CURRICULUM VITAE

Izael Pereira Da Silva
Professor

Personal Details

Date of Birth:	05.05.1960
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Career Objectives

- To share knowledge, collaborate and undertake research in Renewable Energy, Sustainable Development, Rural Electrification and Energy Efficiency.
- To do consultancy in the above mentioned fields to enhance people living standards in Africa.
- To give back to society by actively engaging in coaching young people on matter pertaining education, study, family and self-realization.
- I am committed to a work of service in cooperation with others to achieve a society where access to modern types of energy is a reality to all. I value people and integrity.

Research Interests and Research Membership

- Renewable Sources of Energy
- Efficient Use of Energy/Energy auditing – Demand Side Management
- Renewable Energy Policy
- Rural Electrification and Sustainable Development

Membership:

- Association of Energy Professional East Africa (AEPEA) current President and founding member
- Association of Energy Engineers (AEE) - (Atlanta, USA)
- Uganda Institution of Professional Engineers (UIPE)
- Africa Europe Energy Partnership (AEEP)
- African Renewable Energy Technology Platform (AFRETEP)
- Institute of Electrical and Electronic Engineers (IEEE)

Formal Education

2006	Certified Energy Manager (CEM) American Association of Energy Engineers (Georgia – USA)
1980 – 1984	Universidade Federal do Parana (Federal University of Parana) BSc (Eng.) Specialization: Power Systems & Telecom - 1984
1987 – 1992	Universidade de Sao Paulo (Sao Paulo University) - Brazil MSc (Eng.) Specialization: Power Systems - 1992
1992 – 1997	Universidade de Sao Paulo (Sao Paulo University) - Brazil PhD (Eng.) Specialization: Power Systems – 1997

Language Proficiency

Language	*Witten*	*Read*	*Spoken*
Portuguese	Very good	Very good	Fluent
English	Very good	Very good	Fluent
Spanish	Very good	Very good	Fluent

Employment Profile

2016 – to date	Acting Deputy Vice-Chancellor Research and Innovation Strathmore University (www.strathmore.edu)
2016 (June 29th)	Full Professor at Strathmore University
2012 – to date	Director Strathmore Energy Research Centre, Strathmore University
2011 – to 2016	Associate Professor at Makerere University – CEDAT College of Engineering Design Arts and Technology.
2001 – to 2012	Senior lecturer in Makerere University, CEDAT – College of Engineering Design Arts and Technology. Associate Professor teaching: 'Electricity and Magnetism', 'Energy Utilization', 'Network Theory II' and 'Electric Installation Design' at undergraduate level. And "Energy sources and the Environment" at Masters of Science level.
2010 – 2016	Deputy Vice-Chancellor Academic Affairs Strathmore University (www.strathmore.edu)
2001 – 2010	Director of CREEC – Centre for Research in Energy and Energy Conservation. Working with CREEC on renewable energy projects sponsored by the World Bank; GIZ, ADA (Austria Development Agency); UNIDO; Ministry of Energy and Mineral Development, Uganda National Council for Science and Technology; Sida/SAREC; NORAD; Global Alliance for Clean Cookstoves, etc

Dissertation and Thesis

1997	Silva, I.P., "A Proposal for Verification of Precision Class of Inductive Voltage Transformers" (unpublished), PhD Thesis submitted to the Post-Graduate Studies Board of University of Sao Paulo, Sao Paulo, Brazil; Defended in March/1997.
1992	Silva, I.P., "Transformer Modeling for Electromagnetic Studies in EMTP" (unpublished), MSc Dissertation submitted to the Post-Graduate

Studies Board of University of Sao Paulo, Sao Paulo, Brazil; Defended in April/1992.

Selected Recent Publications

A. Book Chapter

Da Silva, I., Ronoh, G., Ouma, C., & Jerono, C. (2015). Reducing Carbon Emissions in a Third Level Educational Institution in Sub-Sahara Africa. In W. L. Filho, Transformative Approaches to Sustainable Development at Universities (pp. 513-524). Hamburg - Switzerland: Springer International Publishing.

Da Silva, I., Hogan, E., Kalyango, B., Kayiwa, A., Ronoh, G., & Ouma, C. (2015). Innovative Energy Access for Remote Areas: "The LUAV-Light up a Village" Project. In S. Groh, J. V. Straeten, B. E. Lasch, D. Gershenson, W. L. Filho, & K. D. M, Decentralized Solutions for Developing Economies (pp. 167-175). Epping - Australia: Springer International Publishing.

B. Peer Reviewed Journals

G. Bakkabulindi, M. R. Hesamzadeh, M. Amelin, and I. P. Da Silva, "Optimal Feeder Route Configuration in Single Wire Earth Return Power Distribution Networks". Under review by the International Journal of Electrical Power and Energy Systems (Elsevier), Jan. 2015.

W. B. Musinguzi, M. A.E. Okure, A. Sebbit, T. Løvås, Da Silva, I.P. "Thermodynamic Modeling of Allothermal Steam Gasification in a Downdraft Fixed-Bed Gasifier", Advanced Materials Research, Vols. 875-877, pp. 1782-1793, 2014

Da Silva, I. P., Buchholz, T., & Furtado, J. (2012). Power from wood gasifiers in Uganda: a 250 kW and 10 kW case study. Proceedings of the ICE - Energy, Volume 165, Issue 4, 01 November 2012, (pp. 181 –196). Cape Town: Institution of Civil Engineers (ICE) - Energy.

Buchholz, T., & Da Silva, I. (2010, February). Potential of distributed wood-based biopower systems serving basic electricity needs in rural Uganda. Elsevier - Science Direct - Energy for Sustainable Development, 14(1), 56–61.

Da Silva, I.P.(2015, September). The four barriers for the diffusion of solar energy technologies in Africa: trends in Kenya. Africa Policy Review - Environment and Natural Resources, 148-151.

Thomas Buchholz, T., Tennigkeit, T., Weinreich, A., Windhorst, K., & DaSilva, I. (2012, December). Modeling the profitability of power production from short-rotation woody crops in Sub-Saharan Africa. Elsevier - Science Direct - Biomass and Bioenergy, 59, 116–127.

C. Peer Reviewed Conferences

Bakkabulindi, G., Hesamzadeh, M. R., Amelin, M., & DaSilva, I. P. (2013). Models for conductor size selection in single wire earth return distribution networks. Institute of Electrical and Electronics Engineers AFRICON - Sustainable Engineering for a Better Future: Power Electricity and Power Systems (p. 5). **Mauritius**: IEEE AFRICON.

G. Bakkabulindi, Al-Mas Sendegeya, Izael Da Silva, Eriabu Lugujjo, "*Technical, Economic and Sustainable Considerations of A Solar PV Mini-grid as a Tool for Rural Electrification in Uganda*", 5th European PV-Hybrid and Mini-Grid Conference, Tarragona Spain (April 2010) ISBN: 978-3-941785-15-1

Da Silva, I.P., Ronoh, G., & Negash, B. (2015). Feasibility study of micro grids to electrify villages at James Finlay Kenya Tea Plantation. The 4th Symposium Small PV-Applications (pp. 139-144). Munich, Germany: Ostbayerisches Technologie-Transfer-Institute. (OTTI)

Da Silva, I. P., Ronoh, G., & Ochieng, P. (2015). Replacement of kerosene with pico - PV technology: understanding the performance and usage of solar products under field conditions in Kenya. The 4th Symposium Small PV-Applications (pp. 181-186). Munich, Germany: Ostbayerisches Technologie-Transfer-Institute. (OTTI)

Da Silva, I. P. & Batte, G. B. (2013). Entrepreneurial capacity, government intervention and diffusion of technologies in Uganda: Comparing the supply side of modern types of energy and mobile telephony technologies. International conference Towards sustainable energy solutions for the developing world (pp. 1-9). The Vineyard Hotel Newlands, Cape Town South Africa: Industrial & Commercial Use of Energy.

Al-Mas Sendegeya, G. Bakkabulindi, I. P. Da Silva[3a] and E. Lugujjo, "*Application of Monte Carlo Simulation Methods to Analyze the Impact of Energy Saving Lamps on Load Factor: Case Study Kampala Urban Centres – Uganda*"

Da Silva, I. P., Ondraczek, J., Batte, G. B., Ronoh, G., & Ouma, C. A. (2014). Diffusion of Solar Energy Technologies in Rural Africa: Trends in Kenya and the LUAV Experience in Uganda. 1st Africa Photovoltaic Solar Energy Conference and Exhibition Proceedings, (pp. 106-115). Durban, South Africa.

Da Silva, I. P., Ronoh, G., & Ndegwa, J. (2013). Energy Performance of Grid Connected Solar PV Systems in Kenya- Case Study: Technical, economical and policy analysis of the Strathmore University 10 kW PV System. 3rd Syymposium Small PV_Applications (pp. 150-155). Ulm, Germany: OTTI.

Da Silva, I. P., Wassler, S., Begumisa, E., Dold, F., & Abbo, M. S. (2013). Solar Energy Kiosk as a Field Laboratory. 3rd Symposium Small PV_Applications (pp. 296-301). Ulm, Germany: OTTI.

Da Silva, I. P., Ronoh, G., & Maina, D. N. (2013). An M&E mobile based Application for Pico PV Lighting Solutions for the "Kerosene Free Kenya" Project. 3rd Symposium Small PV_Applications (pp. 290-295). Ulm, Germany: OTTI.

DaSilva, I. P., G. Bakkabulindi, M. R. Hesamzadeh & M. Amelin. Planning algorithm for single wire earth return power distribution systems. In Proc. IEEE Power and Energy Society General Meeting, San Diego, CA, July 22–26, 2012.

Sendegeya, M. Amelin, L. Söder, E. Lugujjo, and I. P. Da Silva, "*Consumer Price Sensitivity Impact on Tariff Level in Isolated Rural Power Systems*", Presented in the International UPEC2006 Conference Organised at Northumbria University, Newcastle upon Tyne, UK, September 2006

Sendegeya, M. Amelin, L. Söder, E. Lugujjo and I. P. Da Silva, "*Altruistic versus Profit Maximising System Operators of Rural Power Systems*", Presented in the International Conference: IEEE PES PowerAfrica2007 – Conference and Exposition, Johannesburg, South Africa, July 2007

Sendegeya, M. Amelin, L. Söder, E. Lugujjo and I. P. Da Silva, "*Application of Price Sensitivity Measurement Method to Assess the Acceptance of Electricity Tariffs: A Case Study in Uganda*", IEEE, Africon2009 Conference (Nairobi 23-25 September 2009); ISBN: 978-1-4244-3919-5

Sendegeya, P. J. M Ssebuwufu and I. P. Da Silva, "*Benefits of Using Biogas in Households: Experience from a User in Uganda*", Presented in the International Conference Domestic Use of Energy 2007Organised at Cape Peninsula University of Technology, Cape Town, South Africa, April 2007

Bakkabulindi1, I. P. Da Silva1, A. Sendegeya, E. Lugujjo, L. Söder and M. Amelin, "*Carbon Dioxide Emission Off-Set and Quantification from the Replacement of Kerosene Lamps with Solar Powered LED Lamps in Rural Uganda*", Environmental Science and Technology Conference (ESTEC2009) Kuala Terengganu Malaysia, December 7-8, 2009

G. Bakkabulindi, M. R. Hesamzadeh, M. Amelin, and I. P. Da Silva, "Models for Conductor Size Selection in Single Wire Earth Return Distribution Networks". Proceedings of the IEEE AFRICON Conference, **Mauritius**, September 2013.

G. Bakkabulindi, M. R. Hesamzadeh, M. Amelin, and I. P. Da Silva, "Planning Algorithm for Single Wire Earth Return power distribution systems", Proceedings of the IEEE Power and Energy Society General Meeting, **California**, USA, July 22-26, 2012.

G. Bakkabulindi, M. R. Hesamzadeh, M. Amelin, I. P. Da Silva, and E. Lugujjo, "A Heuristic Model for Planning of Single Wire Earth Return Power Distribution Systems", Proceedings of the IASTED Power and Energy Systems and Applications International Conference, **Pittsburgh**, USA, November 7–9, 2011.

Research and Major Projects

2014 – to date	President of the AEPEA – Association of Energy Professional East Africa Spearheaded the creation of the Association of Energy Professional Eastern Africa which became accredited as a chapter of the Association of Energy Engineer Atlanta in October 2014 for all countries of East Africa including Ethiopia and South-Sudan.
2014 – 2016	Principal Investigator of PEER – Partnerships for Enhanced Engagement in Research. In cooperation with Arizona State University and supported by US Aid. Aiming at training of trainer (ToT) from 18 technical training institutes spread throughout Kenya geography to teach, design, install and maintain PV Systems. Part of the project entails furnishing TTIs with hands-on training Kits and regular periodic auditing. Each TTI expected to train at least 100 technicians by June 2016.
2014 – 2015	Principal Investigator. In a project supported by NACOSTI in Replacement of kerosene lighting in rural households with solar lighting in a pilot area in Kenya.
2012 – to date	Director of SERC – Strathmore Energy Research Centre with a main focus in research, consultancy, training and tasting in the areas of renewable energy and energy efficiency. In partnership with GIZ, KEREA, ASU, KCIC, NACOSTI, CIM, SMA, Fraunhofer ISE, ERC, ME&P (http://serc.strathmore.edu/)
2012 – to date	Participated in the creation of KCIC Kenya Climate innovation Centre in partnership with PWC, GVEP & KIRDI.
2002 – 2010	Director of CREEC – Centre for Research in Energy and Energy Conservation. CREEC has projects sponsored by the World Bank, ADA (Austria Development Agency), GIZ, Ministry of Energy and Mineral Development, Uganda National Council for Science and Technology and Sida/SAREC.
2009 – 2012	Principal Investigator. Won the MSI – Millennium Science Initiative project by the World Bank sponsoring three PhD fellows on increasing the access to modern types of energy the rural areas in Uganda.
2004 – 2012	Capacity building at PhD level sponsored by Sida/SAREC
2006 – 2012	Coordinator of a Master of Science degree course in Renewable Energy supported by the Norwegian Government in partnership with more than 50 students from several countries in Africa. In partnership with of Dar-as-Salam – Tanzania, Makele University – Addis-Ababa, University of Malawi.
1992 – 1997	Worked with PEA (Energy and Automation Polytechnic Department) and IEE (Electro-technique and Electronic Institute) as a researcher on Instrument Transformer Standardization, Errors Determination Methods, Mollinger & Gewecke Theory. As my PhD thesis, I proposed a new

1987 – 1992	method for verification of the precision class of Inductive Voltage Transformers. As to determine the level of precision of Mollinger & Gewecke method and verified it through laboratories tests with IEE. While in the PEA, I worked with Transient Network Analyzer (TNA) as a tool for simulating Transmission Lines, Transformers and Other Equipment of electrical power systems. Using models of TNA studied Transient Recovery Tensions (TRT) on short-circuits and wave propagation's in Distribution Transformers. Also worked with EletroMagnetic Transient Program (EMTP) on transformers modeling details, comparing models with field tests performed on a three-phase core-type 30KVA distribution transformer (Master's Thesis).

Academia – Industry Projects

1. Energy Audit for halls of residence in Makerere University main campus. Done yearly up to 2008.
   Makerere students use much more energy than any other campus students in other countries. This is so because they do not pay for the energy they use and have not even idea of how they could reduce consumption. Electrical engineering students engage in data collection, analysis and find energy saving opportunities.
2. Alternative Fuels for Cooking in Uganda, 2008.
   Cooking with firewood and charcoal has led Uganda to deforestation and seriously threat to harm the environment. This research project looks into sustainable fuels such as briquettes, biogas and agricultural residues to replace the two traditional fuels above mentioned.
3. Reducing cooking indoor pollution using Small Scale Gasification (TLUD), 2008.
   Besides the use of alternative fuels, the very purpose of combustion technology for cooking is not efficient (three stove stones, 'sigiri'). This research looks into perfect combustion being provided by gasification where the very smoke becomes a fuel to attain high temperatures and lower emissions.
4. Dissemination of Low cost LED lighting systems for households in Mukono district, 2008 – 2009.
   Wax and paraffin Candle are the two most common source of lighting for more than 4 million households in Uganda. CREEC has tested and engaged in dissemination of light emission diodes (LED) solar powered lamps to help cut energy costs and avoid fire hazard which has taken the lives of many Ugandans.
5. Energy Audit for Savannah Commodities, 2008 – 2009.
   Industries in Uganda are not as competitive as they could because too many resources are spent in energy (electricity and other fuels such as furnace oil, firewood, charcoal, etc). An Energy Auditing was carried out with the support of the Private Sector Foundation Uganda. Once implementation of the auditing findings is done the company will be able to save up to 4 000 USD per month in electricity only.
6. Training of technicians on Photo-voltaic Solar Home Systems, August 2009.
   With the support of GIZ, CREEC hosted a training course (practical and theoretical) by the 5 biggest Solar companies from Germany (Steca, Pheasun, Centrosolar, SMA and Hoppecke). More 30 firms engaged in Solar energy attended.
7. Design and construction of a demonstration house using stabilized earth blocks, 2008-2009.
   The construction industry harms very much the environment by using heat backed blocks for building walls and foundations. CREEC has designed and constructed a 100 m2 demonstration house using stabilized earth blocks which are made of soil with a minimum mixture of cement. They are interlocked and thus use much less cement. This reduces construction cost by 30%. The demonstration house was sponsored by GIZ and is being used as the Biomass Research Centre, carrying out applied technology research to improve living conditions of rural and peri-urban people in Uganda.

Supervision of Master and PhD Thesis

Supervised to completion: from 2006 more than a dozen master's thesis

1. "Solar Concentrator for Generating Steam in Industrial Processes" – A Master's Thesis defended by Beat Nabatwa in KTH – Royal College of Technology – Stockholm. August 2006.
2. "Pico-Hydro Power Stations – A Solution for Powering Stand-Alone Rural Communities" – A Master's Thesis defended by Richard Okou in KTH – Royal College of Technology – Stockholm. August 2006.
3. "Statistical Characterization of Wind and Solar Resources for Power Generation Purposes" A master's thesis defended by Augustine Tsongo in Makerere University – May 2008
4. "Electricity Consumption Estimation for Rural Households in Uganda" A Master's thesis defended by Paul Baringanire in Makerere University – February 2008
5. "Testing the Viability of Using Sunny Island as a Power Solution to Rural Areas in Uganda: A Case Study of Kagorogoro in Kitanda Sub-County Masaka District". A Master degree thesis to be defended by Joseph Ssali in Makerere University.
6. "A Computer Model for Fault Location in Transmission Lines – Study Case: Uganda Electricity". Master degree thesis to be defended by Mr. Denis Okot in Makerere University.

PhD Thesis supervisions underway:

7. "A multi-variable function to evaluate decentralized renewable energy based small power systems in rural areas" by Mary Abbo
8. "The role of entrepreneurship in the sustainability of energy business in rural areas" by George Batte

PhD Thesis completed supervisions:

9. "Monte Carlo Methods for Planning Rural Power Systems" by Al-Mas Sendegeya.
10. "Planning of Low Cost Distribution Networks for Rural Electrification in Uganda" by Geofrey Bakkabulindi.

Hobbies

- Mentoring & Counseling
- Reading philosophy
- Marathon long-distance running

Referees

Prof. John Odhiambo
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Vice Chancellor Makerere University
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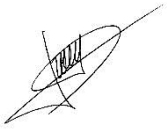
Declaration

I hereby declare that the above written particulars are true to the best of my knowledge and belief.

Yours sincerely,



Professor Izael Pereira Da Silva