

# ALI AKARMA

AI Researcher | Agentic AI | AI Safety | Trustworthy Machine Learning  
Madinah, Saudi Arabia

Email: [\[Link\]](#)

Portfolio: [\[Link\]](#)

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Google Scholar: [\[Link\]](#)

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## PROFILE

Third-year undergraduate AI researcher focusing on agentic AI systems, AI safety, and trustworthy machine learning. Author of multiple peer-reviewed publications on multi-agent architectures, AI governance, and constrained reinforcement learning. Experienced in designing policy-constrained agent pipelines and analyzing robustness and failure modes in safety-critical AI systems. Seeking research internships and future graduate study in reliable and trustworthy AI.

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## EDUCATION

### B.S. Information Technology

2023 – 2027

Islamic University of Madinah, Saudi Arabia

- GPA: 4.29 / 5.00
- Merit-based fully funded scholarship
- Relevant coursework: Machine Learning, Algorithms & Data Structures, Probability & Statistics, Database Systems

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## RESEARCH EXPERIENCE

### Undergraduate AI Researcher | Islamic University of Madinah

Jan 2025 – Present

- Designed multi-agent AI systems with explicit safety constraints: restricted action spaces, policy-aligned decision rules, and human-in-the-loop oversight mechanisms.
- Developed constrained multi-agent reinforcement learning architectures (C-Dec-POMDP, Lagrangian CTDE) for real-time cloudburst prediction using meteorological datasets from the Saudi National Center for Meteorology.
- Conducted failure-mode and adversarial misuse analyses for autonomous LLM pipelines, including prompt injection vectors and jailbreak robustness evaluation.
- Investigated AI governance frameworks for higher education, renewable energy IoT, and smart city digital twin infrastructures; manuscripts under review at Heliyon and PLOS ONE.
- Built open-source research prototypes (AgHealth+, FinNutriAgent, Agentic Digital Twin) with reproducible experimental pipelines and Zenodo-archived datasets.

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## PUBLICATIONS

### Peer-Reviewed Papers

- **Akarma, A.**, et al. "Agents for Agents: An Interrogator-Based Secure Framework for Autonomous Internet of Underwater Things" *ICETAS 2026*
- **Akarma, A.**, et al. "Governance-Constrained Agentic AI: Blockchain-Enforced Human Oversight for Safety-Critical Wildfire Monitoring" *ICETAS 2026*
- Hatem., **Akarma, A.**, et al. "Use of AI Tools: Guidelines to Maintain Academic Integrity in Computing Colleges." *IJEE 2026*
- Syed, T.A., **Akarma, A.**, et al. "FinAgent: Agentic AI for Personal Finance & Nutrition." *IEEE ICCA 2025*
- Jan, S., **Akarma, A.**, et al. "Blockchain-Monitored Agentic AI Architecture for Trusted Perception-Reasoning-Action Pipelines." *IEEE ICCA 2025*
- Syed, T.A., **Akarma, A.**, et al. "Agentic AI for Cloudburst Prediction & Disaster Response." *ICBDT 2025*
- Jan, S., **Akarma, A.**, et al. "Agentic AI for Disabilities & Neurodivergence." *ICBDT 2025*

- Syed, T.A., **Akarma, A.**, et al. "Agentic AI for Smart Inventory Replenishment." *ICBDT 2025*

### Accepted / In Press

- **Akarma, A.**, et al. "Improving Disability Support and Institutional Performance With AI" *Book Chapter, IGI Global*
- Syed, T.A., **Akarma, A.**, et al. "Agentic Digital-Twin Framework for Customer Churn Prediction in Retail Banking." *Book Chapter, Springer Nature*
- Syed, T.A., **Akarma, A.**, et al. "Agentic AI for Climate-Resilient Cities: A PRISMA-Guided Review and Digital Twin Framework" *Journal, MDPI Sustainability*
- Syed, T.A., **Akarma, A.**, et al. "FinNutriAgent (FNA): An Agentic AI for Budget and Nutrition Planning." *Journal, ETASR*
- Jan, Salman, **Akarma, A.**, et al. "ADAPT: An Agentic AI Framework for People with Disabilities and Neurodivergence" *Journal, IJACSA*

### Selected Research Projects

- **FinNutriAgent (FNA)** — Constraint-aware multi-agent planning system jointly optimizing household budget allocation and nutrition goals.  
DOI: [10.5281/zenodo.18849994](https://doi.org/10.5281/zenodo.18849994) | GitHub: [github.com/aliakarma/FinNutriAgent](https://github.com/aliakarma/FinNutriAgent)
- **Agentic Weather RL System** — MARL framework for autonomous extreme-weather disaster coordination using radar/satellite data and C-Dec-POMDP policy learning.  
DOI: [10.5281/zenodo.19023333](https://doi.org/10.5281/zenodo.19023333) | GitHub: [github.com/aliakarma/agentic-weather-rl](https://github.com/aliakarma/agentic-weather-rl)
- **Agentic Digital Twin Infrastructure** — Policy-constrained agentic AI system for real-time auditable management of smart city infrastructure via digital-twin integration.  
DOI: [10.5281/zenodo.18849073](https://doi.org/10.5281/zenodo.18849073) | GitHub: [github.com/aliakarma/agentic-dt-study](https://github.com/aliakarma/agentic-dt-study)

### TECHNICAL SKILLS

Languages & Frameworks	Python, Java, SQL; PyTorch, NumPy, scikit-learn, Hugging Face
LLM & Agent Systems	LLM orchestration, prompt engineering, MARL, CTDE, POMDP
AI Safety & Alignment	Failure-mode analysis, adversarial robustness, policy-based control
Research & Dev Tools	LaTeX, Git, Linux, Jupyter, Mendeley, REST APIs, Zenodo

### AWARDS & CERTIFICATIONS

- **Merit-Based Fully Funded Scholarship** — Islamic University of Madinah (competitive, 2023)
- **Certificate of Appreciation** — ICBDT 2025, for presented research contributions
- **Mindware: Critical Thinking & Computational Thinking** — University of Michigan (Coursera)

### LANGUAGES & SERVICE

- **Languages:** Urdu (native), English (professional proficiency), Arabic (professional proficiency)
- **Volunteer, Masjid Al-Nabawi** — Madinah (2024, 2025; 1 month each): visitor assistance and institutional service operations.

### REFERENCES

References available upon request.