

Alexander S. Eubanks

LOW-LEVEL PROGRAMMING · REVERSE-ENGINEERING · PROGRAM ANALYSIS

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Experience

Released Vulnerabilities

CVE-2015-0973	libpng	Controlled heap buffer overflow in png_read_IDAT_data	link
CVE-2015-0232	php	Free on uninitialized data in JPEG EXIF parser	link
SOHO Router Exploit	WNR2000v4	Multiple vulnerabilities	link
Metasploit Feature	libupnp	Contributed ROP chain in ARM	link

Selected Code Samples

Falcon	Binary Analysis Framework in Rust	github.com/falconre/falcon
Finch	Symbolic Execution over Falcon IL	github.com/falconre/finch
RDIS	GUI Disassembler for Linux	github.com/endeav0r/rdis
HSVM	Reversing CTF in Custom 16-bit Arch/VM	github.com/endeav0r/hsvm
BT	Experimental Binary Translation Engine	github.com/endeav0r/bt

Public Engagement

2017	Rust DC	Falcon - Static Binary Analysis in Rust	slides
2015	Army Cyber School House	Advanced Low-Level Programming	example slides
2015	Austin Hacker's Association	Concolic Execution in x86	slides
2014	Austin Hacker's Association	Formal Static Analysis in x86	slides
2014	Austin Hacker's Association	Concolic Execution in HSVM	slides

Work History

2017-Present	ForAllSecure
2017	TwoSix Labs
2015-2017	US Army Cyber Officer
2012-2015	US Army Field Artillery Officer
2008-2012	Cadet at United States Military Academy
2006-2008	US Army Infantryman, Iraq 2007-2008

Skills

Experience by Language

- Experience with x86, MIPS, and other architectures. Familiarity with ARM, PowerPC.
- Experience with C, C++, Python, and Rust. Familiarity with Lua, Javascript, Ocaml, PHP, and SQL.

Experience by Task

- Blackbox & embedded binary reverse-engineering, exploitation, and patching.
- Program analysis tool development, both dynamic and static.
- Hard target systems analysis, emulation, and defeat at the machine-code level.

Interest Areas

- Binary analysis framework development.
- Data-Flow analysis, abstract interpretation and symbolic execution of binary programs.
- Automated vulnerability research/development.

Education

United States Military Academy

- Graduated in 2012 with a B.S. in Computer Science.
- Led hacking club 2010-2012.