

CURRICULUM VITAE

1. Personal and Contact Details

1.1 Personal Information

Name : **Prof. Senthil Krishnamurthy**
BRICS Project Lead – South Africa
Associate Professor of Power Systems
Academic Council Representative at CPUT
NRF C2 Rating (Established Researcher)
Registered Professional Engineer with ECSA
Leader Center of Intelligent Systems and Emerging Technologies (CISSET)
Leader Center of Substation Automation and Energy Management Systems (CSAEMS)
BET Electrical Engineering Programme Coordinator
Cluster Head (Power Systems)
Registered Member of SAIEEE, IEEE and IEI

Date of Birth : 10th March 1982
ID Number : 8203106372185
Marital Status : Married and 3 children

Email : krishnamurthys@cput.ac.za
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1.2 Contact Details

- **Work Address** Cape Peninsula University of Technology (CPUT), PO BOX 1906, Department of Electrical Electronics Engineering (DEECE), Faculty of Engineering and Built Environment, Gold Field Engineering Building, Room No.14, First Floor, Bellville Campus, South Africa – 7535
- **Work Telephone:** +27 219595818 and **Cell Phone** +27 714810794
- **Email** krishnamurthys@cput.ac.za and ksenthilvpm@gmail.com

2. Educational

- NOV 2013 -Doctorate of Technology (PhD) in Electrical Engineering, Cape Peninsula University of Technology, South Africa
- May 2008 - Master of Engineering: Power System Engineering, Annamalai University, India
- May 2006- Bachelor of Engineering: Electrical and Electronics Engineering, Annamalai University, India

3. Professional Experience

- Jan 2024 to Till Date, Position: Associate Professor, Department: Electrical, Electronic and Computer Engineering, Cape Peninsula University of Technology, Bellville Campus, South Africa
- Jan 2017 to Till Date, Position: Senior Lecturer, Department: Electrical, Electronic and Computer Engineering, Cape Peninsula University of Technology, Bellville Campus, South Africa
- March 2011 to DEC 2016, Position: Lecturer, Department: Electrical, Electronic and Computer Engineering, Cape Peninsula University of Technology, Bellville Campus, South Africa
- Jan 2009 to Feb 2011, Position: Lecturer, Department: Electrical and Electronics Engineering, St.Joseph College of Engineering and Technology, Dar-Es-Salaam, Tanzania

4. Awards and Recognition

- Cape Peninsula University Institutional Research Excellence Award for the Diamond Research Award for Post-Graduate Supervision in 2025
- Cape Peninsula University of Teaching Excellence Award at the Faculty level in 2023.
- Cape Peninsula University Faculty Research Excellence Award for the Diamond Research Award for Post-Graduate Supervision in 2025
- Cape Peninsula University Faculty Research Excellence Award for the Gold Research Award for Research Publications in 2025
- Cape Peninsula University Faculty Research Excellence Award for the Silver Research Award for

External funding in 2025

- Cape Peninsula University Faculty Research Excellence Award for the Silver Research Award for Research Publications in 2024
- Cape Peninsula University Faculty Research Excellence Award for the Gold Research Award for Post-Graduate Supervision in 2024.
- South African National Energy Development Institute (SANEDI) external Excellence award for the recognition of the Just Energy Transition DSM Project in 2023.

5. Scientific Publications

Peer reviewed journal papers Published 50+
Peer-reviewed conference papers 50+
Book Chapters 5+
Citations 1004 (H-index 18 in Google scholar)
<https://scholar.google.co.za/citations?user=wSm7aGEAAAJ&hl=en>

Selected Publications

- Senthil Krishnamurthy, Oludamilare Bode Adewuyi, Sunday Adeleke Salimon, Recent advances in artificial intelligence-based optimization for power system applications: A review of techniques, challenges, and future directions, *Renewable and Sustainable Energy Reviews*, Volume 226, Part C, 2026, 116340, ISSN 1364-0321, <https://doi.org/10.1016/j.rser.2025.116340>. **Impact Factor 16.3**
- Senthil Krishnamurthy, Oludamilare Bode Adewuyi, Emmanuel Luwaca, Mukovhe Ratshitanga, Prathaban Moodley, Artificial intelligence-based forecasting models for integrated energy system management planning: An exploration of the prospects for South Africa, *Energy Conversion and Management: X*, Volume 24, 2024, 100772, ISSN 2590-1745, <https://doi.org/10.1016/j.ecmx.2024.100772>. **Impact Factor 7.6**
- Oludamilare Bode Adewuyi, Senthil Krishnamurthy, Appraisal of viable optimization techniques for efficient design and control planning of renewable energy-based microgrid systems, *Computers and Electrical Engineering*, Volume 120, Part A, 2024, 109652, ISSN 0045-7906, <https://doi.org/10.1016/j.compeleceng.2024.109652>. **Impact Factor 4.3**
- Ogunwole E.I., Krishnamurthy S. & Adewuyi O.B. Comparative analysis of enhanced PSO and MILP methods for cost-effective transmission congestion management in deregulated power systems. *Discover Energy* (2026). <https://doi.org/10.1007/s43937-026-00131-w> **Impact Factor 2.8**
- M. Esmail and S. Krishnamurthy, "Discrete Centralized AGC Using LQR-Based Cost Functional Minimization for Multi-Area Interconnected Power Systems," in *IEEE Access*, vol. 12, pp. 20426-20440, 2024, doi: 10.1109/ACCESS.2024.3361280 **Impact Factor 3.6**
- H. Mataifa, S. Krishnamurthy and C. Kriger, "An Efficient Primal-Dual Interior-Point Algorithm for Volt/VAR Optimization in Rectangular Voltage Coordinates," in *IEEE Access*, vol. 11, pp. 36890-36906, 2023, doi: 10.1109/ACCESS.2023.3266421. **Impact Factor 3.6**
- Mpaka A. & Krishnamurthy S. Barber optimization algorithm for efficient load shifting and peak clipping in demand side management. *Discov Energy* (2026). <https://doi.org/10.1007/s43937-026-00155-2> **Impact Factor 2.8**
- E. I. Ogunwole and S. Krishnamurthy, "Transmission Congestion Management Using Generator Sensitivity Factors for Active and Reactive Power Rescheduling Using Particle Swarm Optimization Algorithm," in *IEEE Access*, vol. 10, pp. 122882-122900, 2022, doi: 10.1109/ACCESS.2022.3224060. **Impact Factor 3.6**
- Esmail, M., Krishnamurthy, S. Discrete optimal quadratic AGC based cost functional minimization for interconnected power systems. *Sci Rep* **13**, 2752 (2023). <https://doi.org/10.1038/s41598-023-29317-1> **Impact Factor 3.9**
- Mbangeni, L.; Krishnamurthy, S. A Lagrange-Based Multi-Objective Framework for Wind–Thermal Economic Emission Dispatch. *Processes* **2025**, *13*, 2814. <https://doi.org/10.3390/pr13092814> **Impact Factor 3.2**
- Luwaca, E.; Krishnamurthy, S. Realization of a Gateway Device for Photovoltaic Application Using Open-Source Tools in a Virtualized Environment. *Computers* **2025**, *14*, 524. <https://doi.org/10.3390/computers14120524> **Impact Factor 2.8**

6. Principal investigator (Projects and Grant)

- A collaborative research consortium between the Cape Peninsula University of Technology (CPUT), Lesotho, and partners in France has been established under the French Embassy AI Frugal Grant. The project focuses on developing frugal (resource-efficient) AI methods for decommissioning wind and photovoltaic (PV) plants, with an emphasis on life cycle assessment and sustainability. The project is

funded with a budget of R145,000 and will run from January to December 2026.

- The SANEDI – South African National Energy Development Institute Just Energy Transition (JET) research programme in collaboration with South African Universities and Universities of Technologies, Focal area: Energy Efficiency and Demand Side Management - Demand response and load management and Control systems, energy management and self-generation Renewable energy – Budget R 2 789 946 (2023 – 2024)
- ESKOM Smart Grid and Grid Modernization (2024 – 2028) – Budget – R7,441,100.00
- Study the Impacts of Grid Connected Hybrid Renewable Energy Sources using IEC61850 Standard (2022 – 2024)- National Research Foundation (NRF) Thuthuka – Budget R 870 000
- Development of a method for real-time solution for optimal placement of capacitor banks in distribution networks, (2015 – 2023) from ESKOM Tertiary Education Support Programme (TESP) – Budget R340 000
- Decomposition coordinating method for the solution of a multi-area power system dynamic optimisation problem, (2018- 2021), ESKOM Power Plant Engineering Institute (EPPEI) – R475 000

7. Supervision and Examination

CPUT Post-graduate students supervised by Prof. S. Krishnamurthy in the field of substation automation, renewable energy, and energy management systems in the last 10 years.

- 1 PostDoc (Electrical) – working on power system stability from Jan 2023 to December 2024
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- DEng. (PhD in Electrical) – 9 Students graduated, and 13 students are in current research activities.
- MENG (Master's in Electrical) – 20 students graduated, and 10 students are in current research activities.
- BENG-Hons (Honors in Electrical) –10 students graduated, and 13 students are in current research activities
- BENG (Bachelor's in Electrical) – 35 students graduated, and 4 students are in current research activities
- 25+ PhD and MSc PG students' theses evaluated for South African and International Universities.