

DR. DONGHAO HUANG

VP of R&D & Global Emerging Technology Lead at Mastercard | Executive-Scholar in AI

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Singapore Citizen | Patents: 10 granted, 50+ pending

PROFESSIONAL SUMMARY

Senior technology executive with 27+ years of experience across software engineering, Web3, AI/ML/GenAI, and payments innovation. Combines elite enterprise execution with cutting-edge academic research, having recently completed a Doctor of Engineering in AI at Singapore Management University. Author of 28 peer-reviewed papers and inventor of 60+ patents, specializing in translating advanced AI breakthroughs into scalable financial infrastructure.

EDUCATION

Aug 2023 – May 2026 Singapore Management University Singapore

Doctor of Engineering (EngD) in AI

- Doctoral dissertation: [*Generative AI in Enterprises: Optimizing Applications with Large Language Models*](#) (244 pp.). Supervisor: Prof. Zhaoxia Wang. Co-supervisor: Prof. Chong Wah Ngo.
- Awarded IMDA SG Digital Scholarship (Postgraduate) 2025
- Featured story: <https://computing.smu.edu.sg/engd/community-stories/engineering-future-ai-smu-engd-powers-innovation-global-technology-leader>
- Research focus: Retrieval-Augmented Generation (RAG), Edge AI, LLM and ML model optimization, multi-agent systems, sentiment analysis, reasoning LLMs
- Published 25 peer-reviewed papers at top AI conferences and journals (AAAI, AAMAS, NAACL, IJCNN, PAKDD, IEEE CAI, IEEE SSCI, IEEE ICDM, IEEE Intelligent Systems, Artificial Intelligence Reviews, ACM Computing Surveys)

Jan 2004 – Nov 2007 National University of Singapore Singapore

Master of Technology in Software Engineering

Sep 2001 – Aug 2002 Centre for Optoelectronics, NUS Singapore

Certificate, EDB Research and Training Programme

Sep 1998 – Jul 2001 Peking University Beijing, China

Master of Science in Theoretical Physics

- Published 2 peer-reviewed papers in physics journals

Sep 1989 – Jul 1995 Tsinghua University Beijing, China

Bachelor of Engineering in Engineering Physics

PROFESSIONAL EXPERIENCE

Aug 2025 – to date Mastercard (U.S.) Arlington, VA, USA

VP, R&D / Global EmTech Lead

- Lead global R&D initiatives in AI Emerging Technology (EmTech) domains

- Lead EmTech research for 5 strategic "Big Bets" projects – high-impact, confidential initiatives aimed at shaping Mastercard's next-generation payment infrastructure and AI-powered commerce solutions
- Conversational Payment Agent (CPA / ConvPayMAS) – built and led an agentic-commerce payment stack combining Google's A2A inter-agent protocol, the AP2 three-mandate chain (Intent → Cart → Payment) and MCP tool servers, with a hierarchical LangGraph supervisor routing card registration, selection, validation and charge workflows behind a PCI/PII guardrail agent. 3 papers published – PAKDD 2026 main conference, PAKDD 2026 AIDS4DF workshop, and AAMAS 2026 Demonstration Track; 3 patent applications filed.
 - Introduced the Agentic Success Rate (ASR) metric – a trajectory-fidelity measure comparing observed and expected agent transitions rather than final outcomes alone; a 90,000-instance evaluation (18 LLMs × 4 scenarios × 250 cases × 5 repeats, ~115M tokens) exposed 10 of 18 models silently skipping the payment confirmation checkpoint – a failure invisible to task-success and handoff metrics.
 - Used those diagnostics to lift payment task success on locally hosted open-weight models from 4.0% to 93.4% (Llama 3.1-8B) and 3.2% to 94.7% (Magistral-24B), closing most of the gap to GPT-4.1.
- GAIME (GenAI Merchant Enrichment) – lead the research program behind merchant information extraction and entity matching over Mastercard transaction descriptors, a production system processing millions of transactions daily. 1 paper published (PAKDD 2026 RAFDA workshop); 1 accepted (IEEE ICDM 2026); 1 under review (EACL 2027 Industry Track).
 - LoRA fine-tuned 24 model variants across four families (Gemma 3 270M–4B, Qwen 3.5 0.8B–4B, Aya 3.35B, Llama 3.1-8B) on 8,015 labeled transaction descriptors; matched the incumbent Llama-3.1-8B production baseline (96.95% F1) with a 4B model at 96.60% F1 — at half the parameter count and 1.2× faster effective inference, and deployed 14 variants as Databricks Model Serving endpoints via MLflow.
 - Benchmarked 46 LLM configurations across 8 entity-matching datasets – open-weight GPT-OSS-120B reaches 92.1 F1 at ~20× lower cost than GPT-5 at high reasoning effort – and identified local judge configurations matching the deployed production judge (F0.5 94.8) at half the latency.
- Organized and hosted SENTIRE'25 (15th Workshop on Sentiment Analysis and Linguistic Linked Data) co-located with IEEE ICDM 2025, November 13th, Washington DC.

May 2022 – Jul 2025 Mastercard Asia/Pacific Pte Ltd

Singapore

VP, R&D / Global EmTech Lead

- Lead global R&D initiatives in Emerging Technology (EmTech) domains: AI / Machine Learning / Generative AI and Web3.
- **AI/LLM/GenAI Initiatives:**
 - Led EmTech research for [Mastercard Assistant Platform](#) (MAP), a suite of digital assistants designed to simplify the customer onboarding process for Mastercard products
 - Built the initial Retrieval-Augmented Generation (RAG) prototype using LangChain, FAISS vector databases, and HuggingFace embeddings to power enterprise-grade knowledge systems.
 - Conducted early benchmarking of open-source LLMs (Llama 2, Orca 2) on NVIDIA A40 and L40 GPUs (48GB each), demonstrating 24-49% inference speed improvement on L40 vs A40.

- Developed a novel Repetition-aware Performance (RAP) evaluation framework for LLM quality assessment, now fully deployed in the MAP production environment.
- Led research on edge-aware LLM deployment using the Ollama framework across diverse hardware platforms (NVIDIA RTX A6000, NVIDIA RTX 4090, NVIDIA Jetson AGX Orin, Apple M-series—directly informing MAP's deployment strategy.
- Pioneered enterprise GenAI applications using LLMs (GPT-4/5, Claude, Llama, Qwen) for payments/commerce automation
 - Fine-tuned 70B+ parameter models (Llama-3.1-70B, Qwen2-72B) using QLoRA on multi-GPU setups (4× NVIDIA L40 GPUs) for Chinese-English translation and logical reasoning
 - Developed multi-agent systems for invoice reconciliation achieving 99.9% accuracy using edge-deployed LLMs (qwen2.5:32b)
 - Developed hierarchy multi-agent systems for conversational payment agent (HMASP) - first LLM-based multi-agent system to implement end-to-end agentic payment workflows, enabling external AI agents to converse and complete payments using natural language with minimal integration overhead
 - Developed CMAS4G2, a cooperative multi-agent system for automated Gherkin acceptance test generation using Microsoft's AutoGen Swarm framework; demonstrated open-weight models on consumer hardware (NVIDIA RTX 4090, 24GB VRAM) approach proprietary performance (GPT-OSS 20B: 87.6% success vs Claude Sonnet 4: 90.4%)
 - Created LLM-as-a-Judge (LAJ) evaluation framework achieving 47× cost reduction vs GPT-5 with negligible accuracy loss for automated test coverage assessment
 - Evaluated reasoning LLMs (DeepSeek-R1, Qwen3, GPT-OSS) for sentiment analysis with cross-platform performance benchmarking on NVIDIA H100, NVIDIA GeForce RTX 4090, Apple M3 Max
 - Developed energy efficiency metrics (Energy per Inference, Performance-to-Power Ratio) for sustainable AI deployment
- **Classical ML, Predictive & Risk Modeling Initiatives:**
 - Built financial decisioning pipelines combining classical ML models (Logistic Regression, SVM, Random Forest, XGBoost) with engineered and LLM-derived features — using grid-search hyperparameter tuning, 5-fold cross-validation, sequential feature selection, and log-loss probability calibration to drive risk-sensitive, Kelly-criterion bet sizing
 - Developed ensemble predictive models for ICO / crypto-project success (Naïve Bayes, SVM, Logistic Regression, Random Forest, CatBoost, neural networks) with sentiment- and engagement-based feature engineering
 - Benchmarked the full modeling spectrum — traditional ML (Random Forest, SVM with TF-IDF), deep learning (CNN, RNN, LSTM), and transformers (BERT, RoBERTa) — for fake-news detection and automated maritime risk classification, introducing a novel output-reliability metric, Ratio of Valid Categories
- **Web3 Initiatives:**
 - Developed Mastercard Tokenized Card NFT solution, enabling seamless tokenization of payment cards as Soul Bound Tokens (SBTs) into Web3 wallets
 - Enables users to store credit cards securely as non-transferable NFTs, providing publicly verifiable digital identity for web3 wallet addresses
 - Integrates with crypto exchanges, merchant partners, and payment acquirers through smart contract architecture

- Simplifies Web3 user onboarding by eliminating the need to switch between multiple applications and cumbersome digital wallet funding processes
- Developed DigiPay, a Web3 micropayment stablecoin solution leveraging Layer 2 blockchain and ERC-4337 account abstraction
 - Implemented Digicents smart contract token with high TPS, low-latency blockchain for fast, efficient, and affordable transactions
 - Built smart contract wallet accounts with auto-top-up and auto-withdrawal features, eliminating manual on-ramp/off-ramp processes
 - Integrated with Tokenized Card NFT for secure funding and transaction authentication within the Digicents ecosystem

Aug 2011 – May 2022 Mastercard Asia/Pacific Pte Ltd

Singapore

VP, R&D / Head of Singapore R&D

- Found and lead Singapore R&D team in Mastercard Foundry (previously known as Mastercard Labs) – Mastercard’s global innovation and R&D division; managing a high performing R&D team based in Singapore.
- Work on innovation and R&D in payment/commerce domains across lots of latest and cutting-edge technologies, including but not limited to, EMV Chip technologies, Internet of Things, QR Payments, Connected Car, Humanoid Robots, Conversational AI, AR/VR, Blockchain and Digital Assets, Web3, NFT, DeFi, Metaverse and so on
- Drive complex initiatives from idea through to commercialization hand-over; facilitate the transition of initiatives into Mastercard commercialization process
- As a champion for Technological Innovation, collaborate with various partners (internal departments, external partners, universities) to ensure Mastercard attains a reputation for technological excellence in the Payments space
- **Key Commercialized Projects**
 - Nov 2021: Mastercard partners with city of New Orleans and MoCaFi to announce Crescent City Card program: <https://www.mastercard.com/news/press/2021/november/mastercard-partners-with-city-of-new-orleans-and-mocafi-to-announce-crescent-city-card-program/>
 - Sep 2020: Mastercard partners with Samsung, Airtel and Asante to drive digital inclusion in Africa through Pay-on-Demand services: <https://newsroom.mastercard.com/mea/press-releases/mastercard-partners-with-samsung-airtel-and-asante-to-drive-digital-inclusion-in-africa-through-pay-on-demand-services/>
 - Oct 2018: Mastercard, Centenary Bank and M-KOPA Solar roll-out first of its kind energy solution in Uganda: <https://newsroom.mastercard.com/mea/press-releases/mastercard-centenary-bank-and-m-kopa-solar-roll-out-first-of-its-kind-energy-solution-in-uganda/>
 - Feb 2018: Mastercard Uses Facebook Messenger To Help Small Businesses Go Digital: <https://newsroom.mastercard.com/press-releases/mastercard-uses-facebook-messenger-help-small-businesses-go-digital/>
 - Sep 2017: SPH Buzz Partners With Mastercard To Launch New Hybrid Store Concept: <https://newsroom.mastercard.com/asia-pacific/press-releases/sph-buzz-partners-with-mastercard-to-launch-new-hybrid-store-concept/>
 - Feb 2017: BharatQR – World’s first interoperable QR code acceptance solution launched in India: <https://newsroom.mastercard.com/asia-pacific/press-releases/bharatqr-worlds-first-interoperable-qr-code-acceptance-solution-launched-in-india/>

- May 2016: MasterCard Powers First Commerce Application within SoftBank Robotics' Humanoid Robot "Pepper": <https://newsroom.mastercard.com/press-releases/mastercard-powers-first-commerce-application-within-softbank-robotics-humanoid-robot-pepper/>
- Sep 2015: MasterCard Transforms Aid Distribution (video: <https://youtu.be/W2XIyqeP5w4>): <https://newsroom.mastercard.com/press-releases/mastercard-transforms-aid-distribution/>
- Aug 2012: StarHub unveils 'SmartWallet', in collaboration with DBS, EZ-Link and MasterCard: <https://www.starhub.com/about-us/newsroom/2012/august/starhub-unveils-smartwallet-in-collaboration-with-dbs-ez-link.html>

Jul 2008 – Aug 2011 PayPal Singapore Development Centre Singapore

Senior Software Engineer / Team Lead

- Lead a team of software developers, working on a pipeline of projects related to Brazil to cater to this fast growing market
- Subject Matter Expert in limits / verification / compliance domain
- **Key Commercialized Projects**
 - Led 12-developer team delivering largest EU compliance project (EU KYB Receiving Limit) in 8 months
 - Built China UnionPay (CUP) integration enabling real-time transaction processing

Oct 2007 – Jul 2008 Streaming21 (Singapore) Pte Ltd Singapore

Software R&D Manager

- Established an R&D centre and led development of Media Relay Server, a leading IPTV streaming server.

Jan 2006 – Sep 2007 Schmidt Electronics (S.E.A.) Pte Ltd Singapore

Leader, Software Development

Feb 2005 – Dec 2005 Unaxis Singapore Pte Ltd Singapore

Software Engineer

Sep 2002 – Feb 2005 ASM Technology Singapore Pte Ltd Singapore

Software Engineer

Aug 1995 – Aug 1998 Beijing Zhida Technology Pte Ltd Beijing, China

Software Engineer

SPEAKING & PANELS

- Invited speaker, IMDA Technical Sharing Session on AI Agents, Singapore (23 April 2026) — alongside Prof Bo An, AAAI Fellow and President's Chair Professor at NTU. <https://www.imda.gov.sg/activities/activities-catalogue/technical-sharing-session-with-ai-agents>
- Invited speaker, InnoAI 2026 Global Summit on Innovating the Future of Artificial Intelligence — listed alongside speakers from JPMorgan Chase, Google, NVIDIA, and eBay. <https://innoaisummit.com/experts>
- Workshop Chair, SENTIRE'25 — 15th Workshop on Sentiment Analysis and Linguistic Linked Data, co-located with IEEE ICDM 2025, Washington DC, November 2025

- Invited speaker, SuperAI Singapore 2025, Marina Bay Sands (19 June 2025) — “Optimizing and Benchmarking Open-Source LLMs for Enterprise Applications.” <https://www.superai.com/superai-sessions/optimizing-and-benchmarking-open-source-llms-for-enterprise-applications>
- Invited panelist, IEEE Conference on Artificial Intelligence (IEEE CAI 2024), Marina Bay Sands, Singapore (June 2024) — panel moderated by Simon See (Director, NVIDIA AI Technology Centre), alongside Prof Masashi Sugiyama (Director, RIKEN Center for Advanced Intelligence Project). 800+ global attendees. https://www.linkedin.com/posts/donghao-huang_invited-to-participate-in-the-ieee-cai-panel-ugcPost-7211296805160968192-e25K/
- Solo session speaker and panelist, CALM SUMMIT '24 (Rasa), October 2024 — “Optimizing and Benchmarking Open-Source LLMs for Conversational AI” plus panel “Benefits of Scalable Language Models.” <https://calmsummit24.com/agenda/>
- Keynote speaker, Token 2049 — WSPN Stable Rise, Singapore (September 2024) — “Building Trust & Seamless Commerce Experience: Leading the Future of Web3 Payments” — presented Mastercard’s Tokenized Card NFT and DigiPay solutions.
- Invited speaker, FCon 2023 Global FinTech Conference, Shanghai, China (2023) — representing Mastercard Labs — “The Future of Commerce in the Web3 Era” (Web3 时代的商业未来). Video: <https://www.infoq.cn/video/3UlpCdtmzxz5OwRjd6j9>
- Invited speaker, Upbit Developer Conference (UDC) 2022, Busan, South Korea (September 2022) — “Mastercard is getting ready for Web3 and the metaverse,” representing Mastercard alongside speakers including Justin Sun (Tron, Founder), Sebastien Borget (The Sandbox, COO & Co-Founder), Bryan Pellegrino (LayerZero Labs, CEO), and Leemon Baird (Hedera/Swirls Labs, Co-CEO). Featured in the official UDC 2022 Report: https://udc-static.dunamu.com/reports/UDC_2022_Report_EN.pdf
- Paper presentations at PAKDD 2024/2025/2026 (Taipei/Sydney/Hong Kong), ICDSAAI 2026 (May 2026, Chengdu, China), AAMAS 2026 (May 2026, Paphos, Cyprus), IEEE ICDM 2025 (Nov 2025, Washington DC), IJCNN 2025 (Jun 2025, Rome, Italy), NAACL 2025 (Apr 2025, Albuquerque, NM), IEEE SSCI 2025 (Mar 2025, Trondheim, Norway), IEEE CAI 2024 (Jun 2024, Marina Bay Sands, Singapore)

AWARDS & RECOGNITIONS

- IMDA Singapore Digital Scholarship (Postgraduate), 2025 — Competitive Singapore government scholarship awarded to senior technology professionals pursuing advanced research
- 1st Prize, SMU Libraries "Generate Your L(AI)brary" Hackathon, 2023 — Won first place at Singapore Management University's AI hackathon (26–27 August 2023). GitHub: https://www.linkedin.com/posts/donghao-huang_yesterday-our-team-won-1st-prize-in-smu-library-ugcPost-7101786441805926400-LW0S/
- Smart Sentosa Challenge Winner, 2016 — Mastercard Asia-Pacific’s Smart City Engine won the Smart Sentosa challenge, a Singapore government smart-city innovation competition

SELECTED MEDIA COVERAGE

- “Engineering the Future of AI: SMU EngD Powers Innovation for a Global Technology Leader” — SMU School of Computing and Information Systems, February 2026. <https://computing.smu.edu.sg/engd/community-stories/engineering-future-ai-smu-engd-powers-innovation-global-technology-leader>

- Token 2049 Side Event Coverage — Investing.com, September 2024. <https://hk.investing.com/analysis/article-110563>
- “支付科技与安全交易” Panel — Sina Finance, March 2018. <https://finance.sina.cn/blockchain/2018-04-02/detail-ifysvnxn1920535.d.html>
- “零距离感受万事达卡的支付黑科技” — Sina / Payment Industry Network, November 2017. https://k.sina.cn/article_6007803312_16617cdb0001001wwd.html
- “不换手机和掏不起钱的人，怎样才能用上新支付技术？” — China E-Banking Network / cnBeta, November 2017. <https://www.cebnet.com.cn/20171127/102444564.html>
- “亞洲最大！萬事達卡支付科技創新，9 間實驗室環腰” — Business Next (數位時代), November 2017. <https://www.bnext.com.tw/article/47137/mastercard-innovation-lab>

VOLUNTEERING EXPERIENCE

Nov 2025 – to date	Bao Yan (Singapore) Education Society	
President		
Jun 2016 – Jun 2020	Peking University Alumni Association (Singapore)	
Vice President		
Jan 2015 – Jan 2019	Startupbootcamp FinTech	Singapore
Mentor		
Mar 2011 – Dec 2015	ConneXions International	Singapore
IT and Payment Consultant		
Nov 2006 – Jul 2008	St. Andrew's Autism Centre	Singapore
Technology Consultant		

TECHNICAL SKILLS

- **AI/ML/GenAI:** LLMs (GPT-4, GPT-5, Claude, Gemini, Llama, Qwen, DeepSeek-R1, Mistral, Magistral, Phi, Nemotron), PyTorch, Transformers, LLM/ML Model Fine-tuning and Optimization, PEFT, LoRA/QLoRA Fine-tuning, LlamaFactory, Unsloth, RAG, LangChain, LangGraph, Autogen, Ollama, LM Studio, Vector Databases, FAISS, Chroma, Prompt Engineering, Few-shot Learning, NLP, Sentiment Analysis, Agentic AI, OpenClaw, NemoClaw, Edge AI Deployment, Energy-efficient Inference
- **GPU/Hardware:** NVIDIA H100, L40, A40, RTX 4080, RTX 4090, RTX A6000, Jetson AGX Orin, DGX Spark; Apple M-series
- **Languages & Frameworks:** Python, C/C++, Java, NodeJS, React, Vue, Spring Boot/Cloud, Solidity
- **Cloud & Infrastructure:** AWS, Azure, Heroku; Microservices, CI/CD, Docker
- **Web3/Blockchain:** Blockchain, Smart Contract, IPFS, NFT, DeFi

PATENTS

(10 granted, 50+ pending — all assigned to Mastercard)

Granted Patents

- **US12417452B2** – Smart chip payment acceptance (2025)
- **US12217246B2** – Method and system for use of an EMV card in a multi-signature wallet for cryptocurrency transactions (2025)
- **US11715100B2** – Electronic system and computerized method for verification of transacting parties to process transactions (2023)
- **US11615406B2** – Method and system for providing a service at a self-service machine (2023)
- **US10535034B2** – Item delivery management systems and methods (2020)
- **US10482499B2** – Method for conducting a transaction (2019)
- **US10423949B2** – Vending machine transactions (2019)
- **US10083427B2** – Method for receiving an electronic receipt of an electronic payment transaction into a mobile device (2018)
- **US9836729B2** – Method and system for conducting a payment transaction and corresponding devices (2017)
- **US8712914B2** – Method and system for facilitating micropayments in a financial transaction system (2014)

Selected Pending Applications

- **WO2026063867A1** – Method and system for seamless cross-network physical-digital (phy-gital) experience (2024)
- **US20260080407A1** – Method and system for seamless cross-network physical-digital (phy-gital) experience (2024)
- **WO2024058723A1** – Digitization of payment cards for web 3.0 and metaverse transactions (2022)
- **US20230059546A1** – Access control system (2021)
- **EP4356332A2** – Method and system for mediated cross ledger stable coin atomic swaps using hashlocks (2021)
- **US20210406887A1** – Method and system for merchant acceptance of cryptocurrency via payment rails (2020)
- **US20210158316A1** – Electronic system and computerized method for controlling operation of service devices (2019)
- **US20200175489A1** – Method and system for QR code originated vending (2017)
- **WO2017200643A1** – Method and system for allocating and transacting with multiple non-financial commodities (2016)
- **US20180025332A1** – Transaction facilitation (2016)

... and 40+ additional pending patent applications across payment technology, blockchain, AI, and IoT domains.

RESEARCH PAPERS

(papers at top-tier venues are highlighted in yellow; full texts are accessible via the hyperlinked paper titles)

Artificial Intelligence

1. Huang, D., Drietomský, T., Barrett, B. & Wang, Z. (2026). [How Small Can You Go? LoRA Fine-Tuning 270M–8B Models for Merchant Information Extraction in Financial Transactions](#). Accepted for publication in 2026 IEEE International Conference on Data Mining (ICDM 2026), Shenyang, China.
2. Teo, N., Huang, D. & Wang, Z. (2026). [A Survey of Commonsense Reasoning in LLMs](#). ACM Computing Surveys, vol. 58, no. 14, pp. 1–34 (2026).
3. Chua, J. K., Huang, D. & Wang, Z. (2026). [A Novel Hierarchical Multi-agent System for Payments Using LLMs](#). In *Advances in Knowledge Discovery and Data Mining. PAKDD 2026. Lecture Notes in Computer Science*, vol. 16598, pp. 28–39. Springer, Singapore.
4. Huang, D., & Wang, Z. (2026). [Task Complexity Matters: An Empirical Study of Reasoning in LLMs for Sentiment Analysis](#). In *Advances in Knowledge Discovery and Data Mining. PAKDD 2026. Lecture Notes in Computer Science*, vol. 16600, pp. 288–299. Springer, Singapore.
5. Huang, D., Chua, J. K., & Wang, Z. (2027). [Beyond Task Success: Measuring Workflow Fidelity in LLM-Based Agentic Payment Systems](#). In *Trends and Applications in Knowledge Discovery and Data Mining. PAKDD 2026. Lecture Notes in Computer Science*, vol. 16603, pp. 357–362. Springer, Singapore.
6. Huang, D., Pai, P., & Wang, Z. (2027). [Entity Matching with LLMs at Scale: Accuracy, Cost, and Reasoning Effects](#). In *Trends and Applications in Knowledge Discovery and Data Mining. PAKDD 2026. Lecture Notes in Computer Science*, vol. 16603, pp. 112–124. Springer, Singapore.
7. Huang, D., Chew, S., & Wang, Z. (2027). [CMAS4G2: A Locally Deployed Cooperative Multi-agent System for Gherkin Acceptance Test Generation](#). In *Trends and Applications in Knowledge Discovery and Data Mining. PAKDD 2026. Lecture Notes in Computer Science*, vol. 16603, pp. 156–167. Springer, Singapore.
8. Huang, D. & Pandey, M. (2026). [An Agentic Voice-Based Assistant for Interactive Conversation and Guidance in Real-World Environments](#). In *Proceedings of the 25th International Conference on Autonomous Agents and Multiagent Systems (AAMAS '26)*, Paphos, Cyprus, pp. 4167–4169. International Foundation for Autonomous Agents and Multiagent Systems, Richland, SC.
9. Chua, J. K., Tse, C. H., Huang, D., & Wang, Z. (2026). [ConvPayMAS: Conversational Payment Multi-Agent System with Agent-to-Agent Protocol and Three-Mandate Verification](#). In *Proceedings of the 25th International Conference on Autonomous Agents and Multiagent Systems (AAMAS '26)*, Paphos, Cyprus, pp. 4071–4073. International Foundation for Autonomous Agents and Multiagent Systems, Richland, SC.
10. Huang, D., Malwe, G., & Wang, Z. (2026). [When Agents Fail to Act: A Diagnostic Framework for Tool Invocation Reliability in Multi-Agent LLM Systems](#). 2026 9th International Conference on Artificial Intelligence and Big Data (ICAIBD), Chengdu, China, pp. 492–497. IEEE.
11. Huang, D., Chew S., Dutkiewicz A., & Wang, Z. (2026). [LLM-as-a-Judge for Scalable Test Coverage Evaluation: Accuracy, Operational Reliability, and Cost](#). Presented at *AAAI 2026 Workshop on Next-Gen Code Development with Collaborative AI Agents*.
12. D. Huang, N. Teo, A. Chekuru, E. Deutschman and Z. Wang, "[Deploying Reasoning LLMs for Sentiment Analysis: Architecture Trade-offs on Consumer Hardware](#)," 2025 IEEE International Conference on Data Mining Workshops (ICDMW), Washington, DC, USA, 2025, pp. 2048-2055.
13. S. Samuel, D. Huang, J. T. Y. Hong and Z. Wang, "[Integrating LLM Sentiment Analysis into Machine Learning for Soccer Betting](#)," 2025 IEEE International Conference on Data Mining Workshops (ICDMW), Washington, DC, USA, 2025, pp. 2156-2164.
14. D. Huang and Z. Wang, "[Explainable Sentiment Analysis With DeepSeek-R1: Performance, Efficiency, and Few-Shot Learning](#)," in *IEEE Intelligent Systems*, vol. 40, no. 6, pp. 52-63, Nov.-Dec. 2025.
15. Huang, D., Ng, D., Pen, H., Wang, Z., & Cambria E. (2025). [Evaluating the Impact of LLM-Manipulated Content on Fake News Detection](#). In: Yuan, S., Malliaros, F., Zheng, X. (eds) *Trends and Applications in Knowledge Discovery and Data Mining. PAKDD 2025. Lecture Notes in Computer Science*, vol. 15835, pp. 375–386. Springer, Singapore.

16. Teo, N., Huang, D., Cambria, E., Wang, Z. (2025). [Large Language Models for Logical Fallacy Detection](#). In: Yuan, S., Malliaros, F., Zheng, X. (eds) *Trends and Applications in Knowledge Discovery and Data Mining, PAKDD 2025*. Lecture Notes in Computer Science, vol. 15835, pp. 387–398. Springer, Singapore.
17. D. Huang and Z. Wang, "[LLMs at the Edge: Performance and Efficiency Evaluation with Ollama on Diverse Hardware](#)," *2025 International Joint Conference on Neural Networks (IJCNN)*, Rome, Italy, 2025, pp. 1-8.
18. Huang, D., Nguyen, T. S., Liausvia, F., & Wang, Z. (2025, April). [RAP: A Metric for Balancing Repetition and Performance in Open-Source Large Language Models](#). In *Proceedings of the 2025 Conference of the Nations of the Americas Chapter of the Association for Computational Linguistics: Human Language Technologies (Volume 1: Long Papers)* (pp. 1479-1496).
19. Huang, D., Malwe, G., Varshney, R., Tse, A., & Wang, Z. (2025, March). [Scalable Invoice Reconciliation for SMEs: Edge-Deployed LLMs in Multi-Agent Systems](#). In *2025 International Conference on Data Science, Agents & Artificial Intelligence (ICDSAAI), Chennai, India*(pp. 1-6). IEEE.
20. D. Huang and Z. Wang, "[Optimizing Chinese-to-English Translation Using Large Language Models](#)," *2025 IEEE Symposium on Computational Intelligence in Natural Language Processing and Social Media (CI-NLPSoMe)*, Trondheim, Norway, 2025, pp. 1-7.
21. D. Huang and Z. Wang, "[Logical Reasoning with LLMs via Few-Shot Prompting and Fine-Tuning: A Case Study on Turtle Soup Puzzles](#)," *2025 IEEE Symposium on Computational Intelligence in Natural Language Processing and Social Media (CI-NLPSoMe Companion)*, Trondheim, Norway, 2025, pp. 1-5.
22. Wang, Z., Huang, D., Cui, J. et al. (2025). [A review of Chinese sentiment analysis: subjects, methods, and trends](#). *Artif Intell Rev* 58, 75 (2025).
23. Huang, D., Fu, X., Yin, X., Pen, H., & Wang, Z. (2024). [Automating maritime risk data collection and identification leveraging large language models](#). In *2024 IEEE International Conference on Data Mining Workshops (ICDMW)* (pp. 433–439). IEEE.
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