Week 4: Evaluate Constructive Research Designs

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# Evaluate Constructive Research Designs

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|  | Cinnamon | Collaborative IoT | Bio-inspired Computational Model |
| Authors | Arif et al. (2021) | Banerjee & Chandra (2019) | Gomez-Canaval et al. (2019) |
| What is the problem | Instrumenting binaries is complex | Too many ad hoc tasks for ML on IoT data |  |
| Who cares about the solution | Software engineers that want to integrate testing and debugging tools | Software engineering managers and data science practitioners |  |
| What contribution came from creating this artifact | The lower barrier to entry into instrumentation | Methodological processes for implementing best practices |  |
| When/where/why was the artifact proposed | DSL for describing instrumentation and LLVM compiler extension | Reference architecture and a case study implementing it |  |
| Where is this applicable | Quality assurance and troubleshooting | Large corporations with decentralized teams (e.g., IIoT and Health Care) |  |
| Any strengths or weaknesses | 1. The language is concise and requires a 5-10% code size vs. Dyninst and Janus. 2. Scripts are language agnostic 3. It does not align with existing standards | 1. An abstract model that can integrate into existing environments 2. No data within the article 3. The first collaborative platform for IoT data (pg. 46) 4. No streaming data support |  |
| What testing took place | Implements five different scenarios to confirm the DSL’s *expressiveness* | The architecture is available within a health care facility.  They discuss several scenarios and their processes |  |
| What data collection and processing methods utilized | Implements the five scenarios in Dyninst, Janus, and Pin  Next, an assessment of code length  There are no details on runtime efficiency | There are process diagrams but no data in the article |  |