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## Current Position

### Associate Professor, Institute of Communications Engineering

*National Sun Yat-sen University*

Feb. '21- Present

*Kaohsiung, Taiwan*

### Director, Division of Student Exchange, Office of International Affairs

*National Sun Yat-sen University*

Nov. '23- Present

*Kaohsiung, Taiwan*

### Director, Int'l Master's Program in Telecommunication Engineering

*National Sun Yat-sen University*

Aug. '21- Present

*Kaohsiung, Taiwan*

### Director of Digital Forensics Group, Information Security Research Center

*National Sun Yat-sen University*

Aug. '21- Present

*Kaohsiung, Taiwan*

## Education

### Ph.D., Electrical Engineering

*National Tsing Hua University*

2006-2011

*Hsinchu, Taiwan*

- Thesis: Coded Noncoherent Transmission Schemes for Near-capacity Performance
- Advisor: Prof. Yeong-Luh Ueng

### M.S., Communications Engineering

*National Central University*

2004-2006

*Taoyuan, Taiwan*

- Thesis: Decoding Algorithms for Generalized Noncoherent Block-coded MPSK
- Advisor: Prof. Ruey-Yi Wei

### B.S., Electrical and Control Engineering

*National Chiao Tung University*

1999-2004

*Hsinchu, Taiwan*

## Experience

<b>Visiting Scholar</b> <i>University of Southampton</i>	July '24 <i>Southampton, UK</i>
<b>Assistant Professor, Institute of Communications Engineering</b> <i>National Sun Yat-sen University</i>	Feb. '17- Jan. '21 <i>Kaohsiung, Taiwan</i>
<b>Assistant Research Fellow, Massive MIMO Antenna System Research Center</b> <i>National Sun Yat-sen University</i>	Aug. '16- Jan. '17 <i>Kaohsiung, Taiwan</i>
<b>Assistant Professor, Dept. of Electronic Engineering</b> <i>Chung Yuan Christian University</i>	Aug. '14- Jul. '16 <i>Taoyuan, Taiwan</i>
<b>Postdoctoral Research Fellow, Dept. of Electrical Engineering</b> <i>National Tsing Hua University</i>	Oct. '11- Aug. '14 <i>Hsinchu, Taiwan</i>

## Research Interests

- Wireless Communications
- Non-orthogonal Multiple Access
- Error-Correcting Codes
- Hardware Implementation of Baseband Algorithms
- Joint Source-channel Coding
- Information Security
- Biometric Cryptosystems
- Application of AI techniques in Communications, Biometric and Information Security

## Awards and Certificate

- International Young Scientist Awards Best Researcher Award 2024
- Hon Hai Technology Award (Awarded Ph.D Student: Kuo-Chun Lin) 2024  
(鴻海科技獎, 獲獎博士班學生: 林國鈞)
- NSTC Excellent Young Scientists Research Funding Recipient (3-year project) 2022-2024  
(國科會優秀年輕學者計畫, 三年期)
- NSTC Excellent Research Project Poster Award 2022-2024  
(國科會電信學門成果發表-優良海報展示獎, 連續三年獲獎)
- NSYSU Award for Distinguished Faculty in Academic Research 2021  
(國立中山大學學術研究績優教師)
- IEEE ITSOC/COMSOC Taipei/Tainan Chapter Best Paper Award for Young Scholars 2020  
(IEEE ITSOC 暨 COMSOC 台北/台南支會年輕學者最佳論文獎)
- IEEE Tainan Section Best Young Professional Member Award 2020

- NSYSU Industry-academe Collaboration Award 2020  
(國立中山大學 109 學年度產學激勵獎)
- NSYSU Outstanding Mentor Award, Institute of Communications Engineering 2018-2019
- NSYSU Outstanding Mentor Award, College of Engineering 2018-2019
- NSYSU Granting Support for Key Academic Research 2017
- Valedictorian, Institute of Communications Engineering, National Central University 2006
- 112 學年度第 1 學期國立中山大學教學優良課程：錯誤更正碼
- 111 學年度第 1 學期國立中山大學教學優良課程：通訊系統
- 110 學年度第 2 學期國立中山大學教學優良課程：多重輸入輸出無線通訊系統、現代錯誤更正編碼技術
- 110 學年度第 1 學期國立中山大學教學優良課程：通訊系統
- 109 學年度第 1 學期國立中山大學教學優良課程：錯誤更正碼、無線通訊
- 108 學年度第 2 學期國立中山大學教學優良課程：多重輸入輸出無線通訊系統
- 108 學年度第 1 學期國立中山大學教學優良課程：無線通訊
- 107 學年度第 2 學期國立中山大學教學優良課程：通訊系統模擬
- 111 學年度國立中山大學工學院聯合專題競賽優等第二名(指導學生：林國鈞/陳鈺享)
- 110 學年度國立中山大學工學院聯合專題競賽佳作(指導學生：林國鈞/黃國銓/陳鈺享)
- 108 學年度國立中山大學工學院聯合專題競賽第二名(指導學生：林國鈞/朱俊宇)
- 107 學年度國立中山大學工學院聯合專題競賽佳作(指導學生：王泓閔/賴志昇/莊學叡)

## Teaching

- National Sun Yat-sen University
  - Modern Error-Correction Coding Technology (2017-Present)
  - Error-Correction Coding (2017-Present)
  - Multi-input-multi-output Wireless Communication Systems (2017-Present)
  - Communication Systems (2022-Present)
  - Simulations of Communication Systems (2017-Present)
  - Independent Studies in Coding and Modulation Design (2017-Present)
  - Independent Studies in Noncoherent Communication Systems (2017-Present)

- Wireless Communications (2017-2020)
- Chung Yuan Christian University
  - General Physics Laboratory I (2014- 2015)
  - General Physics Laboratory II (2014- 2015)
  - Engineering Mathematics II (2014-2015)
  - Information Theory (2014)
  - Matlab Programming (2015)

## Publications and Research Results

### Book Chapters

- [B1] Huang-Chang Lee, **Yen-Ming Chen**, and Yeong-Luh Ueng, “Decoding Scheduling for Low-Density Parity-Check Codes,” in *Recent Advances in Information, Communications and Signal Processing*, Editors: Andy W. H. Khong and Yong Liang Guan, Publisher: River Publishers, March 2018.

### Journal Papers (\*Corresponding Author)

- [J26] Hao-Liang Wen, Kuo-Chun Lin, and **Yen-Ming Chen\***, “Unsupervised progressive learning approach for cross-domain iris presentation attack detection,” in preparation for *IEEE Transactions on Information Forensics and Security*.
- [J25] Feng-Tsang Wu, Robert G. Maunder and **Yen-Ming Chen\***, “On the design of near-optimal distribution dependent variable-length error-correcting codes for small to moderate free distances,” in preparation for *IEEE Transactions on Communications*.
- [J24] **Yen-Ming Chen**, Ya-Xin Dai, Shih-Jie Jhang and Yeong-Luh Ueng, “An efficient soft-output fixed-complexity sphere decoder for MIMO detection using high-order QAM signals,” **submitted** to *IEEE Transactions on Signal Processing*. **(in revision)**.
- [J23] Kuo-Chun Lin and **Yen-Ming Chen\***, “A high-security-level iris cryptosystem based on fuzzy commitment and soft reliability extraction,” *IEEE Transactions on Dependable and Secure Computing*, vol. 21, no. 4, pp. 1770-1784, July-Aug. 2024. (Top 5 journals in both categories of COMPUTER SCIENCE, HARDWARE & ARCHITECTURE and COMPUTER SCIENCE, INFORMATION SYSTEMS)  
(This paper is awarded 2024 Hon Hai Technology Award; 本論文獲得 2024 鴻海科技獎)
- [J22] Kuo-Chun Lin and **Yen-Ming Chen\***, “A high-security-level iris recognition system based on multi-scale dominating feature points,” *IEEE Signal Processing Letters*, vol. 31, pp. 1600-1604, 2024.
- [J21] S. K. Singh, K. Agrawal, K. Singh, **Yen-Ming Chen** and Chih-Peng Li, “Performance analysis and optimization of RSMA enabled UAV-aided IBL and FBL communication with imperfect SIC and CSI,”

*IEEE Transactions on Wireless Communications*, vol. 22, no. 6, pp. 3714-3732, June 2023.

- [J20] **Yen-Ming Chen\***, Yu-Chen Hsu, Meng-Chen Wu, Rupender Singh, and Yuan-Chu Chang, "On near-optimal codebook and receiver designs for MIMO-SCMA schemes," *IEEE Transactions on Wireless Communications*, vol. 21, no. 12, pp. 10724-10738, Dec. 2022.
- [J19] **Yen-Ming Chen**, Pao-Hung Wang, Chia-Sheng Cheng, and Yeong-Luh Ueng, "A joint design of SCMA codebook and PTS-based PAPR reduction for downlink OFDM scheme," *IEEE Transactions on Vehicular Technology*, vol. 71, no.11, pp. 11936-11948, Nov. 2022.
- [J18] **Yen-Ming Chen\*** and Carlos D. Sagastume Gonzalez, Pao-Hung Wang, and Kai-Ping Chen, "Reinforcement learning-based SCMA codebook design for uplink Rayleigh fading channels," *IEEE Wireless Communications Letters*, vol. 10, no. 8, pp. 1717-1721, Aug. 2021.
- [J17] Chia-Po Wei, Han Yang, Chih-Peng Li, and **Yen-Ming Chen**, "SCMA decoding via deep learning," *IEEE Wireless Communications Letters*, vol. 10, no. 4, pp. 878-881, Apr. 2021.
- [J16] **Yen-Ming Chen**, Feng-Tsang Wu, Chih-Peng Li, and Pramod K. Varshney, "On the design of near-optimal variable-length error-correcting codes for large source alphabets," *IEEE Transactions on Communications*, vol. 68, no.12, pp. 7896-7910, Dec. 2020.
- [J15] **Yen-Ming Chen\*** and Jian-Wei Chen, "On the design of near-optimal sparse code multiple access codebooks," *IEEE Transactions on Communications*, vol. 68, no.5, pp. 2950-2962, May 2020. (This paper is awarded IEEE ITSOC/COMSOC Taipei/Tainan Chapter Best Paper Award for Young Scholars ; 本論文獲得 IEEE ITSOC 暨 COMSOC 台北/台南支會年輕學者最佳論文獎)
- [J14] **Yen-Ming Chen**, Wei-Min Lai, and Yeong-Luh Ueng, "Rateless coded multiplexing for downlink transmission with two users: performance analysis and system design," *IEEE Access: Special Section on Advances in Channel Coding for 5G and Beyond*, vol. 7, pp. 50440-50452, April, 2019.
- [J13] **Yen-Ming Chen**, Feng-Tsang Wu, Chih-Peng Li, and Pramod K. Varshney, "An efficient construction strategy for near-optimal variable-length error-correcting codes," *IEEE Communications Letters*, vol. 23, no. 3, pp. 398-401, March 2019.
- [J12] **Yen-Ming Chen**, Wen-Chun Cheng, Chih-Peng Li, and Zygumnt J. Haas, "Low-complexity generalized spatial modulation schemes using codebook-assisted MIMO detectors," *IEEE Transactions on Vehicular Technology*, vol. 67, no. 12, pp. 12358-12362, Dec. 2018.
- [J11] Chih-Peng Li, Kuo-Jen Chang, Ho-Hsuan Chang, and **Yen-Ming Chen**, "Perfect sequences of odd prime length," *IEEE Signal Processing Letters*, vol. 25, no. 7, pp. 966-969, July 2018.
- [J10] Kuei-Cheng Chan, **Yen-Ming Chen**, Cheng-Jung Wu, and Chih-Peng Li, "Achieving full diversity on a single-carrier distributed QOSFBC transmission scheme utilizing PAPR reduction" *IEEE Transactions on Communications*, vol. 66, no. 4, pp. 1636-1648, Apr. 2018.
- [J9] **Yen-Ming Chen**, Chi-Fu Lin, and Yeong-Luh Ueng, "An LDPC-coded generalized space shift keying scheme using a codebook-assisted low-complexity massive MIMO detector," *IEEE Communications Letters*, vol. 20, no. 3, pp. 454-457, March 2016.
- [J8] Wei-Min Lai, **Yen-Ming Chen** and Yeong-Luh Ueng, "Raptor-coded noncoherent cooperative schemes

based on distributed unitary space-time modulation,” *IEEE Transactions on Communications*, vol. 63, no. 8, pp. 2873-2884, Aug. 2015.

- [J7] **Yen-Ming Chen**, Kuan-Chun Chen, Yeong-Luh Ueng, Ruey-Yi Wei, and J. Y. Hsu, "EXIT-chart-based design method for noncoherent LDPC-coded modulation in correlated Rayleigh fading channels", *Applied Mechanics and Materials*, vols. 719-720, pp. 837-844, Jan. 2015.
- [J6] **Yen-Ming Chen** and Yeong-Luh Ueng, "Differential amplitude/phase modulation for correlated Rayleigh fading channels: performance analysis and labelling design," *IEEE Transactions on Communications*, vol. 62, no. 8, pp. 2927-2938, Aug. 2014.
- [J5] **Yen-Ming Chen**, Yeong-Luh Ueng, and Hau-Jung Shiau, "An EXIT-based design method for LDPC coded schemes without Gaussian assumptions," *IEEE Communications Letters*, vol. 17, no. 8, pp. 1648-1651, Aug. 2013.
- [J4] **Yen-Ming Chen** and Yeong-Luh Ueng, "Noncoherent amplitude/phase modulated transmission schemes for Rayleigh block fading channels," *IEEE Transactions on Communications*, vol. 61, no. 1, pp. 217-227, Jan. 2013.
- [J3] **Yen-Ming Chen** and Yeong-Luh Ueng, "Turbo coded noncoherent space-time modulation using information-bearing pilots and spatial multiplexing," *IEEE Transactions on Communications*, vol. 59, no. 6, pp. 1543-1554, June 2011.
- [J2] Yeong-Luh Ueng, **Yen-Ming Chen**, and Jun-Yu Lin, "A MIMO-BICM scheme using a convolutional interleaver for delay-sensitive applications," *IEEE Transactions on Vehicular Technology*, vol. 59, no. 5, pp. 2380-2393, June 2010. (SCI, EI)
- [J1] Ruey-Yi Wei and **Yen-Ming Chen**, "Further results on noncoherent block-coded MPSK," *IEEE Transactions on Communications*, vol. 56, no. 10, pp. 1616-1625, Oct. 2008.

## International Conference Papers

- [C29] Kuo-Chun Lin and **Yen-Ming Chen**, "Advanced research on high-security-level error-correction-based iris recognition system," in *Proc. 2023 10th International Conference on Biomedical and Bioinformatics Engineering (ICBBE 2023)*, 9-12 Nov. 2023, Kyoto, Japan.
- [C28] Ya-Xin Dai, Shih-Jie Jhang, **Yen-Ming Chen**, Sheng-Ping Lan, and Yeong-Luh Ueng, "An efficient soft output MIMO detector architecture for high-order modulations," in *Proc. 56th Asilomar Conference on Signals, Systems, and Computers*, 30 Oct.- 2 Nov. 2022.
- [C27] **Yen-Ming Chen**, Kuo-Chun Lin, Yao-Hsien Peng, and Chih-Peng Li, "A low-complexity high-rate spatial multiplexing aided generalized spatial modulation scheme," in *Proc. IEEE International Symposium on Personal, Indoor and Mobile Radio Communications: PIMRC2021*, 13–16 Sept. 2021.
- [C26] **Yen-Ming Chen**, Yong-Jan Yang, Bo-Lun Huang, Huang-Chang Lee, and Chih-Peng Li, "Polar decoding with schedule diversity based on LDPC-like sparse graphs," in *Proc. IEEE International Symposium on Broadband Multimedia Systems and Broadcasting (BMSB)*, 3–5 June 2020, Paris, France.

- [C25] **Yen-Ming Chen**, "Low-complexity GSK/GSM schemes using codebook-assisted MIMO detectors," (**Invited**) in *Proc. 2018 International Symposium for Advanced Computing and Information Technology (ISACIT 2018)*, 16-19 Aug. 2018, Taiwan.
- [C24] **Yen-Ming Chen**, Chih-Peng Li, Min-Yu Wu, and Hung-Yu Chen, "A Raptor-coded non-coherent distributed space-time modulation scheme utilizing non-orthogonal multiple access," in *Proc. IEEE International Symposium on Broadband Multimedia Systems and Broadcasting (BMSB)*, 6–8 June 2018, Valencia, Spain.
- [C23] Huang Chang Lee, Jieng-Heng Shy, **Yen-Ming Chen**, and Yeong-Luh Ueng, "LDPC coded modulation for TLC flash memory," in *Proc. 2017 IEEE Information Theory Workshop (ITW)*, 6–10 Nov. 2017, Kaohsiung, Taiwan.
- [C22] Wei-Cheng Sun, Chia-Hsiang Yang, **Yen-Ming Chen**, and Yeong-Luh Ueng, "An area-efficient multi-mode LLR computing engine for MMSE-based MIMO detectors," in *Proc. IEEE 85th Vehicular Technology Conference (VTC2017-Spring)*, Sydney, Australia, 4-7 June. 2017.
- [C21] **Yen-Ming Chen**, Wei-Min Lai and Yeong-Luh Ueng, "A Raptor-coded distributed noncoherent scheme using non-orthogonal space-time modulation," in *Proc. IEEE 85th Vehicular Technology Conference (VTC2017-Spring)*, Sydney, Australia, 4-7 June. 2017.
- [C20] **Yen-Ming Chen**, and Yeong-Luh Ueng, "A Tree-search Based Low-complexity massive MIMO detector for generalized space shift keying schemes," in *Proc. 2016 IEEE Vehicular Technology Society Asia Pacific Wireless Communications Symposium: (APWCS2016)*, 25-26 August 2016, Tokyo City University, Japan.
- [C19] Huang-Chang Lee, **Yen-Ming Chen**, Yeong-Luh Ueng, and Jen-Yuan Hsu, "Further results on LDPC decoding scheduling for faster convergence," in *Proc. 10th International Conference on Information, Communications and Signal Processing (ICICSP)*, Singapore, 2-4 Dec. 2015.
- [C18] **Yen-Ming Chen**, Kuan-Chun Chen, Yeong-Luh Ueng, and Wei-Min Lai, "Table-based bit-interleaved coded differential APM scheme for correlated fading channels," in *Proc. IEEE/CIC International Conference on Communications in China (ICCC2014)*, Shanghai, China, 13-15 Oct. 2014.
- [C17] **Yen-Ming Chen**, Kuan-Chun Chen, and Yeong-Luh Ueng, "Labelling and code design for bit-interleaved coded differential amplitude/phase modulation in correlated Rayleigh fading Channels," in *Proc. 2014 IEEE 11th Vehicular Technology Society Asia Pacific Wireless Communications Symposium (APWCS 2014)*, Ping Tung, Taiwan, 28-29 August, 2014.
- [C16] **Yen-Ming Chen**, Kuan-Chun Chen, Yeong-Luh Ueng, Ruey-Yi Wei, and Jen-Yuan Hsu, "EXIT-chart-based design method for noncoherent LDPC-coded modulation in correlated Rayleigh fading channels," in *Proc. 2014 International Conference on Control and Information Technology (ICCIT2014)*, Lushan, China, Jiangxi, 8-10 Aug. 2014.
- [C15] **Yen-Ming Chen**, Chia-Wei Chen, Yeong-Luh Ueng, and Huang-Chang Lee, "Look-up table based differential amplitude/phase modulation schemes for Rayleigh block fading channels," in *Proc. IEEE 78th Vehicular Technology Conference (VTC2013-Fall)*, Las Vegas, USA, 2-5 Sept. 2013.
- [C14] **Yen-Ming Chen**, Hao-Lun Lo, and Yeong-Luh Ueng, "A cooperative system using an adaptive relaying

protocol and rateless codes,” in *Proc. IEEE 78th Vehicular Technology Conference (VTC2013-Fall)*, Las Vegas, USA, 2-5 Sept. 2013.

- [C13] Wei-Cheng Sun, **Yen-Ming Chen**, Chen-Yu Weng, Yeong-Luh Ueng, Jen-Yuan Hsuz, and Pangan Ting, “An efficient implementation of the distance-based decoding for block turbo codes,” in *Proc. 8th International Conference on Communications and Networking in China (ChinaCom2013)*, Guilin, China, 14-14 August 2013.
- [C12] Huang-Chang Lee, Chih-Wei Chan, Yeong-Luh Ueng, and **Yen-Ming Chen**, “Generator matrix design and degree-oriented scheduling for the fast convergence of rateless codes,” in *Proc. IEEE Wireless Communications and Networking Conference (WCNC 2013)*, Shanghai, China, 7-10 Apr. 2013.
- [C11] Huang-Chang Lee, **Yen-Ming Chen** and Yeong-Luh Ueng, “Incremental decoding with informed dynamic schedule and flooding refresh for rateless codes,” in *Proc. 2013 IEEE Taiwan/Hong Kong Joint Workshop on Information Theory and Communications*, Hong Kong, 19-20 Jan. 2013.
- [C10] **Yen-Ming Chen** and Yeong-Luh Ueng, “A non-coherent MAP detector with very low detection complexity for coded USTM schemes,” in *Proc. 2013 IEEE Taiwan/Hong Kong Joint Workshop on Information Theory and Communications*, Hong Kong, 19-20 Jan. 2013.
- [C9] **Yen-Ming Chen**, Yeong-Luh Ueng, Hau-Jung Shiau, Dung-Rung Hsieh, Jen-Yuan Hsu, and Pangan Ting, “Noncoherent coded space-time modulation for a large number of transmit antennas,” in *Proc. ICC 2012 : 1st IEEE International Conference on Communications in China*, Beijing, China, 15-18 Aug. 2012.
- [C8] **Yen-Ming Chen**, Huang-Chang Lee, Yeong-Luh Ueng, and Chin-Yun Yeh, “Flooding-assisted informed dynamic scheduling for rateless codes,” in *Proc. IEEE Wireless Communications and Networking Conference (WCNC 2012)*, Paris, France, 1-4 Apr. 2012.
- [C7] Yeong-Luh Ueng, and **Yen-Ming Chen**, “A low-complexity noncoherent MAP detector for turbo-coded unitary space-time modulation scheme,” (**Invited**) in *Proc. 4<sup>th</sup> International Symposium on Applied Sciences in Biomedical and Communication Technologies (ISABEL)*, Barcelona, Catalonia, Spain, 26-29 Oct. 2011.
- [C6] **Yen-Ming Chen**, Yeong-Luh Ueng, Jhong-Jheng Su, Jen-Yuan Hsu, and Pangan Ting, “A lower-complexity iterative trellis-based factor search algorithm and blind detector for PTS-based OFDM systems,” in *Proc. 8th International Conference on Information, Communications and Signal Processing (ICICS)*, Singapore, 13-16 Dec. 2011.
- [C5] Yeong-Luh Ueng, and **Yen-Ming Chen**, “Coded MIMO systems for delay-sensitive applications,” in *proceedings of 6th Asia-Europe Workshop on Concepts in Information Theory (AEW6)*, Ishigaki Island, Okinawa, Japan, 22-24 October 2010.
- [C4] **Yen-Ming Chen**, Yeong-Luh Ueng, and Ying-Chen Chao, “A noncoherent coded MPSK scheme with near-capacity performance for channels with fast phase variation,” in *Proc. IEEE 71<sup>st</sup> Semiannual Vehicular Technology Conference (VTC)*, Taipei, Taiwan, 16-19 May 2010.
- [C3] Yeong-Luh Ueng, **Yen-Ming Chen**, and Chang-Han Kuo, “A codeword-interleaved transmission scheme with novel turbo equalization,” in *Proc. 2009 Fourth International Conference on Communications and Networking in China (ChinaCom' 09)*, Xi'an, China, 26-28 August 2009.



[C2] Yeong-Luh Ueng and **Yen-Ming Chen**, "A turbo coded MIMO scheme for noncoherent fast fading channels" in *Proc. IEEE 67<sup>th</sup> Semiannual Vehicular Technology Conference (VTC)*, Marina Bay, Singapore, 11-14 May 2008.

[C1] Ruey-Yi Wei, **Yen-Ming Chen** and C. C. Kuo, "Further results on noncoherent block-coded MPSK," in *Proc. IEEE International Conference on Communications (ICC)*, Istanbul, 11-15 June 2006.

## Domestic Conference Papers

[D3] **Yen-Ming Chen** and Jian-Wei Chen, "A near-optimal SCMA codebook design for uplink Rayleigh fading channels," in *Proc. 2020 Taiwan Telecommunications Annual Symposium*, Kaohsiung, Taiwan, Jan. 14-17, 2020.

[D2] 陳彥銘, 彭耀賢, 李志鵬, "使用碼簿輔助低複雜度接收器的高傳輸速率空間多工輔助廣義空間調變架構," in *Proc. 2018 Taiwan Telecommunications Annual Meeting*, Taichung, Taiwan, Jan. 24-26, 2019.

[D1] **Yen-Ming Chen**, I-Hsueh Li, Yeong-Luh Ueng, and Chih-Peng Li, "An LDPC-coded generalized spatial modulation scheme using a codebook-assisted low-complexity massive MIMO detector," in *Proc. 2017 National Symposium on Telecommunications*, Nantou, Taiwan, Jan. 21-23, 2017.

## US Patents

[USP1] **Yen-Ming Chen**, Hao-Liang Wen, Yu-Xiang Chen, and Kuo-Chun Lin, "Method and electrical device for training cross-domain classifier," application number: 18/332,764, filing date: June 12, 2023. (**under examination**)

## Taiwan Patents

[TP6] 吳峰蒼, 陳彥銘, "用於產生不定長度錯誤更正碼之演算法及估算平均碼字長度的方法," **申請中**, 申請日: 2023/10/17, 案號: 112139637.

[TP5] 陳彥銘, 溫皓良, 陳鈺享, 林國鈞, "跨域分類器的訓練方法與電子裝置," **已獲證**, 領證日期: 2024/6/1, 專利證書號: I844284.

[TP4] 陳彥銘, 胡宸璋, 黃柏綸, 李志鵬, "使用極化碼之通訊系統及其解碼方法" **已獲證**, 領證日期: 2022/11/11, 專利證書號: I783727.

[TP3] 陳彥銘, 吳峰蒼, 李志鵬, Pramod K. Varshney, "不定長度錯誤更正碼的設計方法、內儲程式之電腦程式產品及內儲程式之電腦可讀取記錄媒體," **已獲證**, 領證日期: 2022/09/11, 專利證書號: I777659.

[TP2] 陳彥銘, 李志鵬, 陳健璋, "設計稀疏碼多重接取碼本的方法及電腦程式產品", **已獲證**, 領證日期: 2021/10/01, 專利證書號: I741509.

[TP1] 陳彥銘, 林國鈞, "虹膜辨識方法與電腦程式產品," **已獲證**, 領證日期: 2020/08/01, 專利證書號: I700604.

## NSTC Research Projects

- [NP11] 113 學年度科技部專題研究計畫(一般策略專案計畫), “6G 中高頻高階 MIMO 行動通訊系統 (2/4),” 計畫編號: NSTC 113-2218-E-110-009 - (Co-PI), Research Grants: NTD14,102,000
- [NP10] 113 學年度科技部專題研究計畫(一般策略專案計畫), “基於中頻高頻段 MIMO 多天線系統之下世代終端及小基站通訊關鍵技術開發(4/4),” 計畫編號: NSTC 113-2218-E-110-008 - (Co-PI), Research Grants: NTD6,350,000
- [NP9] 112 學年度科技部專題研究計畫(一般策略專案計畫), “6G 中高頻高階 MIMO 行動通訊系統 (1/4),” 計畫編號: NSTC 112-2218-E-110-004- (Co-PI), Research Grants: NTD15,300,000
- [NP8] 112 學年度科技部專題研究計畫(一般策略專案計畫), “基於中頻高頻段 MIMO 多天線系統之下世代終端及小基站通訊關鍵技術開發(3/4),” 計畫編號: NSTC 112-2218-E-110-003- (Co-PI), Research Grants: NTD6,650,000
- [NP7] 111 學年度科技部優秀年輕學者研究計畫, “人工智慧與錯誤更正碼輔助高資訊安全與高辨識效能生物辨識架構設計,” 計畫編號: MOST 111-2628-E-110 -009 -MY3 (3-year project) (PI), Research Grants: NTD4,298,000
- [NP6] 111 學年度科技部專題研究計畫(一般策略專案計畫), “中頻高頻段 MIMO 多天線系統與結合 MIMO 可重置智慧表面平台開發及其系統驗證,” 計畫編號: NSTC 111-3114-E-110 -001 - (Co-PI), Research Grants: NTD13,000,000
- [NP5] 111 學年度科技部專題研究計畫(一般策略專案計畫), “基於中頻高頻段 MIMO 多天線系統之下世代終端及小基站通訊關鍵技術開發(2/4),” 計畫編號: NSTC 111-2218-E-110 -003 - (Co-PI), Research Grants: NTD6,440,000 (本計畫榮獲「下世代通訊系統關鍵技術研發專案計畫」111 年度優異團隊)
- [NP4] 110 學年度科技部專題研究計畫, “稀疏碼多重接取架構的深入研究,” 計畫編號: MOST 110-2221-E-110 -019 - (PI)
- [NP3] 110 學年度科技部專題研究計畫(一般策略專案計畫), “基於中頻高頻段 MIMO 多天線系統之下世代終端及小基站通訊關鍵技術開發(1/4),” 計畫編號: MOST 110-2224-E-110 -001 - (Co-PI)
- [NP2] 107 學年度科技部新進人員研究計畫, “壓縮感知技術輔助低複雜度大規模多天線編碼傳輸架構設計,” 計畫編號: MOST 107-2221-E-110-023-MY3 (3-year project) (PI)
- [NP1] 104 學年度科技部新進人員研究計畫, “具高吞吐量之非同調合作式傳輸架構,” 計畫編號: MOST 104-2218-E-110-012-MY2 (2-year project) (PI)

## University-Industry Collaboration Projects

- [UIP4] YTTEK Technology Corp., “CCSDS related Channel Coding” (PI), Research Grants: NTD700,000

[UIP3] 2021 Qualcomm Taiwan University Research Collaboration Project: “Advance Transceiver Design, Access Technique, and AI Research for the Next-generation Wireless Communication Systems”- AI-assisted Design of Error Correcting Strategies for the Next-generation Wireless Communication Systems. (PI), Research Grants: NTD650,000

[UIP2] 2020 Qualcomm Taiwan University Research Collaboration Project: “Advance mmWave Transceiver Design, Access Technique, and AI Research”- Further Research on the AI-Based Large-scale Sparse Code Multiple Access Schemes. (PI), Research Grants: NTD630,375

[UIP1] 2019 Qualcomm Taiwan University Research Collaboration Project: “Advance MIMO Transceiver Design, Access Technique, and AI Research”- AI-based SCMA Transceiver Design. (PI)

## Other Research Projects

[OP1] 111 學年度國防先進科技研究計畫, “離岸風機系統對航空器飛航安全影響與創新應用研究,” (3-year project)(Co-PI), Research Grants: NTD9,700,000

### Invited Talks

- *On the Design of Near-Optimal Variable-Length Error-Correcting Codes*, 2024 Taiwan Workshop on Information Theory and Communications (2024 消息理論及通訊秋季研討會暨 112 年度國科會電信學門計畫成果發表會), National Cheng Kung University, Tainan, Taiwan, 14 Aug. 2024.
- *An Efficient Soft-output Fixed-complexity Sphere Decoder for Large QAM Constellations*, B5G/6G Advanced Communication Technology Workshop, National Taiwan University, Taipei, Taiwan, 26 July 2024.
- *On the Design of Near-optimal Sparse Code Multiple Access: A Code-domain NOMA for 6G and Beyond*, School of Electronics and Computer Science, University of Southampton (英國南安普頓大學), UK, 9 July 2024.
- Guest Speaker of School of Electrical Engineering, Telkom University (印尼特爾科姆大學), Dept. Electrical Engineering, Universitas Islam Indonesia (UII) (印尼伊斯蘭大學), Dept. Electrical Engineering, Institut Teknologi Sepuluh Nopember (ITS) (印尼泗水理工學院) and Dept. Electrical Engineering, University of Brawijaya (UB) (印尼布勞爪哇大學), Indonesia, Feb. 2024.
- *On the Design of Near-optimal Sparse Code Multiple Access: A Code-domain NOMA for 6G and Beyond*, Dept. Electrical Engineering, Institut Teknologi Sepuluh Nopember (ITS)(印尼泗水理工學院), Indonesia, 1 Nov. 2023.
- *On the Design of Near-optimal Variable-length Error-correcting Codes*, Dept. Electrical Engineering, National Tsing Hua University, Taiwan, 26 May 2023.
- *On the Design of Near-optimal Sparse Code Multiple Access Schemes*, 2022 IEEE Taiwan Workshop on Information Theory and Communications (2022 消息理論及通訊秋季研討會暨 100 年度國科會電信學門計畫成果發表會), Yuan Ze University, Taoyuan, Taiwan, 18 August 2022.
- *On the Design of Near-optimal Sparse Code Multiple Access Schemes*, Inst. Communications Engineering, National Tsing Hua University, Taiwan, 1 Oct. 2021.
- *On the design of Near-optimal SCMA codebooks*, Dept. Engineering Science, National Cheng Kung University,

Taiwan, 17 Dec. 2020.

- *Coding Theory and Practice: Polar Coding*, National Chiao Tung University, 12 Aug., 2019.
- *Polar Coding/ 5G Polar Codec*, National Chiao Tung University, 14 Jan., 2019.
- *Digital Communication: 5G Coding Techniques*, NXP Semiconductors, 2017.
- *Raptor-coded noncoherent cooperative schemes based on distributed unitary space–time modulation*, Institute of Communications Engineering, National Sun Yat-sen University, 13 Dec. 2016.
- *LDPC (Low-Density Parity Check)-like rateless codes and their applications in wireless communication systems*, Center for Space and Remote Sensing Research, National Central University, 9 Sept 2016.
- *Introduction to Error Correction Code Assisted Iris Recognition Systems*, Dept. Communications Engineering, Yuan Ze University, 6 May 2016.
- *LDPC (Low-Density Parity Check)-like rateless codes and their applications*, Dept. Communication Engineering, National Central University, 24 Feb. 2016.
- *Introduction to LDPC (Low-Density Parity Check)-Like Rateless Codes*, Dept. Electronic Engineering, Chung Yuan Christian University, 23 Sept. 2015.
- *Introduction to LDPC (Low-Density Parity Check)-Like Rateless Codes*, Dept. Information and Computer Engineering, Chung Yuan Christian University, 23 March 2015.

## Services

- Member of IEEE (S'08-M'11), Broadcasting Technology Society, Communications Society, Information Theory Society.
- Serve as the Secretary of IEEE Broadcasting Technology Society Tainan Chapter, 2019-present.
- Serve as a Conference Chair :
  - 2020 Taiwan Telecommunications Annual Symposium, Local Arrangement Chair
  - 2020 IEEE Global Communications Conference (IEEE GLOBECOM 2020), Session Chair
  - 2015 International Conference on Information, Communications and Signal Processing (ICICS2015), Session Chair
- Serve in Conference Technical Program Committee
  - 2023 10th International Conference on Biomedical and Bioinformatics Engineering (ICBBE 2023)
  - 2023 32nd Wireless and Optical Communications Conference (WOCC)
  - 2022 IEEE 96th Vehicular Technology Conference (VTC2022-Fall: London: Beijing)
  - 2022 IEEE 95th Vehicular Technology Conference (VTC2022-Spring: Helsinki, Finland)
  - 2020 IEEE 92nd Vehicular Technology Conference: VTC2020-Fall
  - 2020 29th Wireless and Optical Communications Conference (WOCC)

- 2020 Taiwan Telecommunications Annual Symposium
- 2019 IEEE 90th Vehicular Technology Conference: VTC2019-Fall
- 2022 Taiwan Telecommunications Annual Symposium
- 2020 Taiwan Telecommunications Annual Symposium
- 2018 NST-ITCOMM.
- 2018 Taiwan Academic Network Conference
- Serve as a Reviewer for Research Journals and Transactions
  - IEEE Transactions on Communications
  - IEEE Transactions on Signal Processing
  - IEEE Journal of Selected Topics in Signal Processing
  - IEEE Transactions on Vehicular Technology
  - IEEE Journal on Emerging and Selected Topics in Circuits and Systems
  - IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems
  - IEEE Systems Journal
  - IEEE Wireless Communications Letters
  - IEEE Communications Letters
  - IET Communications
- 參與 2024 年中山大學電機系印尼四校招生
- 參與「2023 年經濟部工業局半導體東南亞攬才團」招生(馬來西亞吉隆坡、新加坡)
- 參與「2023 印尼臺灣高等教育展」招生(印尼坤甸、泗水、錫江)
- 擔任數位發展部「我國數位轉型及國際競爭力-專家意見分享會議」、「數位轉型調查分析及策略研究」審查委員