Technical University of Mombasa

ACADEMIC STAFF CURRICULUM VITAE

Dr. Kevin Tole

Lecturer · Computer Science and Information Technology, Institute of Computing and Informatics

1. PERSONAL AND PROFESSIONAL DETAILS

Full Name	Dr. Kevin Tole
Academic Rank	Lecturer
Department / School	Computer Science and Information Technology, Institute of Computing and Informatics
Official Email	ktole@tum.ac.ke
Professional Links	ORCID: https://adscientificindex.com/scientist/kevin-tole/4805283/ Google Scholar: https://scholar.google.com/citations?user=oYWMBp8AAAAJ&hl=en ResearchGate: https://www.researchgate.net/profile/Kevin-Tole

2. PROFESSIONAL PROFILE

Dr Kevin Tole is the Director of the Institute of Computing and Informatics at the Technical University of Mombasa, having previously served as Deputy Director. His expertise cuts across artificial intelligence, machine learning and data science, with a focus on developing intelligent systems, predictive models and data-driven solutions to real-world problems. His teaching and postgraduate supervision support students in building computing skills, conducting rigorous research and applying technology to practical challenges. His research interests include computational optimisation, cybersecurity, predictive analytics and applications of machine learning in healthcare, business and education. He also explores responsible AI governance and digital inclusion.

In his leadership role, Dr Tole oversees academic planning, staff coordination, postgraduate research activities and institutional collaboration. He also serves as Board of Management Chair at Kasidi Secondary School and contributes to the TUM-TVET Institute Board. His major contributions include developing hybrid optimisation and machine learning approaches to complex decision-making problems, strengthening postgraduate research coordination and supporting interdisciplinary collaboration. He seeks to connect teaching, research and innovation with societal needs.

3. ACADEMIC QUALIFICATIONS

Year	Qualification	Specialization	Institution
2022	PhD Computer Science Engineering	Artificial Intelligence	Huanzhong University of Science and Technology
2013	Msc Computer Science	Cyber Security	Maharshi Dayanand of Science and Technolgy
2010	Bsc Computer Science	Constraint Programming	Periyar University

5. CURRENT POSITION AND RESPONSIBILITIES

Current Position: Lecturer and Director (Institute of Computing and Informatics)

Key Responsibilities:

1. Providing academic and administrative leadership within the Institute.
2. Contributing to the development, review and implementation of academic and research policies.
3. Supervising postgraduate students and coordinating research presentations and progress reviews.
4. Overseeing teaching, timetabling, staff workloads and student support.
5. Supporting curriculum development, programme review and quality assurance.
6. Identifying funding opportunities, developing research proposals and applying for grants to support research, training and institutional development.
7. Promoting research, innovation and responsible use of technology.
8. Developing institutional partnerships and interdisciplinary collaborations.

6. TEACHING & RESEARCH EXPERTISE

Teaching Areas:

- Artificial Intelligence and Machine Learning
- Data Science and Analytics
- Programming and Software Development
- Algorithms and Computational Optimisation
- Cybersecurity and Intelligent Systems

Research Interests:

- Artificial intelligence, machine learning and data science.
- Combinatorial optimisation and intelligent scheduling.
- Healthcare informatics and cybersecurity.

- Internet of Things and digital transformation.
- Responsible AI and climate risk assessment.

Research Projects/Programmes:

1. **AFYA MOJA Programme:** Supports One Health research, innovation, capacity building and community engagement at the Technical University of Mombasa.
2. **MJTUM Publishing Enhancement:** An EIFL-supported project strengthening the journal's publishing infrastructure, editorial capacity, indexing, visibility and long-term sustainability.
3. **Intelligent University Timetabling:** Develops a system to automate course scheduling, optimise resource allocation and improve academic planning.
4. **SILVIE AI Voice Assistant:** Development of a working conversational AI prototype for YouWel Group to support voice-based interaction.
5. **Climate Risk Assessment with AGNES:** Collaboration on climate risk assessment to inform adaptation planning and evidence-based decision-making.

Research Collaborations:

- **AGNES:** Collaboration on climate risk assessment and adaptation.
- **YouWel Group:** Industry collaboration on conversational AI and voice-assistant development.
- **AFYA MOJA partners:** Multidisciplinary collaboration supporting One Health research, training and community engagement.
- **EIFL:** Collaboration to strengthen scholarly publishing and open-access dissemination through MJTUM.
- **Academic collaborators:** Joint research in optimisation, machine learning, cybersecurity and data-driven applications.

7. PUBLICATIONS AND SCHOLARLY OUTPUTS

Peer-reviewed Journal Articles:

Peer-reviewed journal articles

- Omar, A. S., Ogada, K., & Tole, K. (2026). A hybrid feature selection framework for dimensionality-optimized customer churn prediction. *Scientific Reports*. DOI: 10.1038/s41598-026-21560-z.
- Tole, K., Fondo, E., & Mwakondo, F. (2026). A hybrid quantum annealing algorithm for solving a constraint-based university timetabling problem. *Multidisciplinary Journal of Technical University of Mombasa, 5*(1). DOI: 10.48039/vd1rdc49.
- Mlewa, M. K., Tole, K., & Mvuya, M. (2025). Optimizing non-revenue water management: A review. *Multidisciplinary Journal of Technical University of Mombasa, 4*(1), 37–49. DOI: 10.48039/mjtum.v4i1.88.

- Fondo, E., Mwakondo, F., & Tole, K. (2025). A conceptual cybersecurity model based on generative adversarial networks: A literature-driven approach. *Multidisciplinary Journal of Technical University of Mombasa, 4*(1), 70–80. DOI: 10.48039/mjtum.v4i1.90.
- Tole, K., Moqa, R., Zheng, J., & He, K. (2023). A simulated annealing approach for the circle bin packing problem with rectangular items. *Computers & Industrial Engineering, 176*, 109004. DOI: 10.1016/j.cie.2023.109004.
- Yuan, Y., Tole, K., Ni, F., He, K., Xiong, Z., & Liu, J. (2022). Adaptive simulated annealing with greedy search for the circle bin packing problem. *Computers & Operations Research, 144*, 105826. DOI: 10.1016/j.cor.2022.105826.
- He, K., Tole, K., Ni, F., Yuan, Y., & Liao, L. (2021). Adaptive large neighborhood search for solving the circle bin packing problem. *Computers & Operations Research, 127*, 105140. DOI: 10.1016/j.cor.2020.105140.

8. POSTGRADUATE SUPERVISION AND MENTORING

PhD: 1 completed, 2 ongoing.

Master's: 4 completed, 3 ongoing.