Fizura, **S. Abd Aziz** and S. Hafizan. Relationship between Capacitance Values and Diesel Contamination Levels in Crude Palm Oil. *International Conference on Agricultural and Food Engineering for Life*, 26-28 Nov. 2012, Putrajaya.
29. T. A. Ishola, A. Yahya, A. R. Mohamed Shariff and **S. Abd Aziz**. Variable Rate Technology Fertilizer Applicator for Oil Palm Plantation. *International Conference on Agricultural and Food Engineering for Life*, 26-28 Nov. 2012, Putrajaya.
30. A. Yahya, O. Y. Ju, M. Mohd Isa and **S. Abd Aziz**. Portable Wireless Yield Monitoring System for Rice Combine. *International Conference on Agricultural and Food Engineering for Life*, 26-28 Nov. 2012, Putrajaya.
31. T. A. Ishola, A. Yahya, A. R. Mohamed Shariff and **S. Abd Aziz**. Hybrid Variable-Rate Fertilizer Application System for Oil Palm Plantation. *5th National Seminar on Palm Mechanization*, 23-24 Oct. 2012, Selangor.
32. T. A. Ishola, A. yahya, A. R. M. Shariff, **S. Abd Aziz**. An RFID-Based Variable Rate Technology Fertilizer Applicator for Plantation Tree Crops. *Proceedings of the 11<sup>th</sup> International Conference in Precision Agriculture 2012*, Indiana, USA

33. S. E. Roodi, A. Yahya and **S. Abd Aziz**. Field Performance of a Single Chassis Integrated Machine System in Planting Oil Palm Seedlings. Proceedings of 11th International Congress on Mechanization and Energy in Agriculture 2011, Istanbul, Turkey.
34. K. Hamdan, **S. Abd Aziz**, T. Poh Ying, H. Chow Hui. Dielectric Spectroscopy for Crude Palm Oil (CPO) Monitoring. AKEPTs 1st Annual Young Researchers International Conference and Exhibition on 19<sup>th</sup> & 20<sup>th</sup> December 2011 at PWTC Kuala Lumpur.
35. K. Hamdan, **S. Abd Aziz**, H. Chow Hui. Custom Built Portable Sensing System for Crude Palm Oil (CPO) Contamination Detection. 3<sup>rd</sup> Regional Symposium on Engineering and Technology on 21<sup>th</sup> & 23<sup>th</sup> November 2011 at Kuching, Sarawak.
36. K. Hamdan, **S. Abd Aziz**, F. Z. Rokhani. The Effect Of Temperature On Dielectric Properties of Crude Palm Oil. Congress of Natural Resources and Green Technology, World Engineering Congress, Kuching, Sarawak, ISBN 978-983-43571-8-4, pp. 200-204, 2010.
37. **S. Abd Aziz**. Accuracy and Uncertainty Assessment of Field DEMs for Agricultural Applications. Invited Speaker, Proceeding of 6th MRSS International Remote Sensing & GIS Conference and Exhibition, PWTC, KL, pp. 35, 2010.
38. K. Hamdan, **S. Abd Aziz**, F. Z. Rokhani, A. Yahya. Dielectric Properties of Crude palm Oil Using Open-ended Coaxial Probe Technique. IEEE Gold Affinity Colloquium, UPM Serdang, 2010 (Scopus)
39. A. A. Forooshani, F.Z. Rokhani, K. Samsudin, **S. Abd Aziz**. A process variation aware system-level framework to model on-chip communication system in support of fault tolerant analysis. Proceedings of IEEE Student Conference on Research and Development, Art. no. 5443278, pp. 97-100, 2009. (Scopus)
40. **S. Abd Aziz**, B. L. Steward and M. Karkee. Targeted Sampling of Elevation Data Based on Spatial Uncertainty of Prior Measurements. *ASABE Paper* No. 084826. St. Joseph, Mich.: ASABE. 2008 (Scopus)
41. **S. Abd Aziz** and Brian L. Steward. Development of Agricultural Field DEM Using Repeated Measurements from Field Operations: Effects of Sampling Intensity and Pattern. *ASAE Paper* No. 071089. St. Joseph, Mich.: ASAE. 2007. (Scopus)
42. M. Karkee, B. L. Steward and **S. Abd Aziz**. Distributed Virtual Reality Simulation Assisted Controller Design for Off Road Vehicle and Implement Tracking. *ASAE Paper* No. 073006. St. Joseph, Mich.: ASAE. 2007. (Scopus)
43. **S. A. Aziz**, B. L. Steward, and S. J. Birrell. Dielectric spectroscopy of hydraulic fluid for contamination detection. In *Proceedings of ISFP'2007: 5th International Symposium on Fluid Power Transmission and Control*, Beidaihe, China, June 6-8. 2007.
44. **S. Abd Aziz**, B. L. Steward, L. Tang, M. Karkee. Multiple GPS Measurements for Digital Elevation Model. Proceedings of Computers in Agriculture, *ASAE Paper* No: 701P0606. St. Joseph, Mich.: ASAE. 2006. (Scopus)
45. **S. Abd Aziz**, B. L. Steward, L. Tang, and M. Karkee. Multiple GPS measurements for digital elevation model. Proceedings of the 8th Int'l. Conf. on Precision Agriculture, eds. R. H. Rust and W. E. Larson, Madison WI: ASA- CSSA-SSSA. 2006.
46. **S. Abd Aziz**, B. L. Steward, S. J. Birrell, T. C. Kaspar, D. S. Shrestha. Ultrasonic Sensing for Corn Plant Canopy Characterization. *ASAE Paper* No: 04112. St. Joseph, Mich.: ASAE. 2004. (Scopus)

47. F. Z. Rokhani, Y.C. Yeow, **S.A. Aziz**, Z.M. Yusof, "Point-to-Point Protocol (PPP) Implementation using AVR micro controller", Proc. 2nd World Engineering Congress: Information and Communication Technology (ICT), Kuching, 2002.

#### Books

48. **S. Abd Aziz**. Digital Elevation Models (DEM) for Agricultural Application. Scholar's Press. Saarbrücken, Germany. ISBN:978-3-639-71089-2
49. H. Che Man, B. Yusof, S. Ali, **S. Abd Aziz**, R. Omar, A. I. Mohd Idris Hazmin Mansor. WEC 2010 Proceedings, Conference on Natural Resources and Green Technology, World Engineering Congress 2010. ISBN: 978-983-43571-8-4

#### Research Grants

| No | Project Title   | Amount (RM) | Year       | Source of Fund         |
|----|---|-------------|------------|------------------------|
| 1. | Comprehensive Crop Information for Advance Oil Palm Basal Stem Rot (BSR) Management   | 288,800     | 2015-2016  | Pura IPB Grant         |
| 2. | Interdigitated Electrode (IDE) Impedance Sensing For Frying Oil Quality Assessment  | 15,000      | 2014-2016  | Putra IPS Grant        |
| 3. | Dielectric spectroscopy measurement of Labisia pumila (Kacip Fatimah) water content and phytochemical content                   | 30,500      | 2014-2015  | FRGS & Putra Grant     |
| 4. | Development and Evaluation of a Prototype Sensor for In Situ Assessment of Cooking Oil Quality                                  | 50,000      | 2012-2014  | PRGS                   |
| 5. | Dielectric Spectroscopy Characterization of Oil Content and Bunch Components in Oil Palm Bunch Analysis                         | 143,000     | 2012- 2014 | E-Science Fund (MOSTI) |
| 6. | Uncertainty assessment of topographic factor in soil loss prediction using DEMs for highland agriculture fertility conservation | 50,000      | 2011-2013  | FRGS (MOHE)            |
| 7. | Multifrequency Dielectric Sensing for Palm oil Contamination Detection  | 160,000     | 2009-2011  | RUGS (UPM)             |

#### Awards/Recognition

| No | Name of awards   | Title                        | Award Authority  | Award Type    | Year |
|----|--|------------------------------|--|---------------|------|
| 1. | Gold and Best Award (Agricultural, Environmental and Renewable Energy) | Banana Ripeness Detector     | EYReC Recognised As Malaysia Invention & Design Society (MINDS) at International Engineering Invention and Innovation Exhibition (i-ENVEX) | International | 2014 |
| 2. | Gold Medal   | Cooking Oil Quality Detector | EYReC Recognised As Malaysia Invention & Design Society (MINDS) at International Engineering Invention and Innovation Exhibition (i-ENVEX) | International | 2014 |

### Awards/Recognition

| No | Name of awards                | Title   | Award Authority   | Award Type    | Year             |
|----|-------------------------------|---|---|---------------|------------------|
| 3  | Service Award                 | Certificate of Excellent Service  | University Putra Malaysia (UPM)   | National      | 2013             |
| 4  | Gold Medal                    | Dielectric Based Measurements of Agricultural materials                         | EYReC recognised as Malaysia Invention & Design Society (MINDS) at International Engineering Invention and Innovation Exhibition (i-ENVEX). | International | 2013             |
| 5  | Silver Medal                  | Development of Cooking Oil Quality Sensor                                       | EYReC recognised as Malaysia Invention & Design Society (MINDS) at International Engineering Invention and Innovation Exhibition (i-ENVEX). | International | 2013             |
| 6  | Best Paper Award              | Variable Rate Technology Fertilizer Applicator for Oil Palm Plantation          | Malaysian Society of Agricultural Engineers (MSAE) at International Conference of Agricultural and Food Engineering For Life 2012           | International | 2012             |
| 7  | Silver Medal                  | Smart Sampling Design of Agricultural Field Measurements Using Spatial Analysis | Pameran Rekacipta, Penyelidikan dan Inovasi Malaysia, UPM Serdang, Malaysia, 2012.  | National      | 2012             |
| 8  | Honorable Mention Paper Award | Smart Sampling Design of Agricultural Field Measurements Using Spatial Analysis | Trans. of ASABE Journal, American Society of Agricultural and Biological Engineering (ASABE)  | International | 2011             |
| 9  | Teaching Awards               | Excellent Teaching Award  | Faculty of Engineering, UPM   | University    | 2009, 2010, 2011 |
| 10 | Service Award                 | Excellent Service Award   | University Putra Malaysia (UPM)   | National      | 2010, 2011       |
| 11 | Academic Awards               | Graduate Student Fellowship   | Harold and Katherine Guy Graduate Fellowship, ISU, USA  | International | 2006             |
| 12 | Academic Awards               | P.E.O International Peace scholarship   | International Chapter P.E.O Sisterhood, Iowa, USA   | International | 2005             |

### Professional Services/Consultation

| No | Year | Title  | Authority         | Amount      |
|----|------|--|-------------------|-------------|
| 1. | 2013 | Agricultural Machinery Management (Role :Member) | Royal Court, Oman | RM57,303.00 |

### Professional Services/Consultation

| No | Year | Title  | Authority    | Amount      |
|----|------|--|--------------|-------------|
| 2. | 2012 | The Testing of The Viability of UPM's Prototype for Detecting and Measuring Total Polar Compounds in Cooking oil<br>(Role :Main) | MPOB         | Under NDA   |
| 3. | 2011 | Agricultural Machinery Operation & Maintenance<br>(Role :Member)   | JW Resources | RM12,400.00 |

### Student Supervision

#### PhD

| No. | Name                   | Title   | Status   |
|-----|------------------------|---|----------|
| 1.  | Ng Jing Lin            | Stochastic Weather Generator for Rainfall and Its Spatial Temporal Variation Analysis for Tropical Climate    | On-Going |
| 2.  | Yousif Hashim Abdullah | Optimal Operation for Storage System on Tigris River Basin by Focus on Hydropower Generation                  | On-Going |
| 3.  | Diyana Jamaludin       | Dielectric spectroscopy measurement of Labisia pumila (Kacip Fatimah) water content and phytochemical content | On-Going |

#### MS with thesis

| No. | Name                             | Title   | Status    |
|-----|----------------------------------|---|-----------|
| 1.  | Khairunnisa Hamdan               | Multifrequency Dielectric Sensing For Crude Palm Oil Contamination Detection                            | Graduated |
| 2.  | Nur Fizura bt Chin@Hashim        | Dielectric Spectroscopy characterization of Oil Content and Bunch Components in Oil Palm Bunch Analysis | Ongoing   |
| 3.  | Al-Fadhli Yahya Khaled Al-Khaled | Development and Evaluation of a Prototype Sensor for In-Situ Assessment of Cooking Oil Quality          | Ongoing   |
| 4.  | Nurul Atikah Ibrahim             | Development of Biosensor for Deep Fat Frying Oil Analysis   | Ongoing   |
| 5.  | Munirah Hayati Hamidon           | Effectiveness of Automated Vertical Farming for Urban Agriculture Initiative                            | Ongoing   |