# CURRIRULUM VITAE


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## EDUCATION

Nov, 2009 – Sep, 2014 King Mongkut's University of Technology North Bangkok, Bangkok, Thailand. Doctor of Philosophy (Ph.D.) in Electrical Engineering major in Communication

May, 2009 – May, 2014 King Mongkut's University of Technology North Bangkok, Bangkok, Thailand. M.Eng. in Electrical Engineering major in Communication

May, 2002 – Mar, 2005 King Mongkut's Institute of Technology North Bangkok, Bangkok, Thailand. B.Eng. in Electronics Engineering Technology

May, 2000 – Mar, 2002 Uthaithani Technical College, Uthaithani, Thailand. Certificate in Technical Education, major in Electronics

## WORK EXPERIENCES

Feb, 2020 – Present; Associate Professor in Electrical Engineering major in Communication Engineering, NPRU

Feb, 2021 – Nov, 2022; Director for Research and Development Institute, NPRU

Nov 2018 – Nov, 2020; Assistant Director for Research and Development Institute, NPRU

Oct 2018 – Jan, 2019; Committee of Faculty of Science and Technology (Internal committee), NPRU

May 2018 – Nov, 2022; Manager of Interdisciplinary Research Review (formerly known as: Journal of Thai Interdisciplinary Research)

Sep, 2016 – Feb 2020; Assistant Professor in Telecommunications Engineering, NPRU

Feb, 2015 – Jul, 2017 Head of Department of Telecommunications Engineering in Department of Telecommunications Engineering, NPRU

Nov, 2011 – Sep, 2016 Lecturer in Telecommunications Engineering Program, NPRU

Nov, 2011 – Oct, 2018; Researcher in Data Storage Technology Research Center, NPRU

Mar, 2012 – Jun, 2012 Internship; Department of Advanced Channel Failure Analysis (ACFA), Western Digital (WD) Thailand, Bang Pa-In Industrial Estate Ayutthaya, Thailand.

Mar, 2005 – May, 2005 Internship; Caltex oil (Thailand) Limited. 576 Nanglinchee Rd. (Rama 3 Rd. Soi. 64) Chongnonsi Yannawa Bangkok, Thailand 10120.

## SKILLS

Programming languages: C Programming, MATLAB, SCILAB, Python

## PUBLICATIONS

### PATENT: (สิทธิบัตร)

1. ปิยะ โควินท์ทวีวัฒน์ และ สันติ กูลการขาย, "วิธีการตรวจจับและการแก้ไขความขรุขระเชิงความร้อนในระบบการบันทึกเชิงแม่เหล็กแบบแนวตั้งโดยอาศัยเทคนิคการปรับเส้นโค้งที่เหมาะสม", เลขที่คำขอ 1001000394, 12 มีนาคม 2553.
2. ปิยะ โควินท์ทวีวัฒน์ และ สันติ กูลการขาย, "วิธีการตรวจจับและการแก้ไขความขรุขระเชิงความร้อนแบบวนซ้ำในระบบการบันทึกเชิงแม่เหล็กแบบแนวตั้ง", เลขที่สิทธิบัตร 76541, 12 มิถุนายน 2563.
3. ปิยะ โควินท์ทวีวัฒน์ และสันติ กูลการขาย, "วิธีการกำจัดความขรุขระเชิงความร้อนและอีควอไลเซชันในระบบการบันทึกเชิงแม่เหล็กแบบแนวตั้งแบบวนซ้ำ," เลขที่สิทธิบัตร 72604, 15 พฤศจิกายน 2562.
4. ปิยะ โควินท์ทวีวัฒน์, จาตุรงค์ ตันติบัณฑิต, และ สันติ กูลการขาย "วิธีการตรวจจับและแก้ไขความขรุขระเชิงความร้อนในระบบการบันทึกเชิงแม่เหล็กแบบแนวตั้งและระบบกู้ข้อมูลของฮาร์ดดิสก์ไดร์ฟที่ใช้วิธีการเช่นนั้น", เลขที่สิทธิบัตร 72470, 8 พฤศจิกายน 2562.

### JOURNAL: (วารสาร)

2024

1. S. Koonkarnkhai, K. Kankunthod and P. Kovintavewat, "An MLP-based skew angle mitigation method for bit-patterned magnetic recording," IEICE Electronics Express, vol. 21, no. 13, pp. 1 - 6.

2023

2. A. Khametong, S. Koonkarnkhai, P. Kovintavewat, and C. Warisarn, "A Linear Support Vector Machine Based Detector for Bit-Patterned Magnetic Recording", **ECTI-EEC**, vol. 21, no. 3, p. 251461, Oct. 2023.
3. N. Rueangnetr, S. Koonkarnkhai, P. Kovintavewat, and C. Warisarn, "Double-layer magnetic recording with multilayer perceptron decoder for siggle-reader/two-track reading in BPMR systems," AIP Advances, vol. 13, no. 3, 035104, March 2023.
4. M. Mattayakan, S. Koonkarnkhai, P. Kovintavewat, and C. Warisarn, "Performance of staggered bit island spacing adjustment for a SRTR BPMR system," AIP Advances, vol. 13, no. 2, 025123, Febuary, 2023.
5. K. A. Fatika, S. Koonkarnkhai, P. Kovintavewat, and C. Warisarn, "Skew angle estimation and alleviation based multi-layer perceptron in V-shaped read-head array BPMR systems," AIP Advances, vol. 13, no. 2, 025160, February 2023.

2022

6. S. Koonkarnkhai and P. Kovintavewat, "Reduceing the complexity of the skew angle detector and corrector for bit-patterned magnetic recording," Journal of Industrial Technology, vol.18, no. 3, pp. 130 - 145, 2022. (in Thai)

2021

7. S. Sokjabok, S. Koonkarnkhai, J. Lee, C. Warisarn, "An improvement of BER using two-dimensional constrained code for array-reader-based magnetic recording," AEU International Journal of Electronics and Communications, vol. 134, 153678, May 2021.
8. S. Koonkarnkhai, C. Warisarn, P. Kovintavewat, "A simple skew angle detection and suppression method for bit-patterned magnetic recording," AIP Advances, vol. 11, no. 1, 015229, January 2021.
9. S. Sokjabok, M. Mattayakan, C. Buajoung, S. Koonkarnkhai, P. Kovintavewat, C. Warisarn, “Constrained codes in single-reader/two-track reading bit-patterned magnetic recording,” AIP Advances, vol. 11, no. 1 , 015009, January 2021.
10. W. Busyatras, C. Warisarn, S. Koonkarnkhai, and P. Kovintavewat, "A simple 2D modulation code in single-reader two-track reading (SRTR) BPMR systems," Digital Communication and Network, vol. 7, no. 1, pp. 89 - 95, 2021.
11. S. Koonkarnkhai and P. Kovintavewat, "An iterative ITI cancellation method for multi-head multi-track bit-patterned magnetic recording systems," Digital Communication and Network, vol. 7, no. 1, pp. 96 - 101, 2021.

2020

12. S. Koonkarnkhai, C. Warisarn, and P. Kovintavewat, "A novel ITI suppression technique for coded dual-track dual-head bit-patterned magnetic recording systems," IEEE Access, vol. 8, pp. 153077 - 153086, 2020.

2019

13. S. Koonkarnkhai, C. Warisarn, and P. Kovintavewat, "An iterative 2-head 2-track detection method for staggered bit-patterned media recording systems," IEEE Transactions on Magnetics, vol. 55, no. 7, July 2019.

2018

14. สันติ กูลการขาย และคณะ "เทคนิคการตรวจหาและแก้ไขแบบวนซ้ำสำหรับข้อผิดพลาดจากการแทรกและการลบในระบบการบันทึกแบบบิตแพทเทิร์นมีเดีย" วารสารวิชาการเทคโนโลยีอุตสาหกรรม, ปีที่ 14, ฉบับที่ 1, ประจำเดือน มกราคม - เมษายน 2561, หน้า 1 - 12.

2017

15. C. Warisarn, W. Busyatras, L. M. M. Myint, S. Koonkarnkhai and P. Kovintavewat, "Mitigation of TMR using energy ratio and bit-flipping techniques in multi-head BPMR systems," IEEE Transactions on Magnetics, vol. 53, no. 11, Article number: 2600104, November 2017. (impact factor 1.243)
16. S. Koonkarnkhai and P. Kovintavewat, "Method to mitigate an insertion/deletion error in bit-patterned media recording systems," Journal of Thai Interdisciplinary Research (JTIR), vol. 12, no. 4, pp.51 - 56, July - August 2017.

2015

17. S. Koonkarnkhai, P. Kovintavewat, and P. Keeratiwintakorn, "Study of fractionally-spaced equalizers for bit-patterned media recording," IEEE Transactions on Magnetics, vol. 51, no. 11, Article number. 3001604, November, 2015.
18. P. Kovintavewat and S. Koonkarnkhai, "Simple unstable baseline detection methods for perpendicular magnetic recording," Maejo International Journal of Science and Technology (MIJS), vol. 9, no. 1, pp. 1 – 9, 2015. (Scimago Q3 and impact factor 0.329)

2014

19. P. Kovintavewat and S. Koonkarnkhai, "An improved TA suppression method for coded PR channels," Advanced Materials Research, vol. 979, pp. 46 – 49, 2014.
20. P. Kovintavewat and S. Koonkarnkhai, "Baseline popping detection and correction algorithms for perpendicular magnetic recording system," Advanced Materials Research, vol. 979, pp. 50 – 53, 2014.
21. S. Koonkarnkhai, P. Kovintavewat, and P. Keeratiwintakorn, "Trellis-based detecting the insertion and deletion bits for bit-patterned media recording," Advanced Materials Research, vol. 979, pp. 54 – 57, 2014.

2013

22. P. Kovintavewat, S. Koonkarnkhai, and A. Suvichakorn, "Head instability detection for testing process in perpendicular magnetic recording system," Advanced Materials Research (AMR), vol. 770, pp. 319 – 322, 2013.
23. สันติ กูลการขาย, ปิยะ โควินท์ทวีวัฒน์, "เทคนิคการใช้งานร่วมกันระหว่างรหัส Marker และรหัส RS สำหรับช่องสัญญาณการแทรก การลบ และการแทนที่," วารสารวิจัย มข., ปีที่ 18 ฉบับที่ 1 ประจำเดือน มกราคม – กุมภาพันธ์ 2556, หน้า 100 – 111.

2012

24. S. Koonkarnkhai, P. Keeratiwintakorn, N. Chirdchoo, and P. Kovintavewat "Target and equalizer design for high-density bit-patterned media recording," ECTI Transactions on Computer and Information Technology , vol. 6, no. 2, pp. 175 – 182, November 2012.
25. S. Koonkarnkhai, N. Chirdchoo and P. Kovintavewat, "Iterative decoding for high-density bit-patterned media recording," Procedia Engineering, vol.32, pp. 323 – 328, 2012.

2010

26. P. Kovitavewat and S. Koonkarnkhai, "A thermal asperity detection and correction algorithm for perpendicular magnetic recording channels" KMUTT Research and Development Journal, vol. 33, no. 3, pp. 197 – 206, July – September 2010.
27. P. Kovintavewat and S. Koonkarnkhai, "A method for TA suppression in perpendicular recording channels," Songklanakarin Journal Sci. Technology, vol. 32, no. 4, pp. 425 – 430, July – August 2010.
28. สันติ กูลการขาย, ปิยะ โควินท์ทวีวัฒน์ และพงษ์ศักดิ์ กีรติวินทกร, "การลดความซับซ้อนของอัลกอริทึมการตรวจหาและแก้ไขความขรุขระเชิงความร้อนในช่องสัญญาณการบันทึกเชิงแม่เหล็กแบบแนวตั้ง,"วารสารวิจัย มข., ปีที่ 15, ฉบับที่ 2, หน้า132-141, กุมภาพันธ์ 2553.

29. P. Kovintavewat and S. Koonkarnkhai, “Joint TA suppression and turbo equalization for coded partial response channels,” IEEE Transaction on Magnetics, vol. 46, no.6, pp. 1393-1396, June 2010.
30. S. Koonkarnkhai, P. Kovintavewat, and P. Keeratiwintakorn, “Effect of bandpass filters for TA suppression in perpendicular recording system,” ECTI Transactions on Electrical Engineering, Electronics, and Communications, vol. 8, no. 1, pp. 93-98, February 2010.

2009

31. P. Kovintavewat and S. Koonkarnkhai, “Thermal asperity suppression based on least squares fitting in perpendicular magnetic recording systems,” Journal of Applied Physics, vol. 105, no.7, 07C114, March 2009.

2008

32. สันติ กูลการขาย และ ปิยะ โควินท์ทวีวัฒน์, “การเปรียบเทียบประสิทธิภาพของเทคนิคการปรับเส้นโค้งที่เหมาะสมสำหรับการระงับความขรุขระเชิงความร้อนในช่องสัญญาณการบันทึกแบบแนวตั้ง,” วารสารวิชาการเนคเทค , ปีที่ 8, ฉบับที่ 20, เดือนกรกฎาคม – ตุลาคม 2551, หน้า 79 – 86.

## CONFERENCE: (การประชุมวิชาการ)

2024

1. S. Nakthanom, S. Koonkarnkhai, and P. Kovintavewat, “An MLP-based equalization for bit-patterned magnetic recording systems,” in Proc. of The 39th ITCCSCC-2024, Okinawa, Japan, July 2 - 5, 2024.

2023

2. P. Namsopa, S. Koonkarnkhai, P. Kovintavewat, H. Dinsakul, S. Suwansawang, “A study and exploration of discrete wavelet transform for speckle noise reduction in ultrasound images,” in Proc. of The 38th ITCCSCC-2023, Grand Hyatt Jeju, Republic of Korea, June 25 - 28, 2023.
3. K. A. Fatika, S. Koonkarnkhai, P. Kovintavewat, C. Warisarn, "Neural networks input techniques to maintain a small skew angle in bit-patterned magnetic recording with a V-shaped read-head array," in Proc. of The 38th ITCCSCC-2023, Grand Hyatt Jeju, Republic of Korea, June 25 - 28, 2023.

2022

4. A. Khametong, N. Rueangnetr, C. Warisarn, S. Koonkarnkhai, P. Kovintavewat, “Deep neural networks based soft-information improvement for two-head/two-track bit-patterned magnetic recording,” in Proc. of International Symposium on Intelligent Signal Processing and Communication Systems (ISPACS) 2022, Nov. 22 - 25, 2022, Penang, Malaysia.
5. J. Praiwan, C. Buajong, M. Mattayakan, C. Warisarn, S. Koonkarnkhai, P. Kovintavewat, “Soft information scheme based multilayer perceptron in coded vit-patterned media recording system,” in Proc. of International Symposium on Intelligent Signal Processing and Communication Systems (ISPACS) 2022, Nov. 22 - 25, 2022, Penang, Malaysia.

6. N. Rueangnetr, C. Warisarn, S. Koonkarnkhai, P. Kovintavewat, “Soft information adjustor four-head/two-track (4H/2T) bit-patterned magnetic recording,” in Proc. of International Symposium on Intelligent Signal Processing and Communication Systems (ISPACS) 2022, Nov. 22 - 25, 2022, Penang, Malaysia.
7. C. Buajong, S. Koonkarnkhai, P. Kovintavewat, C. Warisarn, “A rate-7/8 modulation code for double-track reading scheme in BPMR systems,” in Proc. of The 67th Annual Conference on Magnetism and Magnetic Materials (MMM 2022), IOB-6, Minneapois, MN, USA, Oct 31 - Nov 4, 2022.
8. N. Rueangnetr, S. Koonkarnkhai, P. Kovintavewat, C. Warisarn, “Double-layer magnetic recording with multilayer perceptron decoder for single-reader/two-track reading in BPMR systems,” in Proc. of The 67th Annual Conference on Magnetism and Magnetic Materials (MMM 2022), IOB-7, Minneapois, MN, USA, Oct 31 - Nov 4, 2022.
9. M. Mattayakan, S. Koonkarnkhai, P. Kovintavewat, C. Warisarn, “A study of bit island spacing optimization of staggered patterned mrdia-based SRTR scheme in BPMR systems,” in Proc. of The 67th Annual Conference on Magnetism and Magnetic Materials (MMM 2022), IOB-8, Minneapois, MN, USA, Oct 31 - Nov 4, 2022.
10. K. Fatika, S. Koonkarnkhai, P. Kovintavewat, C. Warisarn, “Skew angle estimation and alleviation based multi-laYer perceptron in V-shaped read-head array BPMR systems,” in Proc. of The 67th Annual Conference on Magnetism and Magnetic Materials (MMM 2022), IOB-11, Minneapois, MN, USA, Oct 31 - Nov 4, 2022.
11. N. Rueangnetr, C. Warisarn, S. Koonkarnkhai, and P. Kovintavewat, “3/5 decoder and LLR estimator-based multilayer perceptron for SRTR bit-patterned magnetic recording,’’ in Proc. of The 19$^{th}$ ECTI-CON 2022, Prachuap Khiri Khan, Thailand, May 24 - 27, 2021.

2021

12. K. Kankhunthod, C. Warisarn, S. Koonkarnkhai, and P. Kovintavewat, “Multilayer perceptron-based skew-angle estimation for bit-patterned magnetic recording,” in Proc. of The 36th ITCCSCC-2021, Grand Hyatt Jeju, Republic of Korea, June 28 - 20, 2021.(Online Conference)
13. J. Praiwan, C. Warisarn, S. Suwansawang, and S. Koonkarnkhai, “Soft-information improvemant using multilayer perceptron (MLP) in bit-patterned magnetic recording (BPMR) systems,” in Proc. of The 36th ITCCSCC-2021, Grand Hyatt Jeju, Republic of Korea, June 28 - 20, 2021. (Online Conference)
14. C. Buajong, C. Warisarn, S. Koonkarnkhai, and P. Kovintavewat, “An intertrack interference (ITI) subtraction scheme for bit-patterened media recording,” in Proc. of The 18th International Conference on Electrical Engineering/Electronics, Computer, Telecommunications and Information Technology (ECTI-CON), Online Conference, May 19 - 22, 2021.
15. S. Sokjabok, M. Mattayakan, C. Warisarn, S. Koonkarnkhai, and P. Kovintavewat, “Symbol-flipping method for block decoding in bit-patterned magnetic recording,” in Proc. of The 18th International Conference on Electrical Engineering/Electronics, Computer, Telecommunications and Information Technology (ECTI-CON), Online Conference, May 19 - 22, 2021.

2020

16. S. Koonkarnkhai, C. Warisarn, and P. Kovintavewat, “A simple skew-Angle detection and alleviation method based on readback signal in bit-patterned magnetic recording systems,” 65th Annual Conference on Magnetism and Magnetic Materials (MMM 2020), Virtual Conference, November 2 - 6, 2020.
17. S. Sokjabok, M. Mattayakan, C. Buajong, S. Koonkarnkhai, P. Kovintavewat, and C. Warisarn, “Constrained codes for single-reader/two-track reading technique in bit-patterned magnetic recording systems,” 65th Annual Conference on Magnetism and Magnetic Materials (MMM 2020), Virtual Conference, 2020.
18. S. Sokjabok, C. Warisarn, S. Koonkarnkhai, and J. Lee, “Modified 2D Viterbi algorithm using 2D modulation encoding constraints in BPMR systems.” In Proc. of 2020 17th International Conference on Electrical Engineering/Electronics, Computer, Telecommunications and Information Technology (ECTI-CON), Phuket, Thailand, June 24 – 27, 2020.

2019

19. S. Koonkarnkhai, C. Warisarn, N. Chirdchoo, and P. Kovintavewat, "A soft ITI mitigation method for coded 2H2T BPMR systems," in Proc. of The 34-th ITCCSCC-2019, Jeju Shinhwa Wold, Korea, June 23-26, 2019.
20. S. Pomsanam, C. Warisarn, W. Busyatrus, L. M. M. Myint, S. Koonkarnkhai, and P. Kovintavewat, "Simple coding method with single-reader two-track reading (SRTR) in bit-patterned media recording (BPMR) systems," in Proc. of The 34-th ITCCSCC-2019, Jeju Shinhwa Wold, Korea, June 23-26, 2019.
21. W. Tipcharoen, C. Warisarn, L. M. M. Myint, S. Koonkarnkhai, and P. Kovintavewat, "Transition shift in head-assisted magnetic recording," in Proc. of The 34-th ITCCSCC-2019, Jeju Shinhwa Wold, Korea,June 23-26, 2019.
22. P. Kovintavewat, S. Koonkarnkhai, and C. Warisarn, "A simple 2-head 2-track detection method for staggered bit-patterned media recording," in Proc. of 2019 Joint MMM-Intermag Conference, Washington, DC, USA, January 14 - 18, 2019.
23. T. Chumpuwiset, C. Warisarn, L. M.M. Myint, S. Koonkarnkhai and P. Kovintavewat, "Modified 2D Viterbi algorithm using 2D modulation encoding constraint in bit-patterned magnetic recording," in Proc. of 2019 Joint MMM-Intermag Conference, Washington, DC, USA, January 14 - 18, 2019.

2018

24. S. Koonkarnkhai, and P. Kovintavewat, "A simple 2-head 2-track detection method for bit-patterned magnetic recording systems," in Proc. of the 18$^{th}$ International Symposium on Communications and Information Technologies (ISCIT 2018), Bangkok, Thailand, September 26 - 29, 2018, pp. 490 - 494.
25. T. Chumpuwiset, C. Warisarn, L. M. M. Myint, S. Koonkarnkhai, and P. Kovintavewat, "Complexity reduction of 2D detector using 2D modulation encoding constraint in multi-track multi-head BPMR

systems," in Proc. of the 33rd International Technical Conference on Circuit/Systems, Computers and Communication (ITC-CSCC 2018), Bangkok, Thailand, July 4-7, 2018, pp. 536 - 538.

26. W. Busyatras, C. Warisarn, S. Koonkarnkhai, and P. Kovintavewat, "A track mis-registration estimation method based on a ratio value of readback signals in bit-patterned media recording systems ," in Proc. of the 33rd International Technical Conference on Circuit/Systems, Computers and Communication (ITC-CSCC 2018), Bangkok, Thailand, July 4-7, 2018, pp. 539 - 542.

2017

27. I. Nokyotin, S. Koonkarnkhai, W. Wongtrairat, T. Sopon, "Layered generalized belief propagation detection on BPMR system with multi-track processing," in Proc. of International Electrical Engineering Congress (iEECON) 2017, Pattaya, Thailand, March 8-10, 2017, pp. 1 - 4.
28. K. Buahing, W. Busyatras, C. Warisarn, S. Koonkarnkhai and P. Kovintavewat, "2D modulation code together with multi-track recording technique in staggered BPMR systems," in Proc. the 32nd International Technical Conference on Circuits/Systems, Computers and Communications (ITC-CSCC 2017), Busan, Korea, July 2-5, 2017.
29. C. Warisarn, W. Busyatras, L.M.M. Myint, S. Koonkarnkhai, and P. Kovintavewat "A TMR mitigation method with 3-track data detection for multi-track multi-head BPMR system," in Proc. of IEEE International Magnetics Conference 2017 (INTERMAG 2017) , DE-05, Dubling, Ireland, April 24-28, 2017.

2016

30. K. Buahing, W. Busyatras, C. Warisarn, S. Koonkarnkhai, and P. Kovintavewat "A performance improvement of a rate-5/6 2D modulation code in bit-patterned media recording systems," in Proc. of The 31-st International Technical Conference on Circuits/Systems, Computers and Communications (ITC-CSCC 2016), Okinawa, Japan, July 10-13, 2016.

2015

31. S. Koonkarnkhai and P. Kovintavewat, "Study of fractionally-spaced equalizers for bit-patterned media recording," in Proc. of IEEE International Magnetics Conference 2015 (INTERMAG 2015), HQ-13, Beijing, China, May 11-15, 2015.

2014

32. S. Koonkarnkhai, P. Kovintavewat, and P. Keeratiwintakorn, "A simple method to detect and correct an insertion/deletion error for bit-patterned media recording," in Proc. of the 29th International Technical Conference on Circuits/Systems, Computers and Communications (ITC-CSCC 2014), July 1-4, 2014, Phuket, Thailand.

2013

33. P. Kovintavewat and S. Koonkarnkhai, "An improved iterative TA suppression method for coded perpendicular magnetic recording channels," in Proc. of the 5th International Science, Social Science, Engineering and Energy Conference (ISEEC) 2013, December 18-20, 2013, Kanchanaburi, Thailand.

34. P. Kovintavewat and S. Koonkarnkhai, “A baseline popping detection and correction algorithm for perpendicular magnetic recording system,” in Proc. of the 5th International Science, Social Science, Engineering and Energy Conference (ISEEC) 2013, December 18-20, 2013, Kanchanaburi, Thailand.
35. S. Koonkarnkhai, P. Kovintavewat, and P. Keeratiwintakorn, “Trellis-based detecting insertion and deletion of bits for bit-patterned media recording,” in Proc. of the 5th International Science, Social Science, Engineering and Energy Conference (ISEEC) 2013, December 18-20, 2013, Kanchanaburi, Thailand.
36. S. Koonkarnkhai, P. Kovintavewat, and P. Keeratiwintakorn, “Iterative decoding with insertion and deletion errors for bit-patterned media recording channels,” in Proc. of the 28th International Technical Conference on Circuits/Systems, Computers and Communications (ITC-CSCC 2013), Yeosu, Korea, June 30 – July 3, 2013.
37. S. Koonkarnkhai et al. “A simple Baseline popping detection and correction for perpendicular magnetic recording channels,” in Proc. of the 28th International Technical Conference on Circuits/Systems, Computers and Communications (ITC-CSCC 2013), Yeosu, Korea, June 30 – July 3, 2013.
38. P. Kovintavewat, S. Koonkarnkhai, and A. Suvichakorn, “Head instability detection for testing process in perpendicular magnetic recording system,” in Proc. of The International conference on Applied Physics and Material Applications (ICAPMA2013), Petchaburi, Thailand, Feb 20-22, 2013.
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- S. Koonkarnkhai, C. Warisarn, and P. Kovintavewat, "Signal processing for digital data storage: Volume IV: Advanced receiver for BPMR and TDMR," 2017. (Thai)

## RESEARCH INTERESTS

- Thermal asperity (TA) detection and correction for magnetic recording system

- Target and equalizer design for magnetic recording system
- Insertion/deletion and substitution correcting codes
- Coding and equalization turbo code for magnetic recording system
- Multi-head multi-track detection
- New technologies of magnetic recording systems

## RELEVANT COURSES

- Digital Communication
- Principle Communication
- Digital Signal Processing for Hard Disk Drive
- Advanced Digital Signal Processing

## PROFESSIONAL MEMBER

IEEE Member

IEEE Magnetic society member

## RESEARCH FUND

Oct 2021 – Sep 2022: Project Leader; AI-based signal processing development for Thailand hard disk drive manufacturing, [Funding Source: Research and Development Institute, NPRU]

May, 2019 – Apr 2020: Project Leader; A multi-head multi-track detection method for bit-patterned media recording systems, [Funding Source: Research and Development Institute, NPRU]

Jan, 2017 – Dec, 2018: Project Leader; Development of two-track detection method for bit-patterned media recording systems, [Funding Source: Research and Development Institute, NPRU]

Oct, 2014 – Sep, 2015: Project Leader; Target and equalizer design for ultra-high density staggered bit-patterned magnetic recording channels, [Funding Source: Research and Development Institute, NPRU]

Oct, 2012 – Sep, 2013: Co-Researcher; A novel write synchronization technique for bit-patterned magnetic recording system, [Funding Source: Research and Development Institute, NPRU]

May, 2012 – May, 2013: Co-Researcher; Development of Iterative Thermal Asperity Detection and Correction Algorithm, [Funding Source: College of Data Storage Technology and Applications, KKU]

Oct, 2007 – May, 2009: Co-Researcher; Development of Thermal Asperity Detection and Correction Algorithm, [Funding Source: Data Storage Technology and Application Research Center (D*STAR), King Mongkut's Institute of Technology Ladkrabang, and National Electronics and Computer Technology Center (NECTEC), Thailand]

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