

Everybody Becomes a CEO: Managing Life More Efficiently with Multi-Agent AI Employees Using Agentic AI

Kaya Kuru¹

¹*School of Engineering and Computing, University of Lancashire, UK*

E-mail: kkuru@uclan.ac.uk

Keynote Talk

Abstract

With the advent of Agentic AI, artificial intelligence is moving beyond the stage of human-commanded machines toward that of self-directed, goal-oriented entities that are able to plan, reason, coordinate, and act. Multi-agent AI workers, specially designed computer agents, co-work to handle various aspects of an individual's personal and professional life in an automated manner. Under this new model, every person could be regarded as the “CEO” of his/her own personal AI life, setting goals, priorities, constraints, and values and delegating execution to dedicated autonomous agents.

In this discussion, we explore ways in which multi-agent AI can enhance people's productivity through collaborative coordination in areas such as scheduling, communication, finances, travel, studies, research, housework, health care management, and other aspects of everyday life. Instead of optimising individual tasks, agentic systems can pursue higher-level goals by decomposing goals into activities, delegating these activities to specific agents, evaluating results, and re-planning the course of action. Agentic systems can provide a means for decreasing cognitive loads and automating administrative tasks, allowing people to concentrate on important issues and more creative tasks.

The advent of multi-agent Agentic AI technology can transform personal productivity from task management into goal management by allowing people to function as CEO's of their own AI-driven lives by having many AI agent employees who are professional in their work, executing multidimensional complex tasks excellently beyond human cognition. The key idea is that the future of personal productivity might not be about people doing more tasks, but about people being better at setting goals and delegating tasks to more intelligent AI agents.

However, the shift from AI assistants to AI workers brings its share of difficulties regarding issues such as trust, autonomy, privacy, security, accountability, integration, coordination of the agents and human supervision. In order to provide agents with personal information and external tools, proper restrictions must be set so that autonomy stays consistent with human intent. The current presentation thus explores the potential and pitfalls of multi-agent personal AI and offers a conceptual model in which humans have strategic decision-making power while AI agents take care of execution at a tactical level.

Index Terms— Artificial Intelligence, Agentic AI, Autonomous Robotics, Large Language Models (LLMs), Human–Robot Interaction, Distributed Artificial Intelligence, Multi-Agent Systems.

2nd World Summit and Expo on Robotics, AI and Machine Learning (ROBOTICS-2027)
March 18–20, 2027, in Tokyo, Japan

REFERENCES

- [1] K. Kuru et al., "Autonomous low power monitoring sensors," *Sensors*, vol. 21, 2021.
- [2] N. Caswell et al., "Patient engagement in medical device design: refining the essential attributes of a wearable, pre-void, ultrasound alarm for nocturnal enuresis," *Pharmaceutical Medicine*, 34, 39-48, 2020.
- [3] K. Kuru et al., "Transformation to advanced mechatronics systems within new industrial revolution: A novel framework in automation of everything (AoE)," *IEEE Access*, vol. 7, pp. 41 395–41 415, 2019.
- [4] K. Kuru, "Management of geo-distributed intelligence: Deep insight as a service (DINSaaS) on forged cloud platforms (FCP)," *Journal of Parallel and Distributed Computing*, vol. 149, pp. 103–118, Mar. 2021.
- [5] K. Kuru, "Sensors and sensor fusion for decision making in autonomous driving and vehicles," 2023.
- [6] K. Kuru and W. Khan, "Novel hybrid object-based non-parametric clustering approach for grouping similar objects in specific visual domains," *Applied Soft Computing*, vol. 62, Elsevier BV, pp. 667–701, Jan-2018.
- [7] K. Kuru, "A Novel Hybrid Clustering Approach for Unsupervised Grouping of Similar Objects," *Lecture Notes in Computer Science* (pp. 642–653), 2014.
- [8] K. Kuru et al., "Treatment of Nocturnal Enuresis Using Miniaturised Smart Mechatronics With Artificial Intelligence," in *IEEE Journal of Translational Engineering in Health and Medicine*, vol. 12, pp. 204-214, 2024.
- [9] K. Kuru, "Technical report: Big data-concepts, infrastructure, analytics, challenges and solutions," 2024.
- [10] K. Kuru et al., "Biomedical visual data analysis to build an intelligent diagnostic decision support system in medical genetics," *Artificial Intelligence in Medicine* 62, no. 2 (2014): 105-118.
- [11] K. Kuru, "Optimization and enhancement of H&E stained microscopical images by applying bilinear interpolation method on lab color mode," *Theoretical Biology and Medical Modelling* 11 (2014): 1-22.
- [12] K. Kuru et al., "Feasibility study of intelligent autonomous determination of the bladder voiding need to treat bedwetting using ultrasound and smartphone ML techniques: Intelligent autonomous treatment of bedwetting," *Medical & biological engineering & computing* 57 (2019): 1079-1097.
- [13] K. Kuru et al., "Intelligent autonomous treatment of bedwetting using non-invasive wearable advanced mechatronics systems and MEMS sensors: Intelligent autonomous bladder monitoring to treat NE," *Medical & biological engineering & computing* 58 (2020): 943-965.
- [14] K. Kuru et al., "A novel report generation approach for medical applications: the SISDS methodology and its applications," *International journal of medical informatics* 82, no. 5 (2013): 435-447.
- [15] K. Kuru et al., "A bilinear interpolation based approach for optimizing hematoxylin and eosin stained microscopical images," In *Pattern Recognition in Bioinformatics: 6th IAPR International Conference, PRIB 2011, Delft, The Netherlands, November 2-4, 2011. Proceedings* 6, pp. 168-178. Springer Berlin Heidelberg, 2011.
- [16] G. Gursel et al., "Determining the weak sides of Healthcare Information Systems: An Empirical e-Health Evaluation Study," *AJIT-e: Online Academic Journal of Information Technology* 7, no. 23 (2016): 17-30.
- [17] K. Kuru et al., "Establishment of a diagnostic decision support system in genetic dysmorphology," In *2012 11th International Conference on Machine Learning and Applications*, vol. 2, pp. 164-169. IEEE, 2012.
- [18] K. Kuru, "Use of wearable miniaturised medical devices with artificial intelligence (ai) in enhancing physical medicine," (2024): 69.
- [19] C. Combi, Carlo, Yuval Shahar, and Ameen Abu-Hanna, eds. *Artificial Intelligence in Medicine: 12th Conference on Artificial Intelligence in Medicine in Europe, AIME 2009, Verona, Italy, July 18-22, 2009, Proceedings*. Vol. 5651. Springer Science & Business Media, 2009.
- [20] K. Kuru et al., "Smart Wearable Device for Nocturnal Enuresis," In *2023 IEEE EMBS Special Topic Conference on Data Science and Engineering in Healthcare, Medicine and Biology*, pp. 95-96. IEEE, 2023.
- [21] D. Ansell et al., "Methods and apparatuses for estimating bladder status," *European Patent EP 3328279B1*, issued Nov 18, 2020.
- [22] K. Kuru, "Joint cognition of remote autonomous robotics agent swarms in collaborative decision-making & remote human-robot teaming," (2024).
- [23] K. Kuru et al., "Developing diagnostic dsss based on a novel data collection methodology," In *Knowledge Science, Engineering and Management: Third International Conference, KSEM 2009, Vienna, Austria, November 25-27, 2009. Proceedings* 3, pp. 110-121. Springer Berlin Heidelberg, 2009.
- [24] K. Kuru et al., "A novel multilingual report generation system for medical applications," In *Artificial Intelligence in Medicine: 12th Conference on Artificial Intelligence in Medicine, AIME 2009, Verona, Italy, July 18-22, 2009. Proceedings* 12, pp. 201-205. Springer Berlin Heidelberg, 2009.
- [25] H. Gul et al., "The Advantages of Electronic Prescription, the Problems and Tackling Them," (2005): 134-139.
- [26] K. Kuru et al., "Analysis of Resources in Healthcare by Computer Simulation Studies in Healthcare: An Outpatient Clinic Study," (2005): 14-20.
- [27] K. Kuru et al., "The Use of Lab Color Model for Sharpening and Optimization of Digital Images of Hematoxylin & Eosin Stained Microscopical Materials," (2005): 210-218.
- [28] Kuru et al., "Artificial Intelligence and Machine Learning in Pediatrics," (2023).
- [29] D. Ansell et al., "Mypad: A pre-void alarm device for the treatment of nocturnal enuresis (ne)," (2019).
- [30] K. Kuru et al., "Establishment of diagnostic decision support system (DDSS) in clinical diagnosis of genetic diseases: the facegp DDSS methodology and its applications," *European Journal of Human Genetics* 20, no. 1 (2012): 70-70.
- [31] Loog, Marco, Lodewyk Wessels, Marcel JT Reinders, and Dick de Ridder, eds. *Pattern Recognition in Bioinformatics: 6th IAPR International Conference, PRIB 2011, Delft, The Netherlands, November 2-4, 2011. Proceedings*. Vol. 7036. Springer Science & Business Media, 2011.
- [32] K. Kuru, "Human-in-the-Loop Telemanipulation Schemes for Autonomous Unmanned Aerial Systems," *2024 4th Interdisciplinary Conference on Electrics and Computer (INTCEC)*, Chicago, IL, USA, 2024, pp. 1-6, doi: 10.1109/INTCEC61833.2024.10603071. Kuru et al., "Medical Report Generation in a Structured and Interactive Way Using Speech Driven Approach," (2007).
- [33] H. Gul et al., "A Versatile, User Driven, Flexible And Scalable Decision Making Tool In Toxicology," (2006): 134-139.
- [34] K. Kuru et al., "MyPAD: An Intelligent Wearable Medical Device to Treat Incontinence," In *IEEE EMBS International Conference on Data Science and Engineering in Healthcare, Medicine & Biology*, 7th–9th December. 2023.
- [35] K. Kuru et al., "Diagnostic Decision Support System in Dysmorphology," In *Decision Support Systems*. IntechOpen, 2012.
- [36] K. Kuru et al., "A Novel Report Generation Approach for Medical Applications: The SISDS Methodology (METU-MIN-TR-2009-001-KK)," *International Journal of Medical Informatics* 82, no. 5 (2012).
- [37] Karagiannis, Dimitris, and Zhi Jin, eds. *Knowledge Science, Engineering and Management: Third International Conference, KSEM 2009, Vienna, Austria, November 25-27, 2009, Proceedings*. Vol. 5914. Springer Science & Business Media, 2009.
- [38] K. Kuru, "A Novel Report Generation System for Medical Applications," (2009).
- [39] K. Kuru, "IoTFAUAV: Intelligent remote monitoring of livestock in large farms using Autonomous uninhabited aerial vehicles," *Computers and Electronics in Agriculture* (2023).
- [40] Shahar, Carlo Combi Yuval, Silvia Miksch, and Peter Johnson. "Artificial Intelligence in Medicine," vol 1211 (1997): 51-61.
- [41] D. Ansell et al., "Methods and Apparatuses for Estimating Bladder Status," *U.S. Patent Application 17/875,004*, filed May 25, 2023.
- [42] D. Ansell et al., "Method and apparatus for estimating bladder status," *JP2018528041A*, 2018.
- [43] D. Ansell et al., "Method and apparatus for estimating bladder condition," *CN201680053526.3A*, 2018.
- [44] K. Kuru, "Technical Report: Use of A-mode Ultrasound in Medicine," (2022).
- [45] K. Kuru et al., "WILDetect - Part II". *Coordinates*, 20 (6). pp. 17-25. 2024.
- [46] Khan, W., Ansell, D., Kuru, K., & Bilal, M. (2018), "Flight guardian: Autonomous flight safety improvement by monitoring aircraft cockpit instruments," *Journal of Aerospace Information Systems*, 15(4), 203-214.

2nd World Summit and Expo on Robotics, AI and Machine Learning (ROBOTICS-2027)

March 18–20, 2027, in Tokyo, Japan

- [47] K. Kuru and K. Kuru, "Urban Metaverse Cyberspaces & Blockchain-Enabled Privacy-Preserving Machine Learning Authentication With Immersive Devices," *2024 6th International Conference on Blockchain Computing and Applications (BCCA)*, Dubai, United Arab Emirates, 2024, pp. 734–741.
- [48] C. De Goede et al., "MyPad–Intelligent Bladder Pre-void Alerting System: A project collaborated with NHS to treat Nocturnal Enuresis (NE)," (2018).
- [49] G. Gursel et al., "An E-health Evaluation Case study: Evaluating The New Laboratory Information System," *eTELEMED* 2015: 58.
- [50] K. Kuru et al., "Machine Learning Based Genetic Decision Making Methodology Using Genotype-Phenotype Mapping," (2013).
- [51] Kuru et al., "A Novel Approach to Improve the Diagnostic Success of Computers in Dysmorphology: The DSESPC methodology and its Applications;" (2013).
- [52] Kuru et al., "Diagnostic Decision Support System in Genetic Diseases: The FaceGP DDSS," (2012).
- [53] Kuru et al., "Establishment of Diagnostic Decision Support Systems (DDSS) to Prediagnose the Dysmorphic Diseases (Congenital Malformation) Efficiently Caused by Genetic Syndromes," (2011): 122-132.
- [54] K. Kuru, "A novel report generation approach for medical applications: The SISDS methodology and its applications (Tibbi uygulamalar için yeni bir rapor üretim yaklaşımı: SISDS metodu ve uygulamaları)," PhD diss., Middle East Technical University, Turkey, 2010.
- [55] K. Kuru, "Swarms of Autonomous Microbots & Nanobots in the Human Body," In: 3rd International Summit on Robotics, AI and ML (ISRAI2025), 11–13 September 2025, Dubai, UAE.
- [56] K. Kuru and K. Kuru, "Blockchain-Enabled Privacy-Preserving Machine Learning Authentication With Immersive Devices for Urban Metaverse Cyberspaces," *2024 20th IEEE/ASME International Conference on Mechatronic and Embedded Systems and Applications (MESA)*, Genova, Italy, 2024, pp. 1–8, doi: 10.1109/MESA61532.2024.10704877
- [57] —, "Urban Metaverse Cyberthreats and Countermeasures Against These Threats," *2024 6th International Conference on Blockchain Computing and Applications (BCCA)*, Dubai, United Arab Emirates, 2024, pp. 228–235, doi: 10.1109/BCCA62388.2024.10844396.
- [58] —, "Umetabe-dppml: Urban metaverse & blockchain-enabled decentralised privacy-preserving machine learning verification and authentication with metaverse immersive devices," *Internet of Things and Cyber-Physical Systems*, vol. 5, 2025.
- [59] K. Kuru, "MetaOmniCity: Toward Immersive Urban Metaverse Cyberspaces Using Smart City Digital Twins," in *IEEE Access*, vol. 11, pp. 43844–43868, 2023, doi: 10.1109/ACCESS.2023.3272890.
- [60] —, "Technical report: Essential development components of the urban metaverse ecosystem," *CLoK*, 2024.
- [61] —, "Planning the Future of Smart Cities With Swarms of Fully Autonomous Unmanned Aerial Vehicles Using a Novel Framework," in *IEEE Access*, vol. 9, pp. 6571–6595, 2021, doi: 10.1109/ACCESS.2020.3049094.
- [62] —, "Technical report: Big data - concepts, infrastructure, analytics, challenges and solutions," 2024.
- [63] —, "Technical report: Human-in-the-loop telemanipulation platform for automation-in-the-loop unmanned aerial systems," 2024.
- [64] —, "Technical report: Towards state and situation awareness for driverless vehicles using deep neural networks," 2024.
- [65] —, "Blockchain-enabled decentralized, secure and reliable voting through biometric identification using metaverse immersive devices and deep learning," In: 2nd International Conference on Applied Science and Engineering, 03–04 November 2025, Prague, Czech Republic.
- [66] —, "6g in developing high-fidelity immersive digital twins," In: 2nd International Conference on Communication, Information and Digital Technologies," 26–28 September 2025, Singapore.
- [67] —, "Joint cognition of remote autonomous robotics agent swarm in collaborative decision-making & remote human-robot teaming," *Proceedings of The Premium Global Conclave and Expo on Robotics & Automation (AUTOROBO, EXPO2024)*, 2024.
- [68] —, "Conceptualisation of Human-on-the-Loop Haptic Teleoperation With Fully Autonomous Self-Driving Vehicles in the Urban Environment," in *IEEE Open Journal of Intelligent Transportation Systems*, vol. 2, pp. 448–469, 2021, doi: 10.1109/OJITS.2021.3132725.
- [69] K. Kuru et al., "Platform to Test and Evaluate Human-in-the-Loop Telemanipulation Schemes for Autonomous Unmanned Aerial Systems," *2024 20th IEEE/ASME International Conference on Mechatronic and Embedded Systems and Applications (MESA)*, Genova, Italy, 2024, pp. 1–8, doi: 10.1109/MESA61532.2024.10704856.
- [70] K. Kuru and W. Khan, "A Framework for the Synergistic Integration of Fully Autonomous Ground Vehicles With Smart City," in *IEEE Access*, vol. 9, pp. 923–948, 2021, doi: 10.1109/ACCESS.2020.3046999.
- [71] K. Kuru and D. Ansell, "TCitySmartF: A Comprehensive Systematic Framework for Transforming Cities Into Smart Cities," in *IEEE Access*, vol. 8, pp. 18615–18644, 2020, doi: 10.1109/ACCESS.2020.2967777.
- [72] K. Kuru, D. Ansell, W. Khan, and H. Yetgin, "Analysis and optimization of unmanned aerial vehicle swarms in logistics: An intelligent delivery platform," *IEEE Access*, vol. 7, pp. 15 804–31, 2019.
- [73] K. Kuru et al., "Toward Mid-Air Collision-Free Trajectory for Autonomous and Pilot-Controlled Unmanned Aerial Vehicles," in *IEEE Access*, vol. 11, pp. 100323–100342, 2023, doi: 10.1109/ACCESS.2023.3314504.
- [74] K. Kuru et al., "WILDetect: An intelligent platform to perform airborne wildlife census automatically in the marine ecosystem using an ensemble of learning techniques and computer vision." *Expert Systems with Applications* 231 (2023): 120574.
- [75] K. Kuru, "Trustfsdv: Framework for building and maintaining trust in self-driving vehicles." *IEEE Access* 10 (2022): 82814–82833.
- [76] K. Kuru et al., "Intelligent airborne monitoring of irregularly shaped man-made marine objects using statistical Machine Learning techniques." *Ecological Informatics* 78 (2023): 102285.
- [77] K. Kuru, et al., "Aitl-wing-hitl: Telemanipulation of autonomous drones using digital twins of aerial traffic interfaced with wing." *Robotics and Autonomous Systems*, 11 (2023).
- [78] K. Kuru et al., "Intelligent airborne monitoring of livestock using autonomous uninhabited aerial vehicles." *European Conference on Precision Livestock Farming (ECPLF)*, 2024.
- [79] K. Kuru, "Definition of multi-objective deep reinforcement learning reward functions for self-driving vehicles in the urban environment." *IEEE Transactions on Intelligent Transportation Systems* (2023).
- [80] K. Kuru, "Use of autonomous uninhabited aerial vehicles safely within mixed air traffic." (2023).
- [81] K. Kuru, "Technical report: Analysis of intervention modes in human-in-the-loop (hitl) teleoperation with autonomous ground vehicle systems." (2022).
- [82] K. Kuru, "Technical report: Analysis of intervention modes in human-in-the-loop (hitl) teleoperation with autonomous unmanned aerial systems." (2024).
- [83] K. Kuru et al., "Intelligent, automated, rapid, and safe landmine, improvised explosive device and unexploded ordnance detection using maggy." *IEEE Access* (2024).
- [84] J. Lowe et al., "Development of machine intelligence for self-driving vehicles through video capturing." *2024 20th IEEE/ASME International Conference on Mechatronic and Embedded Systems and Applications (MESA)*. IEEE, 2024.
- [85] K. Kuru, "Telemanipulation of autonomous drones using digital twins of aerial traffic." (2024).
- [86] K. Kuru et al., "Vision-based remote sensing imagery datasets from Benkovac landmine test site using an autonomous drone for detecting landmine locations." *IEEE Data Port* (2023): 1–10.

2nd World Summit and Expo on Robotics, AI and Machine Learning (ROBOTICS-2027)

March 18–20, 2027, in Tokyo, Japan

- [87] K. Kuru et al., "Platform To Test and Evaluate Human-Automation Interaction (HAI) For Autonomous Unmanned Aerial Systems." *2024 20th IEEE/ASME International Conference on Mechatronic and Embedded Systems and Applications (MESA)*. Institute of Electrical and Electronics Engineers (IEEE), 2024.
- [88] K. Kuru et al., "Kuru, Kaya, and Kaan Kuru. "Urban metaverse cyberspaces & blockchain-enabled privacy-preserving machine learning authentication with immersive devices." *2024 6th International Conference on Blockchain Computing and Applications (BCCA)*. IEEE, 2024.." *2024 6th International Conference on Blockchain Computing and Applications (BCCA)*. IEEE, 2024.
- [89] K. Kuru et al., "Airborne vision-based remote sensing imagery datasets from large farms using autonomous drones for monitoring livestock." *IEEE DataPort* (2023).
- [90] K. Kuru et al., "Deployment of autonomous IoT drones for precision farming in an automated manner." (2024).
- [91] K. Kuru, "Magnetic field mapping of a landmine field using a magnetometer-integrated drone and intelligent application." (2024).
- [92] K. Kuru et al., "Non-invasive detection of landmines, unexploded ordnances and improvised explosive devices using bespoke unmanned aerial vehicles." (2025).
- [93] K. Kuru et al., "Technical Report: Non-Invasive Detection of Explosives Using Bespoke Unmanned Aerial Systems." (2025).
- [94] J. Lowe et al., "Design & Development of a Prototype Intelligent Blind System Using Fuzzy Reasoning." *2024 20th IEEE/ASME International Conference on Mechatronic and Embedded Systems and Applications (MESA)*. Institute of Electrical and Electronics Engineers (IEEE), 2024.
- [95] J. Lowe et al., "Development of Machine Intelligence for Fully Autonomous Ground Vehicles Via Video Analysis." *2024 20th IEEE/ASME International Conference on Mechatronic and Embedded Systems and Applications (MESA)*. Institute of Electrical and Electronics Engineers (IEEE), 2024.
- [96] K. Kuru, "Swarms of Autonomous Drones in Logistics Within Smart City: Opportunities, Challenges and Future Directions." (2025).
- [97] K. Kuru et al., "Non-Invasive Detection of Landmines, Improvised Explosive Devices and Unexploded Ordnances Using Bespoke Unmanned Aerial Systems." *2024 International Conference on Electrical and Computer Engineering Researches (ICECER)*. IEEE, 2024.
- [98] K. Kuru, "6G Vision in Developing Swarms of Collaborative Robotics." (2025).
- [99] K. Kuru, "Human-in-the-Loop Telemanipulation Modes for Autonomous Unmanned Aerial Systems." (2024).
- [100] K. Kuru, "Human-in-the-Loop Teleoperation Modes for Autonomous Unmanned Aerial Vehicles." (2024).
- [101] K. Kuru et al., "A novel multilingual report generation approach for medical applications: the sisds methodology." Technical Report METU-MIN-TR-2009-001-KK, Infomatics Inst, 2009.
- [102] K. Kuru, "Collaborative Intelligence of Robotic Swarms in State and Situation Awareness and Human-Swarm Co-Work." (2025).
- [103] K. Kuru et al., "Automated Airborne Ordinance Detection Using Data Fusion of Magnetometer and Ground Penetrating Radar." *2025 Interdisciplinary Conference on Electrics and Computer (INTCEC)*. Institute of Electrical and Electronics Engineers (IEEE), 2025.
- [104] K. Kuru et al., "TECHNICAL REPORT: Automated Airborne Ordnance Detection Via Data Fusion of Ground Penetrating Radar and Magnetometers." (2025).
- [105] K. Kuru, "Wearable Sensors and Sensor Fusion For Healthcare Applications." (2025).
- [106] K. Kuru et al., "UMetaDAO3: Blockchain-Enabled Metaverse Framework for Building Urban Decentralised Autonomous Organisations (DAOs) to Democratise Societies." (2025).
- [107] K. Kuru, "UAV-Based Sensing and Autonomous Technologies", MDPI, (2024)
- [108] K. Kuru et al., "IoTfUAV: Intelligent remote monitoring of livestock in large farms using autonomous unmanned aerial vehicles with vision-based sensors." *Biosystems Engineering* (2024).
- [109] K. Kuru, "Industry 6.0: Human-Centric, Intelligent, and Sustainable Industrial Transformation", 3rd International Summit on Industrial and Manufacturing Engineering (SIME2026), May 25–27, 2026, Madrid, Spain.