

## Curriculum Vitae

### Associate Professor Dr. Jonglak Pahasa

รองศาสตราจารย์ ดร. จงลักษณ์ พาหะชา



#### Personnel

Date of birth: July 8, 1974

Place of birth: Nakhon Ratchasima, Thailand

Nationality: Thai , Sex: Female

Work address: Department of Electrical Engineering, School of Engineering,  
University of Phayao, Mueng, Phayao, Thailand, 56000.

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#### Educations

D.Eng. (Electrical Engineering), King Mongkut's Institute of Technology Ladkrabang,  
Ladkrabang, Bangkok, Thailand, 2011

M.Eng. (Electrical Engineering), Chiang Mai University, Chiang Mai, Thailand, 2007

B.Eng. (Electrical Engineering), King Mongkut's Institute of Technology Ladkrabang,  
Ladkrabang, Bangkok, Thailand, 1997

#### Work Experiences

29 May 2019 - Present: Associate Professor, Department of Electrical Engineering,  
School of Engineering, University of Phayao, Phayao, Thailand.

10 Oct. 2013 – 28 May 2019: Assistant Professor, Department of Electrical Engineering,  
School of Engineering, University of Phayao, Phayao, Thailand.

18 Aug 2014 – 2 May 2016: Head of the Department of Electrical Engineering, School of  
Engineering, University of Phayao, Phayao, Thailand.

4 June 2013 - 17 Aug. 2014: Lecturer, Department of Electrical Engineering, School of  
Engineering, University of Phayao, Phayao, Thailand.

1 Nov. 2011 - 3 June 2013: Head of the Department of Electrical Engineering, School of  
Engineering, University of Phayao, Phayao, Thailand.

July 2010 - Oct. 2011: Lecturer, Department of Electrical Engineering, School of  
Engineering, University of Phayao, Phayao, Thailand.

June 2007 - July 2010: Lecturer, Naresuan University: Phayao Campus, Phayao, Thailand.

### **Scholarships, Grants, and Awards**

- 1 Oct. 2020- 31 Sept. 2023: Research Team Promotion Grant, RTA, Professor Dr. Issarachai Ngamroo, Sub-Project Title: “Intelligent optimal virtual synchronous generator control for improvement of frequency regulation in smart microgrid with high penetration of renewable energy” funded by the National Research Council of Thailand.
- 2 July 2018- 1 July 2020: TRF Grant for New Researcher, no. MRG6180273, Project Title: “Cooperative control of flywheels and fuel cells using hierarchical model predictive control to reduce frequency fluctuation in a wind-diesel powered microgrid system” funded by the Thailand Research Fund.
- 2 May 2016- 1 May 2018: TRF Grant for New Researcher, no. MRG5980229, Project Title: “Real-time wide-area adaptive power oscillation damping controllers design for DFIG-based wind turbines using model predictive control” funded by the Thailand Research Fund.
- 15 July 2015: Outstanding Researcher Award (โล่รางวัลเชิดชูเกียรตินักวิจัยดีเด่น), School of Engineering, University of Phayao.
- 1 Dec. 2015-30 Nov. 2016: Research Support Fund, no. RD59049, Research Project: “Medium-term electrical load forecasting using optimal support vector machine: case study of Phayao Province,” funded by the University of Phayao.
- 29-30 Jan. 2015: Best Oral presentation award in Science and Technology (Engineering), Phayao Research Conference 2015, Paper: “Application of model predictive control for load frequency and electric vehicle control in a Microgrid”
- 1 Dec. 2014-30 Nov. 2015: Research Support Fund, no. R020058218029, Research Project: “Power quality problem classification in Phayao Province using optimal support vector machines,” funded by the University of Phayao.

- 1 Dec. 2014-30 Nov. 2015: Research Support Fund, no. R020058218028, Research Project: “Microgrid simulation for Phayao Province using MATLAB/Simulink,” funded by the University of Phayao.
- 1 Jan. 2014-31 Dec. 2014: Research Support Fund, no.255702049, Research Project: “Short-term electrical load forecasting in Phayao Province using optimal support vector machine model,” funded by the University of Phayao.
- 3 June 2013- 2 June 2015: TRF Grant for New Researcher, no. MRG5680005, Project Title: “Smart microgrid frequency stabilization using least-squares support vector machines,” funded by the Thailand Research Fund.
- 12-15 Dec. 2012: Best paper award in Electrical Power Engineering, 35th Electrical Engineering Conference (EECON35), Paper: “Adaptive power system stabilizer design using optimal support vector machines based on harmony search algorithm”
- 28-30 Oct. 2009: Best paper award in Electrical Power Engineering, 32nd Electrical Engineering Conference (EECON32), Paper: “Genetic algorithm based learning of least squares support vector machine for wide area adaptive power system stabilizer”
- Nov. 2009-June 2011: AUN/SeedNet Doctoral Degree Scholarship.

### **Social Services**

- Reviewer of the IEEE Transactions on Power System
- Reviewer of the IEEE Transactions on Smart Grid
- Reviewer of the IEEE Transactions on Industrial Electronics
- Reviewer of the IEEE Transactions on Sustainable Energy
- Reviewer of the IEEE Systems Journal
- Reviewer of the IEEE Access
- Reviewer of the IET Generation, Transmission & Distribution
- Reviewer of the Electronics and Electrical Engineering
- Reviewer of the ECTI Transactions
- International Program Committee of the Fifth IASTED Asian Conference on Power and Energy Systems, (AsiaPES 2012), April 2-4, 2012, Phuket, Thailand.

- Technical Program Committee (Power systems) of the 16th International Conference on Electrical Engineering/Electronics, Computer, Telecommunications and Information Technology (ECTI-CON 2019)
- Technical Program Committee (Power systems) of the (ECTI-CARD 2019)

### Research Areas

- Power system stability, dynamic & control
- Smart grid
- Application of artificial intelligence in power systems
- Power quality problem classification
- Electric load forecasting

### Publications

#### International Journals

- [1] J. Pahasa, P. Potejana, and I. Ngamroo (2022). MPC-based virtual energy storage system using PV and air conditioner to emulate virtual inertia and frequency regulation of the low-inertia microgrid, *IEEE Access*, vol. 10, pp. 133708-133719, 22 Dec. 2022.
- [2] P. Potejana, J. Pahasa, and I. Ngamroo (2022). “Fabrication of metallic nano-sing structures by soft stamping with the thermal uplifting method,” *Crystals*, vol. 12, no. 5 (668), pp. 1-11, 6 May. 2022.
- [3] J. Pahasa, P. Potejana, and I. Ngamroo (2021). “Multi-objective decentralized model predictive control for inverter air conditioner control of indoor temperature and frequency stabilization in microgrid,” *Energies*, vol. 14, no. 21 (6969), pp. 1-28, Oct. 2021.
- [4] J. Pahasa and I. Ngamroo (2021). “Two-stage optimization based on SOC control of SMES installed in hybrid wind/PV system for stabilizing voltage and power fluctuations,” *IEEE Trans. Applied Supercond.*, vol. 31, no. 8, pp. 1-5, Nov. 2021.
- [5] J. Pahasa and I. Ngamroo (2018). Coordinated PHEV, PV, and ESS for Microgrid Frequency Regulation Using Centralized Model Predictive Control Considering Variation of PHEV Number, *IEEE Access*, vol. 6, pp. 69151-69161, 2018.
- [6] J. Pahasa and I. Ngamroo (2017). Simultaneous control of frequency fluctuation and battery SOC in a smart grid using LFC and EV controllers based on optimal MIMO-MPC, *Journal of Electrical Engineering & Technology*, vol. 12(2), pp.601-611, 2017.

- [7] J. Pahasa and I. Ngamroo (2016). Coordinated control of wind turbine blade pitch angle and PHEVs using MPCs for load frequency control of microgrid, *IEEE Systems Journal*, vol.10, no.1, pp.97-105, 2016.
- [8] J. Pahasa and I. Ngamroo (2015). PHEVs bidirectional charging/discharging and SoC control for microgrid frequency stabilization using multiple MPC, *IEEE Transactions on Smart Grid*, vol.6, no.3, pp.526-533, 2015.
- [9] J. Pahasa and I. Ngamroo (2014). Adaptive power system stabiliser design using optimal support vector machines based on harmony search algorithm, *Electric Power Components and Systems*, vol.42, no.5, pp. 439-452, 2014.
- [10] J. Pahasa, K. Hongesombut and I. Ngamroo (2012). Adaptive thyristor controlled series capacitor using particle swarm optimization and support vector regression, *International Review on Modelling and Simulations*, vol.5, no.2, pp.714-721, April 2012.
- [11] J. Pahasa and I. Ngamroo (2012). Optimal least squares support vector machines for SMES controller design using wide area phasor measurements. *European Transactions on Electrical Power*, vol. 22, October 2012, pp. 571-588.
- [12] J. Pahasa and I. Ngamroo (2012). PSO based Kernel principal component analysis and multi-class support vector machine for power quality problem classification. *International Journal of Innovative Computing, Information and Control*, vol.8, no.3(A), pp. 1523-1540, March 2012.
- [13] J. Pahasa and I. Ngamroo (2011). A heuristic training-based least squares support vector machines for power system stabilization by SMES. *Expert Systems with Applications*, vol. 38, no. 11, October 2011, pp. 13987-13993.
- [14] J. Pahasa and I. Ngamroo (2011). Least square support vector machine for power system stabilizer design using wide area phasor measurements. *International Journal of Innovative Computing, Information and Control*, vol.7, no.7B, August 2011, pp. 4487-4501.

### **International Conferences**

- [1] J. Pahasa, and I. Ngamroo (2020). "Adaptive output power smoothing of grid-connected hybrid wind-photovoltaic by SMES," in *Proc. IEEE Int. Conf. ASEMD*, Tianjin, China, Oct. 2020, (ID20392).
- [2] J. Pahasa, and I. Ngamroo (2014). Model predictive control-based wind turbine blade pitch angle control for alleviation of frequency fluctuation in a smart grid. *Proceedings of the 2014 International Electrical Engineering Congress (iEECON2014)*, 19-21 March 2014, Pattaya, Thailand, No.051, pp.304-307.

- [3] J. Pahasa, and I. Ngamroo (2013). Feature selection for adaptive power system stabilizer using optimal support vector machines. *Proceedings of the 2013 International Electrical Engineering Congress (iEECON2013)*, 13-15 March 2013, Chiang Mai, Thailand, No.89, pp.304-307.
- [4] J. Pahasa, K. Hongesombut and I. Ngamroo (2012). PSO-based learning of support vector machines for adaptive TCSC. *Proceedings of IASTED Technology and Management Conferences 2012, Power and Energy Systems, (AsiaPES 2012)*, 2-4 April 2012, Phuket, Thailand, no.768-092, pp.164-169.
- [5] P. Chantachiratham, K. Hongesombut and J. Pahasa (2011). Optimum fault current limiter placement using PSO method. *The 5th PSU-UNS International Conference on Engineering and Technology (ICET-2011)*, 2-3 May, 2011, Merlin Beach Resort Hotel, Trirang Beach, Phuket, Thailand, pp. 124-127.
- [6] J. Pahasa and I. Ngamroo (2010). Wide area SMES controller design using least-squares support vector machines. *Proceedings of IASTED Technology and Management Conferences 2010, Power and Energy Systems, (AsiaPES 2010)*, 24-26 November 2010, Phuket, Thailand, no.701-160, pp.431-436.
- [7] J. Pahasa and I. Ngamroo (2010). GA-based support vector machines for adaptive power system damping controller of SMES. *Proceedings of the 2010 Electrical Engineering/Electronics, Computer, Telecommunications, and Information Technology International Conference, (ECTI-CON 2010)*, 19-21 May 2010, Chiang Mai, Thailand, vol.1, pp.1011-1015.
- [8] J. Pahasa and I. Ngamroo (2010). Kernel principal component analysis for power quality problem classification. *Proceedings of the 2010 Electrical Engineering/Electronics, Computer, Telecommunications, and Information Technology International Conference, (ECTI-CON 2010)*, 19-21 May 2010, Chiang Mai, Thailand, vol. 1, pp.675-679.
- [9] N. Theera-Umpon, S. Auephanwiriyakul, S. Suteepohnwiroj, J. Pahasa and K. Wantanajittikul (2008). River basin flood prediction using support vector machine. *Proceeding of IEEE World Congress on Computational Intelligence (WCCI)*, pp. 47-52, Hong Kong, June 2008.
- [10] J. Pahasa and N. Theera-Umpon (2008). Cross-substation short term load forecasting using support vector machine. *Proceeding of the 5th International Conference on Electrical Engineering/Electronics, Computer, Telecommunications and Information Technology (ECTI-CON)*, no.2, pp. 953-956, Krabi Thailand, May. 2008.

- [11] J. Pahasa and N. Theera-Umpon (2007). Short-term load forecasting using wavelet transform and support vector machine. *Proceeding of the 8th International Power Engineering Conference (IPEC2007)*, pp. 47-52, Singapore, Dec. 2007.

### **National Conferences**

- [1] J. Pahasa, K. Sarasuwan, N. Tongrakchat, and K. Thoengkham, “The study of virtual inertia control and load frequency control of microgrid by photovoltaic generation using PI controller optimized by firefly algorithm.” Phayao Research Conference 12, 25-27 Jan. 2023, Phayao, Thailand. (in Thai)
- [2] S. Muengchuen, I. Ngamroo, and J. Pahasa (2022). Inverter air conditioner control for virtual inertia emulator of microgrid, The 45th Electrical Engineering Conference (EECON45), vol.1, pp.172-175, Nakhonnayok, Thailand, 16-18 Nov. 2022. (in Thai)
- [3] J. Juakvont, I. Ngamroo, and J. Pahasa (2022). Coordinated control of HVDC and air conditioner by optimal PID controllers for frequency stabilization of multi-area interconnected power systems, The 45th Electrical Engineering Conference (EECON45), vol.1, pp.176-179, Nakhonnayok, Thailand, 16-18 Nov. 2022. (in Thai)
- [4] S. Muengchuen, J. Pahasa, and I. Ngamroo (2016). Coordinated control of EV and PV inverters using MIMO-MPC for frequency stabilization of microgrid, *The 39th Electrical Engineering Conference (EECON39)*, vol.1, pp.211-214, Petchaburi, Thailand, 2-4 Nov. 2016. (in Thai)
- [5] J. Pahasa, and I. Ngamroo (2014). Coordinated control of LFC and SOC using MIMO-MPC for load frequency control of microgrid. *The 37th Electrical Engineering Conference (EECON37)*, vol.1, pp.309-312, Khon Kaen, Thailand, 19- 21 Nov. 2014. (in Thai)
- [6] J. Pahasa, and I. Ngamroo (2013). Coordinated control of blade pitch angle of wind turbine generator and PHEV battery charger using MPCs for load frequency control of microgrid. *The 36th Electrical Engineering Conference (EECON36)*, vol.1, pp.209-212, Karnchanaburi, Thailand, 11 - 13 Dec. 2013. (in Thai)
- [7] J. Pahasa, and I. Ngamroo (2013). Short-term load forecasting using optimal support vector machines based on harmony search algorithm. *The 36th Electrical Engineering Conference (EECON36)*, vol.1, pp.261-264, Karnchanaburi, Thailand, 11 - 13 Dec. 2013. (in Thai)
- [8] J. Pahasa, and I. Ngamroo (2012). Adaptive power system stabilizer design using optimal support vector machines based on harmony search algorithm. *The 35th Electrical Engineering Conference (EECON35)*, vol.1, pp.11-14, Nakhon-Nayok, Thailand, 12 - 14 Dec. 2012. (in Thai: Best paper award in Electrical Power Engineering)

- [9] J. Pahasa, I. Ngamroo and K. Hongesombut (2011). Smart grid stabilization by wide area control of SMES using least squares support vector machines. *The 34th Electrical Engineering Conference (EECON34)*, pp.5-8, Pattaya, Chonburi, Thailand, 30 Nov.- 2 Dec.2011. (in Thai)
- [10] J. Pahasa and I. Ngamroo (2011). Optimal Kernel principal component analysis and decision-tree support vector machine for power quality problem classification. *The 34th Electrical Engineering Conference (EECON34)*, pp.237-240, Pattaya, Chonburi, Thailand, 30 Nov.- 2 Dec.2011. (in Thai)
- [11] J. Pahasa and I. Ngamroo (2009). Genetic algorithm based learning of least squares support vector machine for wide area adaptive power system stabilizer. *The 32nd Electrical Engineering Conference (EECON32)*, vol.1, pp.7-10, Prachinburi, Thailand, 28-30 October 2009. (in Thai: Best paper award in Electrical Power Engineering)
- [12] Cuk Supriyadi Ali Nanda, I. Ngamroo, and J. Pahasa (2009). Alleviation of Power Fluctuation in a Microgrid using SMES with Optimal Coil Size. *The 32nd Electrical Engineering Conference (EECON32)*, vol.1, pp.315-318, Prachinburi, Thailand, October 2009.
- [13] J. Pahasa and C. Rakpenthai (2007). Support vector machine for maximum power-point prediction of photovoltaic panel. *The 30th Electrical Engineering Conference (EECON30)*, vol.1, pp. 7-10, Karnchanaburi, Thailand, 25-26 October 2007. (in Thai)

#### ▪ **Theses supervised**

##### **Master Theses**

1) Mr.Satawat Muangchuen, 2015-2017

Title: Application of Model Predictive Control for Frequency Stabilization of Microgrid.

2) Miss. Wiparat Khom-awut, 2022-Present

Title: TBA

##### **Doctor Theses**

1) Mr. Satawat Muangchuen, 2018- Present

Title: Model Predictive Control – based Virtual Energy Storage System for Microgrid Virtual Inertia Control and Frequency Regulation Under Cyber Attacks

2) Miss. Jantira Juakvont, 2021- Present

Title: TBA



## **Lecture Courses**

### **Postgraduate**

- 1) Power System Frequency Control
- 2) Optimization Techniques in Power System
- 3) Advanced Control System
- 4) Power System Stability and Control
- 5) Power System Quality
- 6) Artificial Neural Network Theory
- 7) Research Methodology

### **Ungraduated**

- 1) Control Systems
- 2) Power System Protection
- 3) Distributed Generation Systems
- 4) Introduction to Smart Grid
- 5) Energy Storage

## **References**

- 1) Professor Dr.Issarachai Ngamroo  
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- 2) Assoc.Prof.Dr.Chawasak Rakpenthai  
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