

## 李健興教授 個人簡歷



**李健興教授(IEEE Senior Member)** 1998年於國立成功大學資訊工程學系榮獲博士學位，目前為國立臺南大學資訊工程學系教授。李教授曾於2006年2月至2011年7月擔任電算中心主任及2011年1月至2015年7月擔任研發長，並於2009年榮獲「教育部98學年度資訊教育及臺灣學術網路傑出貢獻人員」，且在電算中心主任內任辦理TANET 2010(大會共同主席)臺灣學術網路研討會及FUZZ-IEEE 2011(議程主席)國際學術會議。此外，在研發長任內辦理100年度大學校務評鑑業務，並協助教育部處理台南啟聰學校(南大附聰)性平事件及國家賠償事宜(2013/10-2015/1)，善盡大學社會責任與義務。自從2007年9月開始協助教育部建置國中小學攜手計畫網路平台，幫助弱勢學生及學校辦理補救教學業務，至今已超過10年。自從2009年開始首創與法國INRIA團隊在IEEE重要國際會議辦理電腦挑戰人腦之圍棋學術競賽活動，包括：FUZZ-IEEE 2009(韓國)、IEEE WCCI 2010(西班牙)、IEEE SSCI 2011(法國)、FUZZ-IEEE 2011(台灣)、IEEE WCCI 2012(澳洲)、FUZZ-IEEE 2013(印度)、FUZZ-IEEE 2015(土耳其)、IEEE CIG 2015(台灣)、IEEE WCCI 2016(加拿大)、FUZZ-IEEE 2017(義大利)與IEEE SMC 2017(加拿大)等。李教授於2015年辦理TAAI 2015(大會主席)及IEEE CIG 2015(大會共同主席)等國際會議，2017年結合台灣學術界與研究單位相關資源，共同邀請美國Facebook AI Research (FAIR) Director Yann LeCun訪問台灣，並進行公開演講，期望能加速台灣AI產業發展與實際應用。

研究方向包括：人工智慧、適性評量與自主學習、智慧型代理人、知識本體建構及應用、能力成熟度整合模式(CMMI)、語意網、模糊理論及應用與機器學習等。同時，他也獲得許多與模糊標記語言、知識本體工程、文件分類、影像處理及健康照護相關之發明專利。李教授於2016年榮獲IEEE Standard 1855TM-2016 (IEEE Standard for Fuzzy Markup Language) outstanding contribution certificate、2017年分別於FUZZ-IEEE 2017及IEEE SMC 2017獲頒 certificate of contribution to FML-based Machine Learning Competition for Human Prediction and Applications on Game of Go及Human and Smart Machine Co-Learning。此外，李教授亦在IEEE SSCI 2017(夏威夷)Intelligent Agents Symposium擔任Keynote Speaker。李教授發表國內外學術論文超過150篇，被引用次數(Google Scholar)超過3400次，h-index/i10-index為28/61。

2018年擔任IEEE計算智慧學會(Computational Intelligent Society, CIS)Summer Schools Chair、2015/8-2017/7擔任IEEE CIS Tainan Chapter Chair、2009-2010年擔任IEEE CIS新興技術推動委員會(Emergent Technologies Technical Committee, ETTC)主席及2008擔任IEEE CIS ETTC副主席。此外，李教授亦擔任TAAI 2015大會主席、IEEE CIG 2015大會共同主席、FUZZ-IEEE 2011議程主席、FUZZ-IEEE 2013賽程主席及FUZZ-IEEE 2015/FUZZ-IEEE 2017/IEEE WCCI 2016/IEEE WCCI 2018賽程共同主席。目前擔任多個國際學術期刊之Associate Editor或Editor Board Member，包括：IEEE Transactions on Games (IEEE Computational Intelligence and AI in Games, IEEE TCIAIG), Journal of Information Science and Engineering (JISE), Applied Intelligence, Soft Computing, Journal of Ambient Intelligence & Humanized Computing, International Journal of Fuzzy Systems及The Journal of Advanced Computational Intelligence and Intelligent Informatics (JACIII)。

李教授曾擔任IEEE TCIAIG, Applied Intelligence, Journal of Internet Technology (JIT)及International Journal of Fuzzy Systems (IJFS)等國際期刊之Guest Editor。並多年擔任Taiwanese Association for Artificial Intelligence (TAAI)理事/常務理事，並於2012-2014年擔任南科產學協會常務監事。

# Curriculum Vitae of Professor Chang-Shing Lee

**Chang-Shing Lee** (SM'09) received the Ph.D. degree in Computer Science and Information Engineering from the National Cheng Kung University, Taiwan, in 1998. He is currently a Professor with the Department of Computer Science and Information Engineering, National University of Tainan (NUTN), Taiwan. He was the Director of Computer Center from February 2006 to July 2011, and Dean of Research and Development Office from January 2011 to July 2015. He also co-organized TANET 2010 (General Co-Chair) and FUZZ-IEEE 2011(Program Chair) during his Director of Computer Center term. He handled the university assessment affairs of NUTN in 2011 and assisted Ministry of Education (MOE, Taiwan) to deal with the gender equality event and state compensation of The Affiliated School for Students with Hearing Impairments of National University of Tainan (2013/10-2015/1) to implement University Social Responsibility (USR) during his Dean of RD Office term. Since Sept. 2007, he has assisted MOE to establish the platform of remedial instruction for students from elementary schools and junior high schools. In addition, since 2009, he has first held Human vs. Computer Go Competition at many IEEE CIS / SMC-flagship conferences, including FUZZ-IEEE 2009 (Korea), IEEE WCCI 2010 (Spain), IEEE SSCI 2011 (France), FUZZ-IEEE 2011 (Taiwan), IEEE WCCI 2012 (Australia), FUZZ-IEEE 2013 (India), FUZZ-IEEE 2015 (Turkey), IEEE WCCI 2016 (Canada), FUZZ-IEEE 2017 (Italy), and IEEE SMC 2017 (Canada). In 2015, he co-organized TAAI 2015 (General Chair) and IEEE CIG 2015 (General Co-Chair). In 2017, he utilized the resources of Taiwan's academic institutes and research institutes to co-invite Facebook AI Research (FAIR) Director Yann LeCun to visit Taiwan and to give public speeches in Taiwan. It is hoped to speed up Taiwan's AI industrial development and real-world applications.

His current research interests include artificial intelligence, adaptive assessment and self-learning, intelligent agent, ontology applications, Capability Maturity Model Integration (CMMI), fuzzy theory and applications, and machine learning. He also holds several patents on Fuzzy Markup Language (FML), ontology engineering, document classification, image filtering, and healthcare. He was awarded Certificate of Appreciation for outstanding contributions to the development of IEEE Standard 1855TM-2016 (IEEE Standard for Fuzzy Markup Language). In addition, he was awarded Certificates of contributions to *Human and Smart Machine Co-Learning* and contributions to *FML-based Machine Learning Competition for Human Prediction and Applications on Game of Go* awarded by IEEE SMC 2017 and FUZZ-IEEE 2017, respectively. He was a keynote speaker of Intelligent Agents Symposium of IEEE SSCI 2017 (Hawaii).

He is IEEE CIS Summer Schools Subcommittee Chair in 2018. He was IEEE CIS Tainan Chapter Chair (2015/8-2017/7), IEEE CIS Emergent Technologies Technical Committee (ETTC) Chair from 2009 to 2010, and ETTC Vice-Chair in 2008. He is also an Associate Editor or Editor Board Member of International Journals, such as *IEEE Transactions on Computational Intelligence and AI in Games* (IEEE TCIAIG), *Applied Intelligence*, *Soft Computing*, *Journal of Ambient Intelligence & Humanized Computing* (AIHC), *International Journal of Fuzzy Systems* (IJFS), *Journal of Information Science and Engineering* (JISE), and *Journal of Advanced Computational Intelligence and Intelligent Informatics* (JACIII). He also guest edited IEEE TCIAIG, *Applied Intelligence*, *Journal of Internet Technology* (JIT), and IJFS. According to Google Scholar, Prof. Lee has published over 150 papers and his papers' cited number on Google Scholar is over 3400. His h-index and i10-index are 28 and 61, respectively.

Prof. Lee was awarded the outstanding achievement in Information and Computer Education & Taiwan Academic Network (TANet) by Ministry of Education of Taiwan in 2009 and the excellent or good researcher by National University of Tainan from 2010 to 2016. Additionally, he also served the general co-chair of 2015 IEEE Conference on Computational Intelligence and Games (IEEE CIG 2015), the general chair of the 2015 Conference on Technologies and Applications of Artificial Intelligence (TAAI 2015), the program chair of the 2011 IEEE International Conference on Fuzzy Systems (FUZZ-IEEE 2011), and the competition chair of the FUZZ-IEEE 2013, the competition co-chair of the FUZZ-IEEE 2015, FUZZ-IEEE 2017, 2016 IEEE World Congress on Computational Intelligence (IEEE WCCI 2016), and IEEE WCCI 2018. He is also a member of the Program Committees of more than 50 conferences. He is a senior member of the IEEE CIS, a member of the Taiwanese Association for Artificial Intelligence (TAAI), and the Software Engineering Association Taiwan. He has been a member of the standing committee of TAAI for over five years and one of the standing supervisors of Academia-Industry Consortium for Southern Taiwan Science Park from 2012 to 2013.

## **Current Position**

- Professor of Dept. of Computer Science and Information Engineering, National University of Tainan, Taiwan.
- *Associate Editor, IEEE Transactions on Games (IEEE Transactions on Computational Intelligence and AI in Games, IEEE TCIAIG, SCI)*, 2009-Present.
- *Associate Editor: Journal of Ambient Intelligence & Humanized Computing*, Springer-Verlag Press, 2009-Present.
- *Editorial Board: Soft Computing (SCI)*, Springer-Verlag Press, 2012-Present.
- *Associate Editor: International Journal of Fuzzy Systems (IJFS, SCI)*, Springer-Verlag Press since 2015, 2012-Present.
- *Associate Editor: Journal of Information Science and Engineering (JISE)*, 2013-Present.
- *Editorial Board: Applied Intelligence (SCI)*, 2006-Present.
- Editor Board, *The Journal of Advanced Computational Intelligence and Intelligent Informatics (JACIII)*, 2008-Present.

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IEEEExplore: **Publications on IEEEExplore Digital Library**

## **Education**

June 1998: Ph.D. in Computer Science, National Cheng Kung University, Taiwan.

## **Field of Expertise**

- Artificial Intelligence  
Intelligent Agent / Ontology Applications / Fuzzy Theory & Application / Machine Learning
- Internet Application  
Semantic Web / CMMI / Fuzzy Markup Language / Image Processing
- Human and Smart Machine Co-Learning  
Item Response Theory / Adaptive Assessment / Intelligent Robot Applications / Serious Games

## **Professional Experience**

- February 2008-Present: Professor of Dept. of Computer Science and Information Engineering, National University of Tainan, Tainan, Taiwan.
- January 2011-July 2015: Dean of Research & Development Office, National University of Tainan, Tainan, Taiwan.
- January 2006-July 2011: Director of Computer Center, National University of Tainan, Tainan, Taiwan.
- August 2005-January 2008: Associate Professor of Dept. of Computer Science and Information Engineering, National University of Tainan, Tainan, Taiwan.
- August 2003-July 2005: Associate Professor, Department of Information Management, Chang Jung Christian University, Taiwan
- August 2001-July 2003: Assistant Professor, Department of Information Management, Chang Jung Christian University, Taiwan.

## List of Selected Journal Paper Publications

### ⇒ Technical Journal Paper

- [C. S. Lee\\*](#), M. H. Wang, C. S. Wang, O. Teytaud, J. L. Liu, S. W. Lin, and P. H. Hung, "PSO-based fuzzy markup language for student learning performance evaluation and educational application," *IEEE Transactions on Fuzzy Systems*, 2018. (DOI: 10.1109/TFUZZ.2018.2810814) (Accepted on Feb. 24, 2018)
- [C. S. Lee\\*](#), M. H. Wang, S. C. Yang, P. H. Hung, S. W. Lin, N. Shuo, N. Kubota, C. H. Chou, P. C. Chou, and C. H. Kao, "FML-based dynamic assessment agent for human-machine cooperative system on game of Go," (SCI) *International Journal of Uncertainty, Fuzziness and Knowledge-Based Systems*, vol. 25, no. 5, pp. 677-705, 2017.
- [C. S. Lee\\*](#), M. H. Wang, Y. C. Hsiao, B. H. Tsai, "Ontology-based GFML agent for patent technology requirement evaluation and recommendation," (SCI) *Soft-Computing*, 2017. (DOI: 10.1007/s00500-017-2859-1)
- [C. S. Lee\\*](#), M. H. Wang, S. J. Yen, T. H. Wei, I. C. Wu, P. C. Chou, C. H. Chou, M. W. Wang, and T. H. Yang, "Human vs. computer Go: review and prospect," (SCI) *IEEE Computational Intelligence Magazine*, vol. 11, no. 3, pp. 67-72, Aug. 2016.
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- C. W. Chou, P. C. Chou, J. J. Christophe, A. Couetoux, P. D. Freminville, N. Galichet, [C. S. Lee](#), J. L. Liu, D. L. Saint-Pierre, M. Sebag, O. Teytaud, M. H. Wang, L. W. Wu, and S. J. Yen, "Strategic choices in optimization," (SCI) *Journal of Information Science and Engineering*, vol. 30, no. 3, pp. 727-747, May 2014.
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- C. H. Liu, [C. S. Lee\\*](#), M. H. Wang, Y. Y. Tseng, Y. L. Kuo, and Y. C. Lin, "Apply fuzzy ontology and FML to knowledge extraction for university governance and management," *Journal of Ambient Intelligence and Humanized Computing*, vol. 4, no. 4, pp. 493-513, 2013.
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- [C. S. Lee\\*](#), M. H. Wang, S. J. Yen, Y. J. Chen, C. W. Chou, G. Chaslot, J. B. Hoock, A. Rimmel, and H. Doghmen, "An ontology-based fuzzy inference system for computer Go applications," (SCI) *International Journal of Fuzzy Systems*, vol. 12, no. 2, pp. 103-115, Jun. 2010.
- [C. S. Lee\\*](#), M. H. Wang, G. Acampora, C. Y. Hsu, and H. Hagrass, "Diet assessment based on type-2 fuzzy ontology and fuzzy markup language," (SCIE) *International Journal of Intelligent System*, vol. 25, no. 12, pp. 1187-1216, Dec. 2010.
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- [C. S. Lee\\*](#), M. H. Wang, C. Chaslot, J. B. Hoock, A. Rimmel, O. Teytaud, S. R. Tsai, S. C. Hsu, and T. P. Hong, "The computational intelligence of MoGo revealed in Taiwan's computer Go tournaments," (SCI) *IEEE Transactions on Computational Intelligence and AI in Games*, vol. 1, no. 1, pp. 73-89, 2009.
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- S. M. Guo, [C. S. Lee](#), and C. Y. Hsu, "An Intelligent Image Agent based on Soft-Computing Techniques for Color Image Processing," (SCI) *Expert Systems with Applications*, vol. 28, no. 3, pp. 483-494, 2005.

- Y. H. Kuo, **C. S. Lee**, S. M. Guo, and Y. H. Chen, "Apply object-oriented Technology to construct Chinese news ontology on Internet," (**EI**) *Journal of Internet Technology*, vol. 6, no. 4, pp. 385-394, 2005.
- **C. S. Lee**, Y. H. Kuo, C. H. Liao, and Z. W. Jian, "A Chinese term clustering mechanism for generating semantic concepts of a news ontology," *International Journal of Computational Linguistics and Chinese Language Processing*, vol. 10, no. 2, pp. 277-302, 2005.
- **C-S Lee**, J-C Du, Z-W Jian, Y-H Kuo, and C-K Hung, "Ontology-based Measurement and Analysis Web Service for Supporting CMMI Level 2 Assessment," *WSEAS Transactions on Information Science and Applications, Issue 6*, vol. 1, pp. 1569-1574, Dec., 2004.
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- **C-S Lee**, C-P Chen, H-J Chen, and Y-H Kuo, "A Fuzzy Classification Agent for Personal e-News Service," (**EI**) *International Journal of Fuzzy Systems*, vol. 4, no. 4, pp. 849-856, Dec. 2002.
- Y-H Kuo, **C-S Lee** and C-L Chen, "High-stability AWFM filter for signal restoration and its hardware design," (**SCI**) *Fuzzy Sets and Systems*, vol. 114, no. 2, pp. 185-202, 2000.
- **C-S Lee** and Y-H Kuo, "The Important Properties and Applications of AWFM Filter," (**SCI**) *International Journal of Intelligent Systems*, vol. 14, pp.253-274, 1999.
- Y-H Kuo, **C-S Lee**, and C-L Chen, "Multi-dimensional WFM Filter and Its Hardware Realization for Impulse Noise Removal," (**EI**) *Proceedings of NSC*, vol. 22, no. 5, pp. 677-690, 1998.
- **C-S Lee**, Y-H Kuo, and P-T Yu, "Weighted Fuzzy Mean Filters for Image Processing," (**SCI**) *Fuzzy Sets and Systems*, vol. 89, no. 2, pp.157-180, Jul. 1997.

⇒ **Report Journal Paper**

- **C. S. Lee\***, M. H. Wang, L. W. Ko, N. Kubota, L. A. Lin, S. Kitaoka, Y. T Wang, and S. F. Su, "Human and smart machine co-learning with brain computer interface @ IEEE SMC 2017," *IEEE Systems, Man, and Cybernetics Magazine*, 2018. (DOI: 10.1109/MSMC.2017.2785441)
- **C. S. Lee\***, O. Teytaud, M. H. Wang, and S. J Yen, "Computational Intelligence Meets Game of Go @ IEEE WCCI 2012," (**SCI**) *IEEE Computational Intelligence Magazine*, vol. 7, no. 4, pp. 10-12, Nov. 2012.
- **C. S. Lee\***, M. H. Wang, O. Teytaud, and Y. L. Wang, "The Game of Go @ IEEE WCCI 2010," (**SCI**) *IEEE Computational Intelligence Magazine*, vol. 5, no. 4, pp. 6-7, Nov. 2010.
- **C. S. Lee\***, M. Mueller, and O. Teytaud, "Special Issue on Monte Carlo Techniques and Computer Go", (**SCI**) *IEEE Transactions on Computational Intelligence and AI in Games*, vol. 2, no. 4, pp. 225-228. Dec. 2010.
- **C. S. Lee**, M. H. Wang, O. Teytaud, and S. J. Yen, "Human vs. machine Go competition in IEEE WCCI 2012," *ICGA Journal*, vol. 35, no. 4, pp. 230-236, Dec. 2012.
- S. J. Yen, S. Y. Chiu, C. W. Chou, **C. S. Lee**, H. Doghmen, F. Teytaud, and O. Teytaud, "Human vs. computer Go competition in FUZZ-IEEE 2011," *ICGA Journal*, vol. 34, no. 4, pp. 243-247, Dec. 2011.
- M. H. Wang, **C. S. Lee\***, Y. L. Wang, M. C. Cheng, O. Teytaud, and S. J. Yen, "The 2010 contest: MoGoTW vs. human Go players," (**SCI**) *ICGA Journal*, vol. 33, no. 1, pp. 47-50, Mar. 2010.
- S. Billouet, J. H. Hooek, **C. S. Lee**, O. Teytaud, and S. J. Yen, "First computer wins in 9x9 Go for black with komi 7.5," (**SCIE**) *ICGA Journal*, vol. 32, no. 4, pp. 241-246, Dec. 2009.
- S. J. Yen, **C. S. Lee**, and O. Teytaud, "Human vs. computer Go competition in FUZZ-IEEE 2009," (**SCIE**), *ICGA Journal*, vol. 32, no. 3, pp. 178-181, Sept. 2009.
- **C. S. Lee\***, M. H. Wang, Y. L. Wang, and S. C. Hsu, "The 2008 computational intelligence forum and the world 9x9 computer-Go championship in Taiwan," (**SCI**) *ICGA Journal*, vol. 31, no. 4, pp. 248-250, 2008.
- C. Chaslot, J. B. Hooek, A. Rimmel, O. Teytaud, **C. S. Lee**, M. H. Wang, S. R. Tsai, and S. C. Hsu, "Human-Computer Go Revolution 2008," (**SCIE**) *ICGA Journal*, vol. 31, no. 3, pp. 179-185, 2008.
- C. S. Lee, M. H. Wang, O. Teytaud, and S. J. Yen, "Human vs. machine Go competition in IEEE WCCI 2012," (**SCIE**) *ICGA Journal*, vol. 35, no. 4, pp. 230-236, 2012.
- S. J. Yen, S. Y. Chiu, C. W. Chou, C. S. Lee, H. Doghmen, F. Teytaud, and O. Teytaud, "Human vs. computer Go competition in FUZZ-IEEE 2011," (**SCIE**) *ICGA Journal*, vol. 34, no. 4, pp. 243-247, 2011.

## Distinctive Contributions

Note: The cited times were provided in Feb. 2018.

Professor Lee two most distinctive contributions are:

- **Fuzzy Ontology**

The nominee [1][2][3] made pioneering contributions to the theory and applications of fuzzy ontology. His contribution created a novel fuzzy ontology with fuzzy concepts and relations to describe the domain knowledge for solving the uncertainty reasoning problems. His work led to major original theoretical advances and practical realization in Chinese document summarization and other domain areas. These contributions had a lasting impact as follows. His publication in the area of fuzzy ontology is heavily cited based on Web of Science. Additionally, Prof. Lee's 28 results are found by searching fuzzy ontology topic in Web of Science where his 8 papers are ranked the 2nd, 6th, 12th, 15th, 17th, 19th, 22th, and 30th of 474 papers based on the times cites. The h-index fuzzy ontology topic is 36, the sum of times cited is 6109, and it has a yearly increasing tendency which shows the importance of this topic. His h-index is 28 and 22 in Google Scholar and Scopus, respectively. His total citations are 3440, and i10-index is 61 on Google Scholar. In the recent 5 years (since 2013), citations are 1555, h-index is 20, and i10-index is 39. He has led the applications of fuzzy ontology to many challenging problems, including image processing, Chinese news summarization, personal-diabetic-diet recommendation, software engineering, and game of Go. His papers "A fuzzy ontology and its application to news summarization published in 2005" and Automated ontology construction for unstructured text documents published in 2007" have been cited 210 and 185 times on Google Scholar, respectively.

- **Verification/Validation on Game of Go from 2008 to 2017**

The nominee made pioneering contributions to the real-world applications of fuzzy ontology combined with Item Response Theory (IRT), FML, Particle Swarm Optimization, Genetic Algorithm, and Type-2 Fuzzy Set. His contributions created ontology-based type-2 fuzzy logic systems to semantically analyze and evaluate the performance of the human on game of Go. He led the applications of fuzzy ontology to allow the computer Go program to automatically adapt its strength to its human opponent. These contributions had a strong impact as follows. His work on Human vs. Computer Go Competitions held at IEEE CIS / SMC-flagship conferences from 2009 to 2017 had led to major advances in fuzzy ontology-based computational intelligence to game of Go. He first proposed Verification and Validation Model of computer Go program level at CIS-flagship conferences and incorporated the techniques of fuzzy ontology, FML, T2 FS, and GA into the computer Go research area to evaluate the performance of the Go players. He led the applications of fuzzy ontology and FML to represent knowledge models for computer Go by deriving domain knowledge from professional Go players to transform them into the opening-book sequence and represent them by a computer Go ontology. Now the game of Go is solved by Google AlphaGo and AlphaGo Zero in 2017.

Professor Lee ranks near the top of those in his discipline because of his pioneering contributions to fuzzy ontology for real-world applications. Professor Lee's most distinctive publication (A fuzzy ontology and its application to news summarization, 2005) is heavily cited in the field of fuzzy ontology (370 times cited on Google Scholar, 1438 full text views on IEEEExplore Digital Library, and 1 US Patent citation). In addition to cooperation with international research institutes, Professor Lee goes further to cooperate with industries and governments to move his innovative research into various real-world applications. These contributions of unusual distinction have had a lasting impact. Finally, one of the Google AlphaGo team members, Dr. Aja Huang's Computer Go program Eric, was invited to attend the "Human vs. Computer Go Competition" in IEEEWCCI2012 supported by IEEE CIS.

[1] <https://orcid.org/0000-0002-4743-2746> (ORCID)

[2] <https://www.scopus.com/authid/detail.uri?authorId=26435840500> (Scopus)

[3] <https://scholar.google.co.jp/citations?user=5Ei0evEAAA&hl=en?&oi=ao> (Google Scholar)

## **Technical Accomplishments**

The cited times were provided in Feb. 2018.

### • **Part 1**

- Lee CS\*, Jian ZW, Huang LK (2005), A fuzzy ontology and its application to news summarization, IEEE Transactions on Systems, Man and Cybernetics Part B: Cybernetics, 35(5), 859-880.

He is one of the pioneers of fuzzy ontology. This paper is the most cited in the area of fuzzy ontology and summarization on Google Scholar (370 times) and Scopus (268 times) [1]. It was recognized as one of the seminal articles in this area whose times cited was ranked the 2nd one of 474 papers by searching fuzzy ontology topic, and has been cited into US patent (Number 8,140,535 B2). This paper presented major original theoretical advances by introducing a novel fuzzy ontology for solving the uncertainty reasoning problems. This paper has a long-lasting impact as it first represents the basis of fuzzy ontology combined with Chinese document summarization. Additionally, the theoretical and practical techniques described in this publication have directly led to the widespread of fuzzy ontology development. Professor Lee was a lead-author and he personally developed the theoretical and practical basis.

- Lee CS\*, Wang MH, Hagrais H (2010), A type-2 fuzzy ontology and its application to personal diabetic-diet recommendation, IEEE Transactions on Fuzzy Systems, 18(2), 374-395.

It has been cited 178 times in Google Scholar [2] and 1876 full text views on IEEEExplore digital library. The average citations per year is 12. In addition, its times cited was ranked the 6th one of 474 papers, and the first one of 16 papers by searching topics fuzzy ontology and type-2 fuzzy ontology, respectively, according to Web of Science. In addition, this paper was the first published paper based on the concepts of type-2 fuzzy ontology according to Web of Science. Its Cited References are 65 from all over the world, including Taiwan(29%), China(16%), Italy(10%), Spain(10%), USA(7%), India(7%), etc. Moreover, the h-index is 18 and the sum of citations is 1057. Words can mean different things to different people so a group of dieticians have a high possibility that they often propose a different diet goal for the same subject. This paper is the first journal paper to present a type-2 fuzzy ontology to represent the knowledge of the food item, personal profile, and personal food. Additionally, this paper also used human readable languages to present the knowledge of recommended servings of the six food groups and menus based on T2 FSs to aggregate the different experts' opinions and handle the inter-expert uncertainties. This paper has a strong impact as it represents the basis for type-2 fuzzy ontology and applies the theory to a personal diabetic-diet recommendation and it is most cited in the fields of fuzzy ontology and diet on Google Scholar.

- Lee CS\*, Wang MH, Chaslot C, Hoock JB, Rimmel A, Teytaud O, Tsai SR, Hsu SC, Hong TP (2009), The computational intelligence of MoGo revealed in Taiwan's computer Go tournaments, IEEE Transactions on Computational Intelligence and AI in Games, 1(1), 73-89.

This paper revealed that MoGo, a computer Go program, reached 3-Dan level in the held event activities in Taiwan in 2008. This paper is highly cited on Google Scholar (160 times) and on Scopus (98 times) [3]. This paper has a lasting-impact as it opens the door to (1) use fuzzy ontology model to represent the knowledge of the game of Go, (2) strengthen computer Go program, (3) advocate research, development, and application of computer games' related fields, and (4) first proposed a validation and verification model to estimate the computer Go program level based on human intelligence. Additionally, it also urges Professor Lee to hold many Human vs. Computer Go Competitions at IEEE CIS / SMC-flagship conferences from 2009 to 2017 which simultaneously makes domain experts to solve very challenging problems with Go based on the techniques of computational intelligence until Google DeepMind AlphaGo beat the top professional human Go players in 2016 and 2017, which also adopted the same verification/ validation model to prove the level of computer Go program based on human intelligence.

### • **Part 2**

- Lee CS\*, Kao YF, Kuo YH, Wang MH (2007), Automated ontology construction for unstructured text documents, Data & Knowledge Engineering,60(3),547-566. It has been cited 185 times in Google Scholar and ranked 6th in the topic fuzzy ontology based on the times cited of Web of Science.
- Lee CS\*, Wang MH, Wu MJ, Teytaud O, Yen SJ (2015), T2FS-based adaptive linguistic assessment system for semantic analysis and human performance evaluation on game of Go, IEEE Transactions on Fuzzy Systems,23(2),400-420. This paper is the pioneer to incorporate the techniques of fuzzy ontology, FML, T2FS, and GA into the computer Go to evaluate the performance of the Go players.
- CS Lee, YH Kuo, PT Yu (1997) Weighted fuzzy mean filters for image processing, Fuzzy Sets and systems,89(2),157-18 (210 times cited on Google Scholar)
- CS Lee, MH Wang (2011) A fuzzy expert system for diabetes decision support application, IEEE Transactions on SMC-B, 41(1), 139-153 (161 times cited on Google Scholar and 4942 full text views on IEEE Xplore digital library)



- CS Lee, MH Wang, JJ Chen (2008), Ontology-based intelligent decision support agent for CMMI project monitoring and control, *International Journal of Approximate Reasoning* 48(1), 62-76 (105 times cited on Google Scholar)
- CS Lee, SM Guo, CY Hsu (2005), Genetic-based fuzzy image filter and its applications to image processing, *IEEE Transactions on SMC-B*, 35, 694-711 (84 times cited on Google Scholar)
- CS Lee, CY Pan (2004), An intelligent fuzzy agent for meeting scheduling decision support system, *Fuzzy Sets and Systems* 142(3), 467-488 (82 times cited on Google Scholar)
- A Rimmel, O Teytaud, CS Lee, SJ Yen, MH Wang, SR Tsai (2010), Current frontiers in computer Go, *IEEE Transactions on Computational Intelligence and AI in Games* 2(4), 229-238 (75 times cited on Google Scholar)
- CS Lee, CC Jiang, TC Hsieh (2006), A genetic fuzzy agent using ontology model for meeting scheduling system, *Information Sciences* 176 (9), 1131-1155 (74 times cited on Google Scholar)
- CS Lee, MH Wang, G Acampora, CY Hsu, H Hagrais (2010), Diet assessment based on type-2 fuzzy ontology and fuzzy markup language, *International Journal of Intelligent Systems* 25 (12), 1187-1216 (63 times cited on Google Scholar)

## **Honour & Award**

### **1. Academic Committee Chair/Vice-Chair**

- IEEE CIS Summer Schools Chair (2018).
- IEEE Computational Intelligence Society (CIS) Emergent Technologies Technical Committee (ETTC) Chair (2009-2010).
- IEEE CIS ETTC Vice-Chair (2008).
- IEEE CIS Tainan Chapter Vice-Chair (2013/8~2015/7).
- IEEE CIS Tainan Chapter Chair (2015/8~2017/7).
- IEEE CIS Taipei Chapter Vice-Chair (2012).

### **2. Associate Editor**

- IEEE Transactions on Computational Intelligence and AI in Games, IEEE, USA (2009-Present)
- Applied Intelligence, Springer (2006-Present).
- International Journal Fuzzy Systems, Springer-Verlag Press since 2015 (2011-Present).
- Journal of Information Science and Engineering (JISE), Taiwan (2013-Present).
- Journal of Ambient Intelligence & Humanized Computing, Springer (2011-Present).
- Soft Computing, Springer (2012-Present).

### **3. Guest Editor**

- IEEE Transactions on Computational Intelligence and AI in Games, 2010 and 2016.
- Soft Computing, 2010 and 2014.
- International Journal of Fuzzy Systems, 2009.
- Journal of Internet Technology, 2008.

### **4. PhD External Examiner in Nanyang Technological University, Singapore, 2008.**

### **5. PhD External Examiner in University of New South Wales, Australia, 2012.**

### **6. Panelist/Invited Talk/Chair**

- Invited Tutorial
  - IEEE Symposium Series on Computational Intelligence 2011(IEEE SSCI 2011): Tutorial on Intelligent Agents for Games and Computer Go, France.
  - 2016 World Congress on Computational Intelligence (IEEE WCCI 2016): Tutorial on Type-2 Fuzzy Ontology and Fuzzy Markup Language for Real-World Applications, Canada.
- Invited Talk
  - Plenary speaker on “Intelligent Agent for Human and Machine Co-Learning on Game of Go,” 2017 IEEE Symposium on Computational Intelligence on Intelligent Agents (IA 2017), Hawaii, USA, 2017

- IEEE WCCI 2010: Workshop on Emergent Application of Computational Intelligence in Computer Go, July, 2010.
- The 8th International Symposium on advanced Intelligent Systems (ISIS 2007), Sokcho City, Korea, September, 2007.
- The 6th International Conference on Soft Computing and Intelligent Systems and The 13th Symposium on Advanced Intelligent Systems (SCIS-ISIS 2012), Kobe Convention Center, Kobe, Japan, November, 2012.
- The Dual Taiwan-Israel Research Symposium on Artificial Intelligence and Learning Algorithms, Israel, December, 2011.
- The 14th International Symposium on advanced Intelligent Systems (ISIS 2013), Daejeon, Korea, November, 2013.
- The 2nd International Symposium on Advanced Intelligent Maritime Safety and Technology (Ai-MAST 2014), Mokpo, Korea, May 15-17, 2014.
- JAIST Symposium on Game and Entertainment Technology and Its Application, JAIST, Japan, September, 2016.
- Activity Chair
  - 2017 IEEE International Conference on Systems, Man, and Cybernetics (IEEE SMC 2017): Human and Smart Machine Co-Learning
  - 2017 IEEE International Conference on Fuzzy Systems (FUZZ-IEEE 2017): FML-based Machine Learning Competition for Human Prediction and Applications on Game of Go
  - 2016 IEEE World Congress on Computational Intelligence (IEEE WCCI 2016): FML-based Applications to Social Media Competition, Canada, July, 2016.
  - The 2015 Conference on Technologies and Applications of Artificial Intelligence (TAAI 2015): Human vs. Computer Go Competition, Taiwan, November, 2015.
  - 2015 IEEE Conference on Computational Intelligence and Games (IEEE CIG 2015): Human vs. Computer Go Competition, Taiwan, August, 2015.
  - 2015 IEEE International Conference on Fuzzy Systems (FUZZ-IEEE 2015): Human vs. Computer Go Competition, Turkey, August, 2015.
  - 2013 IEEE International Conference on Fuzzy Systems (FUZZ-IEEE 2013): Human vs. Computer Go Competition, India, July, 2013.
  - The 2012 Conference on Technologies and Applications of Artificial Intelligence (TAAI 2012): Human vs. Computer Go Competition, Taiwan, November, 2012.
  - 2012 IEEE World Congress on Computational Intelligence (IEEE WCCI 2012): Human vs. Computer Go Competition, Australia, June, 2012.
  - 2011 IEEE International Conference on Fuzzy Systems (FUZZ-IEEE 2011): Human vs. Computer Go Competition, Taiwan, June, 2011.
  - 2011 IEEE Symposium Series on Computational Intelligence (IEEE SSCI 2011): Human vs. Computer Go Competition, France, April, 2011.
  - 2011 IEEE Symposium Series on Computational Intelligence (IEEE SSCI 2011): Tutorial on Intelligent Agents for Games and Computer Go, France, April, 2011.
  - 2010 IEEE World Congress on Computational Intelligence (IEEE WCCI 2010): Human vs. Computer Go Competition, Spain, July, 2010.
  - 2010 IEEE World Congress on Computational Intelligence (IEEE WCCI 2010): Workshop on Emergent Application of Computational Intelligence in Computer Go, Spain, July, 2010.
  - 2009 IEEE International Conference on Fuzzy Systems (FUZZ-IEEE 2009): Panel, Invited Sessions, and Human vs. Computer Go Competition, Korea, August, 2009.

- **Panelist**
    - 2009 IEEE International Conference on Fuzzy Systems (FUZZ-IEEE 2009): Panel, Invited Sessions, and Human vs. Computer Go Competition, Korea, August, 2009.
    - 2009 IEEE Symposium Series on Computational Intelligence (IEEE SSCI 2009), Nashville, Tennessee, USA, April, 2009.
  - **Program Chair**
    - 2011 IEEE International Conference on Fuzzy Systems (FUZZ-IEEE 2011), Taipei, Taiwan.
  - **Competition Chair**
    - 2013 IEEE International Conference on Fuzzy Systems (FUZZ-IEEE 2013), Hyderabad, India.
  - **Competition Co-Chair**
    - 2018 World Congress on Computational Intelligence (IEEE WCCI 2018), Brazil.
    - 2016 World Congress on Computational Intelligence (IEEE WCCI 2016), Vancouver, Canada.
    - 2015 IEEE International Conference on Fuzzy Systems (FUZZ-IEEE 2015), Istanbul, Turkey.
  - **General Co-Chair**
    - 2015 IEEE Conference on Computational Intelligence and Game (IEEE CIG 2015), Taiwan.
  - **General Chair**
    - The 2015 Conference on Technologies and Applications of Artificial Intelligence (TAAI 2015), Tainan, Taiwan.
  - **Committee Member**
    - IEEE FSTC Member, 2015-2017
    - IEEE CIS ETTC Member, 2008-Present.
    - IEEE CIS Student Games-Based Competition Committee Member, 2013.
    - IEEE CIS FML Standardization Workgroup Member, 2012-Present.
7. **Advisory Board**, 9th International Conference on Intelligent Systems Design and Applications (ISDA 2009), Pisa, Italy, 2009.
  8. **IEEE Senior Member**, 2009.
  9. Awarded Outstanding Achievement in Technical Development and Application Award for Taiwan Academic Network (TANet) by Ministry of Education, Taiwan, in 2009.
  10. Awarded Excellent Researcher Award by National University of Taiwan, Taiwan, in 2010-2011, 2013, and 2015.
  11. Awarded Good Researcher Award by National University of Taiwan, Taiwan, in 2012 and 2014.
  12. **Committee Member**
    - IEEE CIS FSTC, 2016.
    - IEEE CIS Intelligent Agent Task Force, 2006-2008.
    - IEEE SMC Technical Committee on Intelligent Internet Systems (TCIIS), 2008-2009.
    - IEEE CIS FML Standardization Workshop Member, 2012-Present.
    - IEEE CIS ETTC Member, 2008-Present.
    - IEEE CIS Student Games-Based Competition Committee Member, 2013
  13. Session Best Presentation Award: Joint 3rd International Conference on Soft Computing and Intelligent Systems and 7th International Symposium on advanced Intelligent Systems (SCIS & ISIS), Japan, 2006.
  14. Distinguished Paper, Japan-Cambodia Joint Symposium on Information Systems and Communication Technology (JCAICT 2011)
  15. Excellent Paper, The 2012 Conference on Technologies and Applications of Artificial Intelligence (TAAI 2012), Tainan, Taiwan, Nov. 16-18, 2012.
  16. 2011 Steering Committee Member, University Assessment, National Cheng Kung University, Taiwan
  17. 2011 Self-Assessment Committee Member, University Assessment, Central Police University, Taiwan

**Teaching Course**

- Introduction to Computer Science
- Fuzzy Logic and Theory
- Software Engineering
- CMMI
- Intelligent Agent
- Machine Learning
- Artificial Intelligence
- Algorithm
- Discrete Mathematics
- Linear Algebra
- Probability and Statistics
- Knowledge Management
- Information Management

**Research Project****Academic Research Projects**

Cooperated Organizations	Name	Period
National Science Council, Taiwan Ministry of Science and Technology, Taiwan	Intelligent IRT Robot and Humans Co-Learning on Education and Learning Applications (1/3) MOST 106-3114-E-024-001	2017/06~2018/05
	Study and Applications on Integrating FML-based Robot Agent and Deep Learning Model MOST 106-2221-E-024-019	2017/08~2018/07
	Semantic Web Technology based on Intelligence 4.0 and Its Application to Social Media MOST 105-2221-E-024-017	2016/08~2017/07
	Study and Construction on Intelligent IRT and Automatic Assembly Ontology Platform (2/3) MOST 105-2622-E-024-003-CC2	2016/11~2017/10
	Computational Intelligence and Decision Making MOST 104~106-2911-I-024 -501	2015/01~2017/12
	Intelligent Assessment Agent based on Next-Generation Markup Language and Its Application to Self-Regulated Learning MOST 104-2221-E-024-015	2015/08~2016/07
	Study and Construction on Intelligent IRT and Automatic Assembly Ontology Platform (1/3) MOST 104-2622-E-024-005-CC2	2015/11~2018/10
	Study on student learning literacy modeling and assessment/recommendation mechanism based on computational intelligence MOST 103-2221-E-024-008	2014/08~2015/07
	Intelligent Decision Making Mechanisms with Hidden Information and Application to Electricity Generation (3/3) NSC 103-2911-I-024-501	2014/01~2014/12
	Study on integrating T2FS with malware analysis platform NSC 102-2221-E-024-005	2013/08~2014/07
	Intelligent Decision Making Mechanisms with Hidden Information and Application to Electricity Generation (2/3) NSC 102-2911-I-024-501	2013/01~2013/12
	Adaptive Type-2 Fuzzy Ontology for Intelligent Living Applications Information NSC 101-2221-E-024-025	2012/7~2013/8
Including Ontology in Monte-Carlo Tree Search with Applications (International cooperation project with Dr. Olivier Teytaud) NSC 99-2923-E-024-003-MY3	2010/01~2013/04	

	Intelligent Decision Making Mechanisms with Hidden Information and Application to Electricity Generation (1/3) NSC 101-2911-I-024-501	2012/01~2012/12
	Type-2 Fuzzy Ontology based Intelligent Agent for Healthcare Application, including an international cooperation project with Professor Kaoru Hirota, Professor Vincenzo Loia and Professor Hani Hagraas NSC 98-2221-E-024-009-MY3	2009/08~2012/10
	FML-based Intelligent Agent for Domain Ontology Construction and Application NSC 99-2622-E-024-003-CC3	2010/11~2011/10
	2010 Initiative Research Cooperation among Top Universities between UK and Taiwan: Type-2 Fuzzy Ontology Model and Its Applications with Professor Hani Hagraas NSC 99-2911-I-024-004	2010/12~2012/04
	Visiting Science and Technology Personnel: Dr. Olivier Teytaud (NSC100-2811-E-024-001)	2011/08~2012/07
	Ontology-based Intelligent Agent for CMMI Knowledge Management, including an international cooperation project with Professor Vincenzo Loia and Professor Hani Hagraas	2008/08~2010/07
	A Study on Ontology-based Knowledge Management Techniques for CMMI Assessment (II)(III)	2006/08 ~ 2008/07
	Study and Construction for Ontology-based Intelligent Healthcare Web Service	2006/08 ~ 2007/07
	A Study on Ontology-based Knowledge Management Techniques for CMMI Assessment	2005/08 ~ 2006/07
	Integrated Support for Mobile Web Service: Development of Intelligent Classification and Mobile Delivery Web Service (III)	2004/08 ~ 2005/12
	Integrated Support for Mobile Web Service: Development of Intelligent Classification and Mobile Delivery Web Service (II)	2003/08 ~ 2004/07
	Integrated Support for Mobile Web Service: Development of Intelligent Classification and Mobile Delivery Web Service (I)	2002/08 ~ 2003/07
	An intelligent image agent based on PACS system	2001/08 ~ 2002/07
Ministry of Education, Taiwan	<b>Project for the Implementation of Remedial Instruction</b>	<b>2015/03-2018/07</b>
	Project for the Implementation of Remedial Instruction	2013/02-2015/02
	Project for the Implementation of Remedial Instruction System Transfer and Remote Backup System Construction	2014/05-2015/02
	Project for the Implementation of Remedial Instruction	2011/02-2013/01
	After School Alternative Program (ASAP)	2009/01-2010/12
	After School Alternative Program (ASAP)	2007/09~2008/12
	E-Campus Consultation and Assistance	2006/01 ~ 2006/12
	Promoting the Education Infrastructure for E-Business: Subproject (IV)-Implement result of “High Efficiency Computing and Communication” course	2001/09 ~ 2004/08
Kaohsiung City Government, Taiwan	Intelligent Personal Service System based on Fuzzy Neural Network	2000/08 ~ 2001/07
	Computerized Adaptive Assessment System Construction	2014/6~2015/12
e-Enabling Data Center, Aspire Park, Longtan, Taoyuan, Taiwan	Malware Analysis Platform	2012/05~2012/10
Industrial Technology Research Institute (ITRI), Taiwan	A Study on Inference Engine for Smart Home Application	2006/04 ~ 2006/07
Institute for Information Industry (III), Taiwan	A Study on Dynamic Analysis Model for Personalized Healthcare	2007/05 ~ 2007/12
	A Study on Automatic Recognition Technology for Respiratory Waveform	2006/03 ~ 2006/12
	A Study on Construction and Extraction Technology for Heterogonous Healthcare Information Model	2005/03 ~ 2005/12
	A Study on the Text Mining Agent with the Capabilities of Inference and Automatic Learning	2003/05 ~ 2003/12
	A Retrieval and Construction Technology for Semantic-based Domain	2002/05 ~ 2002/12

	Ontology	
	A study on the Technology for Automatic Document Classification	2001/04~ 2001/12
Ministry of Economic Affairs/National Central, Taiwan	Service-Oriented Information Marketplace Sub-Project IV: CMMI Assistant Tools (IV)	2007/01 ~ 2007/12
	Service-Oriented Information Marketplace Sub-Project IV: CMMI Assistant Tools (III)	2006/01 ~ 2006/12
	Service-Oriented Information Marketplace Sub-Project IV: CMMI Assistant Tools (II)	2005/01 ~ 2005/12
	Service-Oriented Information Marketplace Sub-Project IV: CMMI Assistant Tools (I)	2004/01 ~ 2004/12

## Patent

<ul style="list-style-type: none"> <li>Apply Fuzzy Markup Language to Co-Learning Progress Assessment Method (Number I587252, Taiwan, 2017.06-2036.06)</li> <li>Apply Fuzzy Markup Language to Intelligent Adaptive Assessment System and Method (Number I529650, Taiwan, 2016.04-2035.02)</li> <li>Intelligent Network Monitoring System (Patent no. I423619, Taiwan, 2014.01-2029.10)</li> <li>Apply Fuzzy Markup Language to Learning Testing System (Patent no. I428866, Taiwan, 2014.03-2030.09)</li> <li>Apply Fuzzy Markup Language to Learning Attitude Evaluation System (Patent no. I437521, Taiwan, 2014.05-2030.09)</li> <li>Apply Fuzzy Markup Language to University Assessment (Patent no. I438713, Taiwan, 2014.05-2031.09)</li> <li>Apply Fuzzy Markup Language to Intelligent Adaptive Assessment System and Method (Patent no. I529650, Taiwan, 2016.04-2035.02)</li> <li>System and Method for the Summarization of Software Quality Documents (Patent no. I357023, Taiwan, 2012.01-2027.09)</li> <li>System and Method for Automatically Updating the location of R Wave of the Electrocardiogram (Patent no. I332828, Taiwan, 2010.11-2026.12)</li> <li>An approach for Ontology Traceability Construction (Patent no. I292106, Taiwan, 2008.01-2025.9)</li> <li>Systems and Methods for Automated Ventilator Waveform Recognition and Measure based on Ontologies (Patent no. I270363, Taiwan, 2007.01-2025.12)</li> <li>An Ontology Construction Mechanism and System based on Episode Net (Patent no. I275009, Taiwan, 2007.03-2024.08)</li> <li>Systems and Methods for Automated Chinese Ontology Construction (Patent no. I225997, Taiwan, 2005.01-2022.01)</li> <li>An Approach for Documents Classification (Patent no. 199243, Taiwan, 2004.03-2022.08)</li> <li>Automatic Ontology Construction System and Approach (Patent no. 205837, Taiwan, 2004.06-2022.10)</li> <li>Design and Hardware Synthesis of Adaptive Weighted Fuzzy Mean Image Filter (Patent no. US6,535,860B1, USA, 2003.03-2019.08)</li> <li>Design and Hardware Synthesis of Adaptive Weighted Fuzzy Mean Image Filter (Patent no. 111053, Taiwan, 2000.01-2017.01)</li> </ul>
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## Industry-University Cooperative Projects

Cooperative Enterprises	Name	Period
<b>Study and Construction on Intelligent IRT and Automatic Assembly Ontology Platform</b>	<b>HAMASTAR TECHNOLOGY CO., LTD., Taiwan</b>	<b>2015/11~2018/10</b>
National Cheng Kung University/Walsin Lihwa Corp. Center for Research of E-life Digital Technology	R & D Knowledge Management System (II)	2000/01~ 2003/12
	XML-based Intelligent Agent	2000/08~ 2004/07
FML-based Intelligent Agent for Domain Ontology Construction and Application	HAMASTAR TECHNOLOGY CO., LTD., Taiwan	2010/11~2013/10

## Technical Transfer

Technical Name: Ontology-based Intelligent Decision Support Agent

Authorization Affiliation: National Central University, Taiwan

Authorized Affiliation: Software Engineering Research Center of National Cheng Kung University, Taiwan

Contract Period: 2007/8~2008/7

## **List of Selected International Conference Paper Publications**

- **C. S. Lee**, M. H. Wang, S. Y. Lai, N. Shuo, N. Kubota, “FML-based Linguistic Classification Agent for Social Media Application,” 2017 IEEE International Conference on Fuzzy System (FUZZ-IEEE 2017), Naples, Italy, Jul. 9-12, 2017.
- **C. S. Lee**, M. H. Wang, C. Y. Wang, N. Shuo, N. Kubota, “FML-based Robotic Summarization Agent and Its Application,” 2017 IEEE International Conference on Fuzzy System (FUZZ-IEEE 2017), Naples, Italy, Jul. 9-12, 2017.
- **C. S. Lee**, M. H. Wang, C. H. Kao, S. C. Yang, Y. Nojima, R. Saga, N. Shuo, N. Kubota, “FML-based Prediction Agent and Its Application to Game of Go,” Joint 17th World Congress of International Fuzzy Systems Association and 9th International Conference on Soft Computing and Intelligent Systems (IFSA-SCIS 2017), Otsu, Japan, Jun. 27-30, 2017.
- **C. S. Lee**, M. H. Wang, K. H. Lin, S. C. Yang, and T. T. Lin, “GFML-based IRT agent for online self-learning platform construction,” 2016 World Congress on Computational Intelligence (IEEE WCCI 2016), Vancouver, Canada, Jul. 24-29, 2016.
- **C. S. Lee**, M. H. Wang, S. Nohara, K. Y. Wu, and R. Saga, “FML-based feature similarity assessment agent for Japanese/Taiwanese language learning,” 2016 World Congress on Computational Intelligence (IEEE WCCI 2016), Vancouver, Canada, Jul. 24-29, 2016.
- **C. S. Lee**, M. H. Wang, S. Y. Lai, K. C. Kao, and C. Y. Wang, “Intelligent investigation mechanism based on fuzzy markup language for social media application,” 2016 IEEE International Conference on Systems, Man, and Cybernetics (IEEE SMC 2016), Budapest, Hungary, Oct. 9-12, 2016.
- M. H. Wang, Y. C. Hsiao, B. H. Tsai, **C. S. Lee**, and T. T. Lin, “Fuzzy markup language with genetic learning mechanism for invention patent quality evaluation,” 2015 IEEE Congress on Evolutionary Computation (IEEE CEC 2015), Sendai, Japan, May 25-28, 2015.
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