Emma Yann Zhang

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Short Biography

AI researcher with expertise in both hardware and software development, specializing in emotional human-AI and human-robot interactions, haptic technologies, and multisensory communication, affective computing and artificial intelligence. Developed the world's first "kiss messenger," a mobile device for transmitting kiss sensations over the Internet. Research has received media coverage in international press such as The Guardian, The Times, and Huffington Post, and featured in TV and radio programs including BBC World, Discovery Channel, WTOP, Channel News Asia, etc. Work showcased internationally at venues such as the Ars Electronica Festival, Germany Museum of Technology, and CeBIT conference. Published numerous peer-reviewed journal and conference papers, and co-authored the book Human-Robot Intimate Relationships, published by Springer. Co-founder of Tamo Robotics. Experienced public speaker with invited talks at international conferences, public and corporate events.

Employment and Research

2023 AI Lead, Frost Digital Ventures, USA
- Led AI team in developing a RAG application to advance company research capabilities.
- Fine-tuned AI models using company data and conducted research to develop AI solutions.
- Supported recruitment and set strategic goals for AI team.

2021 Co-founder, Tamo Robotics (Entrepreneur First), Singapore
- Led the technical development of an interactive social robot for children, from concept to prototype.
- Developed the full hardware-software stack, including a touch-responsive robot and a connected Android app with speech recognition features.
- Directed product ideation, idea validation, customer research within an agile and scrum environment.

2020 Developer Support Engineer, Facebook, Singapore
- Collaborated with engineering teams to resolve technical issues for Facebook developers.

2016 - 2019 Research Engineer, Imagineering Institute, Malaysia
- Developed multisensory systems for transmitting touch, taste, smell sensations over the Internet
- Managed teams of engineers across various projects, assisted lab director with a wide range of tasks
- Delivered public speeches and demonstrations at international conferences and exhibitions
- Organised and coordinated several international conferences

2014 Front-End Developer, UK Trade and Investment Sirius Program for International Entrepreneurs
- Core member of a startup team developing a peer-to-peer fashion rental platform
- Redesigned and implemented the web interface for the beta launch
- Collaborated closely with founders and users in a fast-paced startup environment.

2013 Research Assistant, HKUST-NIE Social Media Lab
- Designed and developed a gesture-controlled wearable device • Coached students on iOS development

Education

2023 - 2025 Masters in AI, Nanjing University of Information Science and Technology
Research topic: Integrating Affective Haptics in Human-Human and Human-AI Interactions

2014 - 2016 MPhil/PhD in Computer Science, City, University of London (Upgraded to PhD)
Research topic: A Multimodal Networked Kissing Machine

2012 - 2013 **B.Eng (Honors) Electronic Engineering, Hong Kong University of Science and Technology**
First Class Honors; GPA 3.83; Awarded Dean's List for two consecutive semesters

Skills

AI/ML: Model training, Fine-tuning, TensorFlow, PyTorch, Scikit-Learn, Large language models, RAG applications, Chatbots, AI agents

Hardware: Embedded systems development, Circuit design, PCB design and prototyping, 3D modeling and printing, Bluetooth BLE, Arduino, Raspberry Pi, Rapid prototyping
Software: Python, Mobile development (iOS, Android), Web development
Soft skills: Strong communication skills, able to convey technical concepts to diverse audiences, Public speaking, Cross-functional collaboration, Adaptable in fast-paced environments, Fast learner, Works independently and in teams

Awards and Scholarships

2023 **NUIST Full Graduate Student Scholarship**

2016 **Winner of Images of Research competition by City, University of London (Kissenger)**
An annual competition and exhibition that showcases the application of some of the world-leading research carried out across the five academic Schools which make up City.

2014 **City, University of London Full Doctoral Studentship**
6 3-year studentships are awarded each year to outstanding applicants, including an annual bursary and full tuition waiver.

2013 **Winner of UK Trade and Industry Sirius International Entrepreneurship Program**

2013 **IEEE Hong Kong Student Paper Contest First Prize**
Awarded to paper titled "Wearable Gesture Control for Pervasive Applications"

2013 Spring & 2012 Fall **Dean's List (School of Engineering, HKUST)**
Awarded to students with outstanding academic achievement with a term grade average of at least 3.7/4.0

2008 **Singapore Ministry of Education Language Elective Scholarship** Awarded to students with linguistic talent and outstanding academic results.

Teaching

Courses Assisted

2015 Mathematics for Computing (Undergraduate)

2015 Pervasive Computing (Masters)

2016 Software Engineering (Undergraduate)

Conferences

Organising Committee

2017 Organising Chair, Third International Congress on Love and Sex with Robots, London

2017 Organising Chair, ACE (Advances in Computer Entertainment Technology), London

2016 Organising Chair, Second International Congress on Love and Sex with Robots, London

2016 Communication Chair, ACE (Advances in Computer Entertainment Technology), Osaka

2015 Communication Chair, ACE (Advances in Computer Entertainment Technology), Iskandar

Program Committee/Reviewer

2022 Reviewer, International Journal of Human-Computer Interaction

2017 Program Committee, Third International Congress on Love and Sex with Robots, London

2017 Program Committee, ACE (Advances in Computer Entertainment Technology), London

2017 Technical Program Committee, Intertain 2017

2016 Program Committee, Second International Congress on Love and Sex with Robots, London, 2016

2016 Technical Program Committee, ACM MVAR Workshop, Tokyo, 2016

2015 Program Committee, ACE (Advances in Computer Entertainment Technology), Madeira, 2014

Publications

h-index: 9

Book and Book Chapters

1. **Zhang, E. Y.** (2022). Populism in Robots in *Analyzing Current and Future Global Trends in Populism* (pp. 183-199). IGI Global.

2. **Zhang, E. Y.** (2022). Populist Human-Computer Interface: Kissenger in *Analyzing Current and Future Global Trends in Populism* (pp. 165-182). IGI Global.

3. Cheok, A.D., **Zhang, E. Y.** (2019). *Human-Robot Intimate Relationships*. Springer.

4. Cheok, A.D., Karunanayaka, K., **Zhang, E. Y.** (2017). Lovotics: Human-Robot Love and Sex Relationships, in *Robot Ethics 2.0: From Autonomous Cars to Artificial Intelligence. Oxford University Press* (pp. 193).

Journal Papers

1. **Zhang, E. Y.**, Cheok, A. D., Pan, Z, et al. (2024). Survey on haptic technologies for virtual reality applications during COVID-19. *Metaverse*, 5(2): 1–15.

2. **Zhang, E.Y.**, Cheok, A.D., Pan, Z., Cai, J., & Yan, Y. (2024). Artificial intelligence in the battle against COVID-19: A comprehensive review. *Artificial Intelligence in Health*, 1(2), 1-15.

3. **Zhang, E.Y.**, Cheok, A.D., Pan, Z., Cai, J., & Yan, Y. (2023). From Turing to Transformers: A comprehensive review and tutorial on the evolution and applications of generative transformer models. *Sci*, 5(4), 46-56.

4. **Zhang, E.Y.**, Cheok, A.D., Yan, Y., Cai, J., & Pan, Z. (2023). Wearable technology in emotive communication: An in-depth exploration of the kiss transfer mechanism and its implications for human-human interactions. *Wearable Technology*, 4(1), 22-99.

5. **Zhang, E. Y.** (2023). Bo Ruberg, Sex Dolls at Sea: Imagined Histories of Sexual Technologies in *Winterthur Portfolio* (pp. 97–98). The University of Chicago Press.

6. **Zhang, E. Y.**, Cheok, A. D. (2021). Turing-Test Evaluation of a Mobile Haptic Virtual Reality Kissing Machine in *Global Journal of Computer Science and Technology*.

7. Cheok, A. D., **Zhang, E. Y.** (2020). Electrical machine for remote kissing, and engineering measurement of its remote communication effects, including modified Turing test, in *Journal of Future Robot Life 1 (1)* (pp. 111-134). IOS Press.

8. Cheok, A. D., Levy, D., Karunanayaka, K., Nishiguchi, S., **Zhang, E. Y**. (2016). Lovotics: Love and Sex with Robots, in *IPSJ Journal, Special Issue: Kawaii, vol. 57, no. 2, pp. 136*

Conference and Workshop Papers

1. **Zhang, E. Y.**, Cheok, A.D., Arovski, S., Muniru, I. O. (2017). Exploring the Role of Robotic Kissing "Kissenger" in Digital Communication Through Alan Turing's Imitation Game, in *Industrial Electronics Society, IECON 2017-43rd Annual Conference of the IEEE* (pp. 2870-2875). IEEE.

2. **Zhang, E. Y**., Nishiguchi, S., Cheok, A. D., Morisawa, Y. (2016). Kissenger - Development of a Real-time Internet Kiss Communication Interface for Mobile Phones, in *International Congress on Love and Sex with Robots* (pp. 115-127). Springer.

3. **Zhang, E. Y.**, Cheok, A. D. (2016). A Networked Device for Reproducing Multisensory Kissing, in *Multimodal Virtual & Augmented Reality, MVAR 2016* (p. 3). ACM.

4. **Zhang, E. Y.**, Cheok, A. D., Nishiguchi, S., Morisawa Y. (2016). Kissenger - Development of a Remote Kissing Device for Affective Communication, in *Proceedings of the 13th International Conference on Advances in Computer Entertainment Technology* (p. 25). ACM.

5. **Zhang, E. Y.**, Cheok, A. D. (2016). Forming Intimate Human-Robot Relationships Through A Kiss Machine, in *Proceedings of the 4th International Conference on Human-Agent Interaction* (pp. 233-234). ACM.

6. **Zhang, E. Y**. (2016). A Multimodal Networked Kissing Machine for Mobile Phones, in *Proceedings of the 18th International Conference on Human-Computer Interaction with Mobile Devices and Services Adjunct* (pp. 911-913). ACM.

7. **Zhang, E. Y.**, Cheok, A. D., Morisawa, Y. (2016). Designing a Multimodal Haptic Device for Virtual Kissing, in *Next Generation Human-Agent Interaction Workshop*, Singapore.

8. Cheok, A. D., **Zhang, E. Y.** (2016). A Smell Communication Interface for Affective Systems in *eNTERFACE'16 Workshop*, Netherlands.

9. Pradana, G. A., **Zhang, E. Y.**, Cheok, A. D., Morisawa, Y. (2015). Delivering Haptic Sensations in Mobile Marketing, in *Proceedings of the 12th International Conference on Advances in Computer Entertainment Technology* (p. 50). ACM.

Invited Talks, Demonstrations, Exhibitions

1. Permanent exhibition of Kissenger in the Deutsches Technikmuseum Berlin, Germany

2. Invited talk and demonstration, Global Virtual Reality Conference (GVRC), Shanghai, June 2018

3. Invited exhibition of Kissenger at Ars Electronica Festival 2017, a 5-day exhibition and the world's most prestigious event in electronic and media art, Linz, Austria, Sep 2017

4. Invited exhibition of Kissenger at VivaTech 2017, a 3-day exhibition where the most innovative companies and startups came together with global leaders to collaborate. Over 68000 visitors from around the globe attended the exhibition. Paris, June 2017

5. Demonstration at CeBIT Conference 2017, Hannover, Mar 2017

6. Demonstration at EmTech Asia Conference, Singapore, Mar 2017

7. Exhibition at MRS Annual Conference IMPACT 2016, London, Mar 2016

8. Talk and demonstration at Unilever Disruption 2025 Event, London, 29 Feb 2016

9. Panel Speaker on the Huffington Post Live program, Oct 2015

10. Talk and demonstration at Telefonica UK, London, June 2015

11. Public Demonstration at the Hidden Senses exhibition, London Science Museum DANA Center, 21 Nov 2014

Press Articles

Only selected articles are listed here.

1. Interview for TV Show "Generació digital", TV3 (Catalonia), 22 April 2017

2. Documentary series "Virtual Insanity", Channel News Asia, 31 March 2017

3. Kissenger on Japanese Fuji Television Show, Vikings, 30 March 2017

4. Kissenger on Daily Planet, Discovery Channel, Jan 2017

5. Interview article on WTOP Radio, 16 Jan 2017

6. "Lonely? Kissenger simulates long-distance smooch over internet", WTOP, 16 Jan 2017

7. "Robot Phone Device Transmits Kisses to Your Loved Ones When You're Away", Gizmodo, 25 Dec 2016

8. "Robotic Kiss Transmitter Lets You Smooch a Loved One From Afar", IEEE Spectrum, 23 Dec 2016

9. Live interview on Kissenger, RCN Radio for Latin America, 23 Dec 2016

10. "Love and Sex With Robots", The Huffington Post, 22 Dec 2016

11. Live interview on Kissenger, BBC World News TV, 22 Dec 2016

12. Live interview on Kissenger, BBC Radio 5, 21 Dec 2016

13. "Romance over the phone can be sealed with a kiss", The Times, 21 Dec 2016

14. "Kissenger: This bizarre new gadget helps you kiss your partner, wherever they are", The Independent, 21 Dec 2016

15. "Sex robots would give us only what we think we want, and not what we truly desire", The Telegraph, 21 Dec 2016

16. "Remarkable 'Kissenger' gadget lets you smooch a long-distance lover over the internet", Mirror, 19 Dec 2016

17. "Incredible virtual kissing device lets you snog people from around the world through your iPhone", The Sun, 19 Dec 2016

18. Demonstration for documentary interview, El País, 12 June 2016

19. Kissenger on The Gadget Show, UK Channel 5, Feb 2016

20. Kissenger on Tegenlicht documentary series, Netherlands VPRO, Nov 2015

21. Live Interview on "This is the world's first internet kiss", BBC Radio 5 Live, 9 Feb 2015

22. Live interview on Digital Taste and Smell, Al Jazeera Evening News, 27 Jan 2015

23. "Spoon Me: How Cutlery Design can Blow Your Tastebuds Away", The Guardian, 26 Jan 2015