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ACCEPTED PAPERS

Institutional Framework for Adoption of Open Distance and e-Learning (ODEL) Programmes at Malawi School of Government (MSG)

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ABSTRACT

Five public universities of Malawi adopted Open Distance and e-Learning (ODEL) system for delivery of academic programmes to learners. This was a strategy of increasing access of higher education to many Malawians in view of space and infrastructure limitations under the regular face-to-face intake of learners. This research study was undertaken to develop an institutional framework for adoption of Open Distance and e-Learning (ODEL) programmes at Malawi School of Government (MSG) in line with set standards of education. MSG is a newly established public institution that was established by Malawi Government to provide training, research, consultancy and advisory services to the public. The study deployed three key theoretical models in line with the concepts of e-learning and innovation adoptions comprising of TPACK, SAMR and Diffusion of Innovation Models respectively. The research study adopted mixed methods comprising of qualitative and quantitative techniques. These methods influenced the choice of data collection tools which comprised of survey questionnaires, key in-depth interviews and documentary analysis of existing literature sources. The research data were analysed using relevant software packages such as Microsoft Excel and SPSS in order to derive useful information for the final report. The findings for this study revealed useful elements for inclusion in the proposed e-learning framework to be adopted by Malawi School of Government (MSG). These elements include internet connectivity, appropriate devices, self-instructional materials, delivery time, online skills and good interactions between lecturers and learners.

Keywords

Institutional Framework, Open Distance and e-Learning, Malawi School of Government.

Integrating Facilities Engineering and Research Infrastructure: A Strategic Framework for Advancing Aerospace Technology at Tuskegee University

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ABSTRACT

Aerospace research competitiveness depends on reliable, digitally connected, adaptable, and resilient infrastructure as well as faculty expertise and instrumentation. This paper introduces the Facilities-Engineering Integration Model (FEIM), a systems framework linking research strategy, capital planning, facilities engineering, digital engineering, and workforce development. FEIM integrates BIM, GIS, Internet of Things sensing, maintenance and asset-management systems, and digital twins into a common decision environment. It also proposes five performance tools: the Facilities Research Readiness Index, Research Infrastructure Return on Investment, Infrastructure Resilience Index, Laboratory Utilization Efficiency, and Research Infrastructure Optimization Model. Tuskegee University serves as an applied case environment. The framework includes a five-year implementation roadmap, governance model, federal funding strategy, and modified

Delphi validation protocol, positioning facilities engineering as an active contributor to aerospace research, student development, institutional resilience, and sponsored innovation.

Keywords

Aerospace Infrastructure, Digital Twin, Facilities Engineering, Research Infrastructure, Systems Engineering.

Algorithmic Exclusion and Neurodivergent Users: How Platform Design Shapes Belonging and Mental Health Online

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ABSTRACT

Social media platforms have become central to social participation, identity formation, and community belonging. However, algorithmic systems that underpin recommendation engines, content moderation tools, and engagement optimisation functions are predominantly designed around neurotypical patterns of behaviour and social interaction. This conceptual review examines algorithmic exclusion as it relates to neurodivergent users, with emphasis on autistic adults and individuals with ADHD in the United Kingdom. Drawing on critical algorithm studies, the neurodiversity paradigm, person–environment fit theory, and the social model of disability, this paper develops the Neurodivergent Algorithmic Misfit (NAM) framework. The NAM framework identifies four dimensions of algorithmic exclusion: attentional exploitation, social ambiguity amplification, identity suppression, and community fragmentation. The paper concludes by advocating for neurodiversity-inclusive platform design grounded in co-production with neurodivergent communities, and outlines implications for platform governance, digital inclusion policy, and future empirical research.

Keywords

Algorithmic exclusion, Neurodiversity, Autism, ADHD, Platform design.

A Synthesis-based Method for Design Space Exploration in High-level Synthesis of Risc-V RV32IM Microprocessors

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ABSTRACT

High-Level Synthesis (HLS) is a hardware design technique that interprets an algorithm-level description and transforms it into a digital circuit to implement the desired behavior. To obtain optimized RTL descriptions about a certain parameter and respect possible design constraints, design space exploration (DSE) is a fundamental activity. The most common form to do this in HLS is called pragmas (directives to provide additional information to the compiler that will transform the high-level code) and setting different combinations potentially leads to different design implementations. In this research, the main goal is to propose a method to perform the exploration of the design space and consequent optimizations for high-level synthesis of microprocessors that implement the RISC-V RV32IM instruction set. We aim to contribute to the

definition of criteria to explore and evaluate the various solutions that can be obtained by varying the configurations that will impact the HLS steps, with a focus on area and power. With our method, we obtain improvements for these metrics, with the best being 16.39% for area and 3.62% for power. The results show that our method can improve the quality of results with an easy to apply approach, without the necessity to build complex exploration methods, preserving the benefits of a higher level of abstraction provided by HLS.

Keywords

high-level design, synthesis-based design space exploration, instruction set architecture, power, area.

WHO ASSURES THE ASSURER? A POSITION ON META-ASSURANCE FOR AI-MEDIATED EVALUATION

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ABSTRACT

Artificial intelligence is now used to evaluate other systems. Large language models (LLMs) generate assurance profiles, control questions and test cases, judge benchmark outputs, and support automated red teams. At the same time, the evaluated systems are often LLM-based agents themselves. In this position paper, we argue that this situation creates a new type of assurance problem. Three basic assumptions of classical evaluation are broken: (1) the evaluator and the target can fail in the same way (correlated blind spots); (2) the evaluation criteria are written by the same type of model that is evaluated (circular criteria); and (3) the target can influence the inputs of the evaluator (injectable evaluation). We connect this problem to known results in computer science and propose seven principles for what we call meta-assurance. Finally, we present four testable propositions for future research.

KEYWORDS

Security Assurance, LLM Agents, Agentic Operating Systems, AI Evaluation, Meta-Assurance