Benjamin A. Mixon-Baca

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Core Competencies

Reverse Engineering	Exploit Development	Network Security	Mobile Security
Red team/Blue team	DevSecOps	Threat Hunting	Threat Intelligence
Python, C/C++, Go, Bash	x86/64, ARM	Machine Learning & AI	Software Engineering

SKILLS & ACTIVITIES

Technical Skills: Python, C/C++, gdb, windbg, panda-re, virtualization, TCP/IP, network security, reverse engineering, security auditing, threat hunting, digital surveillance, mobile security, machine learning, supply chain security

PROFESSIONAL EXPERIENCE

Senior Security Researcher, Breakpointing Bad, Albuquerque, NM **December 2019-Present**

- Performed threat hunting using OSINT data collection, monitoring and analysis
- Performed malware triage using JADX, Ghidra, Python, Bash
- Generated reports and presented findings to technical and non-technical stakeholders
- Built a threat intelligence platform for continuous threat monitoring

Research Assistant, Arizona State University, Tempe, AZ **June 2020 – Present**

- Identified multiple vulnerabilities in Netfilter on Linux and IPFW, PF, and IPFILTER on FreeBSD that can be exploited to subvert OpenVPN, OpenConnect, and WireGuard. This work is recognized as CVE-2021-3773
- Developed techniques to measure bypass the Russian Firewall, TSPU
- Developed tools and techniques to analyze the Linux operating system using QEMU/KVM, gdb, and panda-re

Senior Information Controls Fellow, Open Technology Fund, Ann Arbor, MI **November 21-22–December 23-24**

- Developed tools for real-time, automatic application threat hunting on high-speed network traffic
- Security auditing of PC and mobile applications
- Developed web application for OSINT research, analysis, and reporting for technical and non-technical stakeholders

Innovation Team Lead, RiskSense, Albuquerque, NM **August 2017 – March 2020**

- Contributed to an in-house automated exploitation tool using python, metasploit framework, impacket, nmap, bloodhound, and Koadic
- Developed and deployed machine learning algorithms for vulnerability exploitation risk classification
- Wrote patents and received patents for machine learning
- Presented research that helped secure venture capital funding
- Implemented and deployed machine learning algorithms to AWS to predict likelihood of exploitation based on OSINT sources
- Developed and maintained a threat intelligence platform using python and deployed to AWS.

LEADERSHIP EXPERIENCE

Director, Biology, Security, and Society Scholars Program, Arizona State University **September 2018 – Present**

- Perform technical and non-technical interviews for engineering and biology Bachelors and Masters students.
- Coordinate disparate projects between multiple technical teams.
- Facilitate weekly career enrichment seminars focused on research at the intersection of biology, security, and society.

Innovation Team Lead, RiskSense **May 2018 - March 2020**

- Conducted technical and non-technical interviews for engineering staff.
- Coordinated weekly meetings, defined goals, timelines, identified blockers, and proposed solutions.

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EDUCATION

Ira Fulton School of Engineering, Arizona State University, Tempe, AZ **May 2026**
Doctor of Science, Computer Science

University of New Mexico, Albuquerque, NM
Master of Science, Computer Science **May 2017**
Bachelor of Science, Computer Science - Minor, Mathematics **May 2015**

- Awards: Sigma Xi, Superior Undergraduate Student
- Awards: University of New Mexico Senior of the Year
- GPA: 4.00

Publications & Presentations

TSPU: Russia's Firewall and Defending Against the Future of Digital Repression **August 2025**
Benjamin Mixon-Baca DEFCON 33

Hidden Links: Analyzing Secret Families of VPN Apps **July 2025**
Benjamin Mixon-Baca, Jeffrey Knockel, Jedidiah R. Crandall FOCI 2025

Attacking Connection Tracking Frameworks as used by Virtual Private Networks **September 2024**
Benjamin Mixon-Baca, Jeffrey Knockel, Diwen Xue, Tarun Ayyagari, Deepak Kapur, Roya Ensafi, Jedidiah R. Crandall
PETS 2024

TSPU: Russia's decentralized censorship system **October 2022**
Diwen Xue, Benjamin Mixon-Baca, ValdikSS, Anna Ablove, Beau Kujath, Jedidiah R. Crandall, Roya Ensafi IMC 2022

Challenges and Opportunities for Practical and Effective Dynamic Information Flow Tracking **November 2021**
Christopher Brant, Prakesh Shretha, Benjamin Mixon-Baca, Kejun Chen, Said Varlioglu, Nelly Elsayed, Tier Jin, Jedidiah R. Crandall, Daniela Oliviera AMC Computing Surveys

Port Shadows via Network Alchemy (CVE-2021-3773) **September 2021**
Benjamin Mixon-Baca, Jedidiah R. Crandall Self-published/Blog

Patents

Predicting and Quantifying Weaponization of Software Weaknesses (US-20240126891-A1) **April 2024**