【Curriculum Vitae】

・Name/ Position

ChinLun Lai/ Associate Professor

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・Teaching Courses

Digital Image Processing, Digital Signal Processing, Artificial Neural Network, Computer Vision, Patent Creation, Signal and System, Linear Algebra, Probability.

・The Highest Education Degree

Ph.D. of Electrical Engineering, National Taiwan University.

・Research Area

Artificial Intelligence, Computer Vision, Image Processing, Intelligent Surveillance System, Neural Network

・Recent Publications

Journal papers:

1. ChinLun Lai, and Yu-mei Chang, "Improving the Skills Training by Mixed Reality Simulation Learning -- A Pilot Case Study of Nasogastric Tube Care", *LNCS 11003, Innovative Technologies and Learning*, pp. 18-27, 2018(EI).
2. Yu-mei Chang, and, ChinLun Lai, "Floating Heart" Application of Holographic 3D Imaging in Nursing Education", International Journal of Nursing Education, vol. 10, no. 4, pp.25-30, 2018.
3. ChinLun Lai, "An Intuitive and Interactive Holographic Instructional Support System", International Journal of Electrical, Electronics And Data Communication, Vol. 5, Issue-9, Sep., pp. 32-35, 2017.

4. ChinLun Lai, and YuFang Chu, "Increasing the Learning Performance via Augmented Reality Technology-A Case Study of Digital Image Processing Course", LNCS 10108, Emerging Technologies for Education, pp. 58-64, 2017(EI).

5. ChinLun Lai, and ChiuYuan Tai, "A Smart Spoofing Face Detector by Display Features Analysis," *Sensors*, no. 1136, vol. 16, issue 7, pp.1-15, 2016(SCI).

6. ChinLun Lai, and LiYin Lee, "Pedestrian Tracking based on Hybrid Structure Filters," *Bulletin of Networking, Computing, Systems, and Software,* [S.l.], vol. 3, no. 1, pp. 38-41, 2014.

7. Jie-Ci Yang, Chin-Lun Lai, Hsin-Teng Sheu, and Jiann-Jone Chen, "An intelligent automated door control system based on a smart camera", *Sensors*, vol. 13, no. 5, pp.5923-5936, 2013(SCI).

8. 朱玉仿，賴金輪，"從民意調查結果省思技職教育的一些問題" 研習資訊，第 25 卷，第 5 期，頁 53-59，2008 年。

9. C. L. Lai, "Dynamic perceptual quality control strategy for mobile multimedia transmission via watermarking index", Lecture Notes in Computer Science, vol. 4319, pp. 712-721, 2006.

10. S. C. Pei and C. L. Lai, "A morphological approach of target detection on perspective plane," Signal Processing, EURASIP vol.81, no.9, pp.1975-1984, Sep. 2001(SCI).

11. S. C. Pei and C. L. Lai, "Very low bit-rate coding algorithm for stereo video with spatiotemporal HVS model and binary correlation disparity estimator," IEEE Journal on Selected Areas in Communications, vol. 16, no. 1, pp.98-107, Jan. 1998(SCI).

12. S. C. Pei, C. L. Lai, and F. Y. Shih, "A morphological approach to shortest path planning for rotating objects," Pattern Recognition, vol. 31, no. 8, pp.1127-1138, 1998(SCI).

13. S. C. Pei and C. L. Lai, "Recursive order statistic soft morphological filters," IEE Proceedings: Vision, Image and Signal Processing, vol. 145, no. 5, pp.333-342, Oct. 1998(SCI).

14. S. C. Pei, C. L. Lai, and F. Y. Shih, "An efficient class of alternating sequential filters," *Graphic Models and Image Processing,* vol. 59, no. 2, pp.109-116, Mar. 1997(SCI).

Conference Papers:

1. ChinLun Lai, and Yu-mei,Chang, "Improving the Skills Training by Mixed Reality Simulation Learning - A Pilot Case Study of Nasogastric Tube Care", the International Conference of Innovative Technologies and Learning, Portoroz, Slovenia, Aug. 2018.

2. ChinLun Lai, and Lunjyh Jiang, "An Intelligent Baby Care System Based on IoT and Deep Learning Techniques", 20th International Conference on Communications, Control and Signal Processing, Sydney, Australia, Jan. 2018.

3. 賴金輪, 張玉梅, "直覺互動式全像顯影教學輔助系統", 105 學年度多元升等教學實務暨產學研究成果研討會，4 月 19 日，2017。

4. ChinLun Lai, "Intuitive Anticounterfeiting Detection Method for Video Surveillance Systems," 2017 International Conference on Innovative Engineering Technologies, Munich, German, Feb. 2017.

5. ChinLun Lai, and YuFang Chu, "Increasing the Learning Performance via Augmented Reality Technology-A Case Study of Digital Image Processing Course", Symposium on Emerging Technologies for Education (SETE2016), Rome, Italy, Oct. 2016.

6. ChinLun Lai, and ChiuYuan Tai, "Liveness face detection based on single image," 2016 International Conference on Applied System Innovation, Okinawa, Japan, May 2016.

7. 張淙賓,賴金輪,"返馳式微控制器型主動電池管理系統" 2016 工程技術、管理科學與教育研討會，

5 月 20 日，2016。

8. ChinLun Lai, and ChiuYuan Tai, "A PNN Approach of Spoofing Face Detection on High Resolution Displays," 2015 International Scientific Conference on Engineering and Applied Sciences, Okinawa, Japan, July. 2015.

9. ChinLun Lai, and ChiuYuan Tai, "Liveness Face Detection based on Single Image," 2015 International Conference on Applied System Innovation (ICASI 2015), May 22-26, Osaka, Japan, 2015.(BEST PAPER AWARD)

10. ChinLun Lai, "A mixture statistical testing based fire alarm system," Proceedings of 19th international Symposium on Artificial Life and Robotics, Beppu, Japan, Jan. 2014.

11. Chin-Lun Lai, Jun-Horng Chen, Jing-Ying Hsu, and Chih-Hong Chu, "Spoofing Face Detection based on Spatial and Temporal Features Analysis," Proceedings of 2th IEEE Global Conference on Consumer Electronics (GCCE), Tokyo, Japan, Oct. 2013.(EI)

12. Chin-Lun Lai, Tsung-Ching Lin, and Tung-Lin Yang, "Analysis of effects of exercises on middle-aged and elderly arthritics by thermal imagery and automatic auxiliary diagnosis," Proceedings of 19th International Symposium on Artificial Life and Robotics, Daejeon, Korea, Jan. 2013.

13. Chin-Lun Lai, and Li-Yin Lee, "Object tracking based on Adaboost classifier and particle filter," Proceedings of 19th International Symposium on Artificial Life and Robotics, Daejeon, Korea, Jan. 2013.

14. Teng-Hui Tseng*, Chin-Lun Lai, Sheng-Ta Hsieh, and Jun-Horng Chen, "An intelligent accessing control system based on human intention analysis", Proceedings of 9th IEEE International Conference on Ubiquitous Intelligence and Computing, Fukuoka, Japan, Sep. 2012.(EI)

15. ChinLun Lai, and JieCi Yang, "An intelligent automatic door control system based on people/object identification and path analysis", Proceedings of the NST2011 Conference, Hualien, Taiwan, Nov. 2011.

16. Chin-Lun Lai, and Po-Sen Chen, "Design of interactive system for stereo vision environment", Proceedings of the CSQRWC2011 Conference, Harbin, China, Jul. 2011.(EI)

17. Chin-Lun Lai, and Chia-Hsiung Lin, "A visual compensation method for binocular vision deficiency", Proceedings of the IEEE International Conference on Consumer Electronics, Communications and Networks, Xianning, China, Apr. 2011.(EI)

18. Wen-Chin Lee, Chin-Lun Lai*, and Chun-Kai Chang, "An integrated water turbidity detection method based on multi-spectral analysis", Proceedings of the IEEE International Conference on Consumer Electronics, Communications and Networks, Xianning, China, Apr. 2011.(EI)

19. Chin-Lun Lai, Ming-Li Yeh, Chiu-Yuan Tai, Di Chang, "An integrated telecare system based on multitasking transceiver sensors technology", INC Beijing 2010, Beijing, China, Aug., 2010.

20. C. L. Lai, S. W. Chang, and J. Sheen, "An integrated portable vision assistant agency for the visual impaired people", Proceedings of the 7th IEEE International Conference on Control & Automation (ICCA09), Christchurch, New Zealand, pp.2311-2316, Dec. 2009.(EI), ISBN 978-1-4244-4707-7.

21. C. L. Lai, and S. W. Chang, "Image processing based visual compensation system for vision defects", Proceedings of the 5th IEEE International Conference on Intelligent Information Hiding and Multimedia Signal Process(IIHMSP09), Kyoto, Japan, Sep. 2009.(EI), ISBN 978-0-7695-3762-7.

22. C. L. Lai, and S. W. Chang, "An image processing based visual compensation system for the visually defects", Proceedings of the 13th IEEE International Symposium on Consumer Electronics(ISCE09), Kyoto, Japan, May, 2009.(EI), ISBN 978-1-4244-2976-9.

23. J. Sheen, C. A. Chen, Y. H. Chen, C. L. Lai, and Z. W. Hong, "Microwave measurements of dielectric properties – A Further Study to a New Theoretical Model for a Closed Cylindrical Cavity Dielectric Resonator", Proceedings of the 3th IEEE European Conference on Antennas and Propagation (EUCAP09), Berlin, Germany, 2009.(EI)

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28. Y. H. Chen, Y. C. Wang, C. L. Lai, and H. C. H. Rao, "Precise estimation of WCDMA downlink pole capacity in multipath propagation channel by Monte Carlo method," in Proceedings of the 65th IEEE Vehicular Technology Conference in Dublin, Ireland, May, 2007. (EI),

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32. 沈自,賴金輪,李民慶,謝明洽, "雙軸、非各向同性介質之時間諧和電磁場," 2004 年全國電信研討會, Dec., 2004.

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36. S. C. Pei and C. L. Lai, "An efficient coding algorithm for stereo video with spatio-temporal HVS model and binary correlator disparity estimator," in Proceeding of International Workshop on HDTV and the

Evolution of Television, pp.2B.9-2B.16, Nov. 1995.

Technology transfer

1. "Algorithms of Target Detection over Mobile-Edge Computing Platform", Wave-In Comm. Co. Ltd., NTD$310,000

2. "A waste plastic container recycling system by optical inspection", Sustainable Environmental Technology and Management Co., Ltd., NTD$190,000.

3. "Intelligent Green Power EM-Lock", VANGUARD SECURITY ENGINEERING CORP., NTD$400,000.

Patents:

1. ChinLun Lai, "SWITCH DEVICE AND SWITCH CONTROL METHOD WITH LEARNING FUNCTION"—TW I638342(2018).

2. ChinLun Lai, 陳俊宏, 楊傑棋, 高盟超, "IMAGE PROCESSING METHOD AND SYSTEM FOR EYE-GAZE CORRECTION" -- TW I637288(2018).

3. 陳俊宏, ChinLun Lai, "SYSTEM FOR IDENTIFYING CONTAINER MATERIAL" -- TW I612297(2017).

4. ChinLun Lai, 陳俊宏, "WASTE PLASTIC CONTAINER RECYCLING SYSTEM AND METHOD THEREOF"—TW I592273(2017), US9782916(2017).

5. ChinLun Lai, 陳俊宏, "METHOD AND SYSTEM FOR DETECTING PRETENDED IMAGE"—TW I592882(2017).

6. ChinLun Lai, 田維鈞, "PORTABLE SMART LIQUID CONTAINER AND LID THEREOF"-- TW I529104(2016).

7. ChinLun Lai, 陳俊宏, "POWER MANAGEMENT SYSTEM AND CONTROL METHOD"-- TW I524621(2016).

8. ChinLun Lai, 陳俊宏, "METHOD AND SYSTEM FOR EXAMINING ELECTRICAL APPLIANCE"-- TW I510792(2015).

9. ChinLun Lai, 陳俊宏, 朱志弘, 李淑珍, 徐晶瀅, "CHEATING PREVENTING METHOD AND APPARATUS UTILIZING THE SAME"-- TW I510953(2015), US9400932(2015).

10. ChinLun Lai, "IMAGE CAPTURE DEVICE WITH MULTIPLE LENSES AND METHOD FOR DISPLAYING STEREO IMAGE THEREOF"-- TW I505708(2015).

11. ChinLun Lai, "IMAGE COLOR CORRECTION SYSTEM AND THE CORRECTION METHOD THEREOF" -- TW I465104(2014).

12. ChinLun Lai, 張鈞凱, "WATER TURBIDITY DETECTION SYSTEM AND THE METHOD THEREOF" -- TW I456185(2014).

13. 李桂仁, ChinLun Lai, "IMAGING SYSTEM AND OPTICAL MODULE THEREOF" -- TW I446014(2014).

14. 張鈞凱, ChinLun Lai, "NETWORK DEVICE WITH IMAGE MONITORING FUNCTION, ELECTRICAL POWER SAVING SYSTEM AND METHOD FOR MONITORING IMAGE"-- TW I445353(2014).

15. ChinLun Lai, "METHOD AND DEVICE FOR INSPECTING VEHICLE IN IDLING" -- TW I441099(2014).

16. ChinLun Lai, "INTELLIGENT ANTI-PEEK DEVICE AND METHOD THEREFOR" -- TW I427451(2014).

17. ChinLun Lai, 田海洲, "INTERACTIVE DEVICE AND OPERATING METHOD THEREOF"-- TW I423114(2014).

18. ChinLun Lai, 林珈雄, "A 3D IMAGE DISPLAY DEVICE CAPABLE OF AUTOMATICALLY CORRECTING 3D IMAGES AND THE AUTOMATIC CORRECTION METHOD THEREOF"-- TW I423652(2014).

19. ChinLun Lai, 張淑雯, 林珈雄, "SYSTEM AND METHOD FOR COMPENSATING BINOCULAR VISION DEFICIENCY"-- TW I419077(2013).

20. ChinLun Lai, 田海洲, "SYSTEM FOR DETECTING AND CONTROLLING MULTIPLE HAZARDS AND THE METHOD THEREOF" -- TW I401624(2013).

21. ChinLun Lai, 張淑雯, "視覺缺陷量測及補償之系統及方法," -- TW I357320(2012). CN ZL200710198875.7(2013).

22. 廖禮士, ChinLun Lai, "SINGLE BUTTON SWITCH AND CONTROL METHOD THEREOF" –CN ZL200910138198.9(2012).

23. 田海洲, ChinLun Lai, "MULTI-REGION MONITORING SYSTEM" –CN ZL200910006149.X(2012).

24. ChinLun Lai, "IMAGE MONITORING METHOD AND SYSTEM FOR EVENT DETECTION" -- TW I307061(2009).

25. ChinLun Lai, 賴金鼎,"設定影像監控區之裝置及其方法,"-- TW I244624(2005).,US7545953(2009), FR2871273, GB2414884, CN ZL200410070954.6(2009).

26. ChinLun Lai, 廖禮士, 田海洲, 賴金鼎, "SECURITY MONITORING SYSTEM WITH SAVING POWER AND METHOD THEREOF" -- GB2472295(2011).

27. ChinLun Lai,田海洲,"自動辨識追蹤移動物體及清晰影像取得方法," –CN 02141838.1(2005), TW I284293(2007).

28. ChinLun Lai, 朱耀棠, "ANAPPARATUS AND METHOD FOR IDENTIFYING SURROUNDING ENVIRONMENT BY MEANS OF IMAGE PROCESSING AND FOR OUTPUTTING THE RESUTLS"—TW I236901(2005), US7230538(2007).

29. LAI CHIN-LUN and LIAO LI-SHIH, "Human Image Recognition System", GB2410588(2007).

30. ChinLun Lai、蘇道正, "盆栽結構" -- TW M435159(2012).

31. ChinLun Lai、黃茂全、高繼徽, "SAFETY GARMENT" -- TW M423092(2012).

32. ChinLun Lai, "STRUCTURE OF INFRARED IMAGE SENSOR" -- TW M420840(2012).

33. ChinLun Lai, "三維立體顯示眼鏡及其影像播放系統"-- TW M418499(2011).

34. ChinLun Lai, "複合式香皂" -- TW M415144(2011).

35. ChinLun Lai, 田海洲,"互動式裝置"-- TW M409872(2011), CN ZL201120093995.2(2011).

36. ChinLun Lai, 田海洲,"電子監看器及其影像處理單元,"-- TW M402934(2011).

37. ChinLun Lai, "車輛身分識別警報裝置,"-- TW M397335(2011).

38. 田海洲, ChinLun Lai, "單按鈕開關,"-- TW M361709(2010), CN 1379284(2010).

Projects:

1. "以混合實境技術建置護理技能模組及學習成效之探討(NSC 107-2637-H-161-001)", National Science Council, co-PI, NTD$500,000, 2018.

2. "The intelligent disaster prevention system via using the video content analysis and automatic features modeling techniques (NSC 95-2622-E-161-001-CC3)", National Science Council, PI, NTD$336,000, 2006.

3. "A portable integrated information system for vision defects compensation (NSC 94-2614-E-161-001-)", National Science Council, PI, NTD$453,000, 2005.

4. "The intelligent security monitoring system based on analysis of integrated environmental video sequence and handshake technique (NSC 94-2622-E-161 -002 -CC3)", National Science Council, PI, NTD$334,000, 2005.

5. "The Dynamic detection and optimal codec allocation for wireless transmission based on digital watermark calibration (NSC 93-2622-E-161-002-CC3)", National Science Council, PI, NTD$311,000, 2004.

6. "Applying Digital Watermark Technology on the Channel Estimation of Downlink Wireless Communication System (NSC 92-2213-E-182-010-)", National Science Council, co-PI, NTD$234,400, 2003.

7. "Image processing based auto-focusing and distance prediction single-lens photographing system for moving targets (NSC 91-2213-E-161-001-)", National Science Council, PI, NTD$508,800, 2002.

8. "具自定義功能的熱像事件檢測與預警系統研發", 翌宙科技有限公司, 108/1~108/10, 主持人, 230,000.

9. "運用臉部識別技術於動態載具實現物件偵蒐與定位", 鎰威科技有限公司, 107/11~108/4, 主持人, 300,000.

10. "基站設備數位化建模及附加影像辨識功能開發", 遠傳電信股份有限公司有限公司, 107/7~107/12, 協同主持人, 300,000.

11. "應用混合實境技術建置臨床護理技能測驗模組", 亞東紀念醫院, 107/2~107/11, 共同主持人, 72,000.

12. "具自學功能的智慧型遠端控制系統開發", 立棠科技有限公司, 106/10~107/7, 主持人, 160,000.

13. "具多維條碼的行動支付/電子票卷系統", 思泉創新科技有限公司, 104/10~105/7, 主持人, 120,000.

14. "光學分析識別技術於資源回收物分選作業之應用", 工業技術研究院, 104/4~104/11, 主持人, 600,000.

15. "Using Adaptive Spatial Model to Establish the Immersive Display System", 緯創資通股份有限公司, 104/3~108/8, 共同主持人, 1,500,000.

16. "一維/二維條碼轉換技術與加值應用系統", 思泉創新科技有限公司, 103/10~104/7, 主持人, 160,000.

17. "廢容器自動回收機分類技術研發", 永發環境科技管理有限公司, 103/10~104/7, 共同主持人, 290,000.

18. "臉部識別前瞻技術發展與應用計畫—整合型計畫", 緯創資通股份有限公司, 101/12~103/2, 計畫總主持人, 968,000.

19. "車牌識別加值應用系統", 悅明達科技有限公司, 101/11~102/10, 主持人, 472,000.

20. "智慧型環境監控系統研發計畫", 遠東資源開發股份有限公司, 101/1~101/12, 共同主持人, 750,000.

21. "擴增實境的醫療成效評估-以失智及精神科患者為例", 亞東紀念醫院, 101/2~101/11, 共同主持人, 300,000.

22. "智慧型綠能電磁鎖—整合型計畫", 禮銳企業股份有限公司, 　　　　100/11~101/10, 計畫總主持人, 1,500,000.
23. "多頻譜分析技術結合寬頻接取解決方案", 經濟部工業局通訊產業推動小組, 99/12/1~100/4/30, 主持人, 200,000.
24. "智慧型環境監控預警與控制系統—整合型計畫", 禮銳企業股份有限公司, 98/11~99/10, 計畫總主持人, 2,000,000.