

Personal data

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Education

Ph.D. (2010)	University of California, Los Angeles (UCLA) Electrical Engineering
M. Eng (2002)	Chulalongkorn University (CU), Thailand Electrical Engineering
B. Eng (1999)	Chulalongkorn University (CU), Thailand Electrical Engineering

Research Interests

Convex optimization problems in statistical learning, System Identification with biomedical and environmental applications, Multivariate time series forecasting in renewable energy, Numerical Methods for optimization

Research Projects

Aug 2016-present Machine learning techniques for EEG seizure detection

Aug 2016-present Sparse dynamical models for investigating brain connectivities from physiological signals.

Mar 2019-present Statistical analysis of solar power forecasting errors, Research grant by EGAT (Electricity Generating Authority of Thailand)

Dec 2017-Jun 2019 Solar Power Forecast for Energy Management System in Smart Grid, Research grant by NRCT (National Research Council of Thailand).

May 2016-May 2017 Statistical learning methods of knee joint vibroarthrographic signals for chondromalacia screening and diagnosis, Chula Engineering Grant.

Sep 2014-Dec 2016 Learning multiple graphical models for time series: Application to fMRI time series, New Researcher Grant by NTSDA.

Teaching

Linear algebra, Complex analysis, Random processes for electrical engineering, Control system theory, Control system laboratory, System identification, Statistical inference and modeling, Statistics for financial engineering, Convex optimization and applications in engineering, Computational techniques for engineers

Awards

- Royal Thai government scholarship, 2004-2010.
- Teaching excellence for young lecturers, Chulalongkorn university, 2014

Selected Publications

- [1] P. Boonyakitanont, A. Lek-uthai, K. Chomtho, and J. Songsiri, "A review of feature extraction and performance evaluation in epileptic seizure detection using EEG," *Biomedical Signal Processing and Control*, vol. 57, 2020.
- [2] A. Pruttiakaravanich and J. Songsiri, "Convex formulation for regularized estimation of structural equation models," *Signal Processing*, vol. 166, p. 107237, 2020.
- [3] N. Plub-in and J. Songsiri, "Estimation of Granger causality of state-space models using a clustering with Gaussian mixture model," in *Proceedings of IEEE International Conference on Systems, Man, and Cybernetics (IEEE SMC)*, IEEE, 2019.
- [4] N. Plub-in and J. Songsiri, "State-space model estimation of EEG time series for classifying active brain sources," in *2018 11th Biomedical Engineering International Conference (BMEiCON)*, pp. 1–5, IEEE, 2018.
- [5] S. Suksamosorn, N. Hoonchareon, and J. Songsiri, "Influential variable selection for improving solar forecasts from numerical weather prediction," in *2018 15th International Conference on Electrical Engineering/Electronics, Computer, Telecommunications and Information Technology (ECTI-CON)*, pp. 333–336, IEEE, 2018.
- [6] C. Anuntasethakul, N. Techaphangam, and J. Songsiri, "A state-space identification of building temperature system," in *2018 15th International Conference on Electrical Engineering/Electronics, Computer, Telecommunications and Information Technology (ECTI-CON)*, pp. 66–69, IEEE, 2018.
- [7] N. Raksasri and J. Songsiri, "Guaranteed stability of autoregressive models with Granger causality learned from Wald tests," *Engineering Journal*, vol. 21, no. 6, pp. 1–36, 2017.
- [8] V. Layanun, S. Suksamosorn, and J. Songsiri, "Missing-data imputation for solar irradiance forecasting in Thailand," in *SICE Annual Conference 2017*, 2017.
- [9] F. V. de Steen, L. Faes, E. Karahan, J. Songsiri, P. Valdes-Sosa, and D. Marinazzo, "Critical comments on EEG sensor space dynamical connectivity analysis," *Brain Topography*, pp. 1–12, 2016.
- [10] A. Pruttiakaravanich and J. Songsiri, "A Review on Exploring Brain Networks from fMRI Data," *Engineering Journal*, vol. 20, no. 3, pp. 1–28, 2016.

- [11] J. Songsiri, "Learning Multiple Granger Graphical Models via Group Fused Lasso," in *Proceedings of the 10th Asian Control Conference (ASCC)*, 2015.
- [12] J. Songsiri, "Sparse optimization problems in system identification," *Engineering Journal (Thai)*, vol. 5, no. 1, pp. 51–75, 2013.
- [13] A. Pongrattarakul, P. Lerdkultanon, and J. Songsiri, "Sparse system identification for discovering brain connectivity from fMRI time series," in *Proceedings of SICE Annual Conference*, pp. 949–954, 2013.
- [14] J. Songsiri, "Sparse autoregressive model estimation for learning Granger causality in time series," in *Proceedings of the 38th IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, pp. 3198–3202, 2013.
- [15] J. Songsiri and L. Vandenberghe, "Topology selection in graphical models of autoregressive processes," *Journal of Machine Learning Research*, vol. 11, pp. 2671–2705, 2010.
- [16] J. Songsiri, J. Dahl, and L. Vandenberghe, "Maximum-likelihood estimation of autoregressive models with conditional independence constraints," *Proc. of the IEEE conference on Acoustic, Speech and Signal Processing (ICASP)*, 2009.
- [17] J. Songsiri, J. Dahl, and L. Vandenberghe, "Graphical models of autoregressive processes," in *Convex Optimization in Signal Processing and Communications* (Y. Eldar and D. Palomar, eds.), Cambridge University Press, 2009.

Professional Activities

- Journal Reviewer: IEEE Transactions on Signal Processing, IEEE Transactions on Automatic Control, IEEE Transactions on Control System Technology, IEEE Transactions on Neural Networks and Learning Systems
- Member of Institute of Electrical and Electronics Engineers (IEEE), ECTI Association

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