

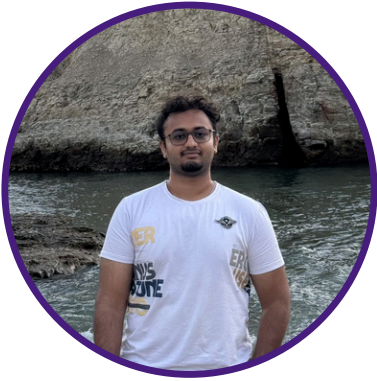
## STUDENT RESEARCH LAGNIAPPE

**SHREYAS ATRE**

**TITLE: *CHPLX – AN ASYNCHRONOUS MANY TASK RUNTIME FOUNDATION FOR CHAPEL***

**ABSTRACT:**

A PREVIOUS CASE STUDY MEASURED PERFORMANCE VS SOURCE-CODE COMPLEXITY ACROSS MULTIPLE LANGUAGES. THE CASE STUDY IDENTIFIED CHAPEL AND HPX PROVIDE SIMILAR PERFORMANCE AND CODE COMPLEXITY. THIS PAPER IS THE RESULT OF INITIAL STEPS TOWARD CLOSING THE SOURCE-CODE COMPLEXITY GAP BETWEEN CHAPEL AND HPX BY USING A SOURCE-TO-SOURCE COMPILER. THE INVESTIGATION ASSESSES THE SINGLE-MACHINE PERFORMANCE OF BOTH CHAPEL AND CHPLX APPLICATIONS ACROSS ARM AND X86.



**RUBA ALSMADI**

**TITLE: *GIVE MESTEAM: A SYSTEMATIC APPROACH FOR HANDLING STRIPPED SYMBOLS IN MEMORY FORENSICS OF THE STEAM DECK***

**ABSTRACT:**

THE STEAM DECK, DEVELOPED BY VALVE, COMBINES HANDHELD GAMING WITH DESKTOP FUNCTIONALITY, CREATING UNIQUE CHALLENGES FOR DIGITAL FORENSICS DUE TO ITS LINUX-BASED STEAMOS AND ITS STRIPPED SYMBOL TABLES. THIS RESEARCH ADDRESSES HOW TO CONDUCT RELIABLE MEMORY FORENSICS ON THE STEAM DECK. EMPLOYING THE LINUX MEMORY EXTRACTOR (LIME) AND VOLATILITY 3, WE ACQUIRE AND ANALYZE VOLATILE MEMORY, A PROCESS COMPLICATED BY STEAM'S STRIPPED SYMBOL TABLE THAT

OBSCURES FORENSIC RECONSTRUCTION OF MEMORY STRUCTURES. OUR APPROACH RECONSTRUCTS THESE SYMBOLS AND ADAPTS FORENSIC TOOLS TO THE STEAM DECK'S ARCHITECTURE. OUR RESULTS INCLUDE THE SUCCESSFUL GENERATION AND VALIDATION OF SYMBOL TABLES AND THE PATCHING OF PROFILES TO ALIGN WITH SYSTEM CONFIGURATIONS. DURING GAMEPLAY, WE OBSERVED A SIGNIFICANT INCREASE IN PLATFORM-RELATED AND GAME-RELATED PROCESSES, HIGHLIGHTING THE SYSTEM'S DYNAMIC OPERATION WHILE GAMING. THESE FINDINGS CONTRIBUTE TO IMPROVING FORENSIC METHODOLOGIES FOR SIMILAR LINUX-BASED DEVICES, ENHANCING OUR CAPABILITY TO EXTRACT VALUABLE FORENSIC DATA FROM MODERN GAMING CONSOLES.



**MARCH 28, 2025**



**11:30 AM TO 1:30 PM**



**ROOM 1246 PATRICK F. TAYLOR HALL**