

# Alexander S. Eubanks

LOW-LEVEL PROGRAMMING · REVERSE-ENGINEERING · PROGRAM ANALYSIS

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## Experience

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### Released Vulnerabilities

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

### Selected Code Samples

Falcon	Binary Analysis Framework in Rust	<a href="https://github.com/falconre/falcon">github.com/falconre/falcon</a>
RDIS	GUI Disassembler for Linux	<a href="https://github.com/endeav0r/rdis">github.com/endeav0r/rdis</a>
HSVM	Reversing CTF in Custom 16-bit Arch/VM	<a href="https://github.com/endeav0r/hsvm">github.com/endeav0r/hsvm</a>
Queso	x86 Analysis Engine/Concolic Executor	<a href="https://github.com/endeav0r/queso">github.com/endeav0r/queso</a>
BT	Experimental Binary Translation Engine	<a href="https://github.com/endeav0r/bt">github.com/endeav0r/bt</a>

### Public Engagement

2017	Rust DC	Falcon - Static Binary Analysis in Rust	<a href="#">slides</a>
2015	Army Cyber School House	Advanced Low-Level Programming	<a href="#">example slides</a>
2015	Austin Hacker's Association	Concolic Execution in x86	<a href="#">slides</a>
2014	Austin Hacker's Association	Formal Static Analysis in x86	<a href="#">slides</a>
2014	Austin Hacker's Association	Concolic Execution in HSVM	<a href="#">slides</a>

### 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

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### Experience by Language

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

### Experience by Task

- Userland fuzzing, debugging, binary patching, and exploitation.
- Blackbox binary reverse-engineering.
- Development of program analysis tools, both dynamic and static.
- Embedded device software reverse-engineering.

### Interest Areas

- Formal binary analysis framework development.
- Abstract interpretation and symbolic execution of binary programs.
- Automated vulnerability research/development.

## Education

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### United States Military Academy

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