Justin Knox, B.Sc., CC

2232 S Main St. #292, Ann Arbor MI, 48103 | M: 313.466.2808

justin.knox@posteo.de | linkedin.com/in/justintknox | @github.com/jknoxdev
@gitlab.com/n1ghtcr3w | @techbiotic:matrix.org

Objective: Developer

Experience:

University of Tennessee, Knoxville | Graduate Student

Studying for Masters of Science in Computer Science | Online, Ann Arbor, MI | Dec 2022 – Present

- Specialization is in Data Science & Intelligent Systems; with Dual-Major in Software Engineering.

jPegDesign | Technical Specialist II

Camera, IT & Network Systems Design, Deployment & Support | Ann Arbor, MI | March 2023 – Present

- Implement and scale Managed IT Services, support and design for all levels of technical operations and infrastructure.
- Projects included creating full company database in PostgreSQL, Python based Network Management, Security analysis, production acquisition and integration.

Alchemy Computing | Freelance Technical Consultant

Fullstack Development, Systems Architecture & Design | Ann Arbor, MI | Dec 2021 – Present

- Freelance SMB infrastructure development, network design, prototyping and deployment.
- Clients are primarily in the legal, entertainment and construction industries, (active NDA).

Google | Operations Engineer II / DT3

Global & 3rd Party Datacenter, Engineering Field Services, Hardware, Network & Server Operations | Charleston, SC; Reston, VA | Dec 2018 – Dec 2021

- Developed internal CI/CD repair monitoring,performance tracking, and automation software using BASH, Python, Ruby, JavaScript, SQL HTML and CSS.
- Through BASH, Python, and JavaScript, created department internal scripts that would SSH in to the machines, check memory, disk, CPU, temperatures, voltages and generate a health profile for the machine.

  The system would then create a ticket and dispatch it to the repair pool.
- Created internal scripts in BASH and JavaScript to visualize data gathered from the above scripts, across the fleet, allowing for bug-level, monitoring, tracking and reporting for technical issues.

While regionally scoped during implementation, the scripts have architectural and operationally verified capabilities to execute fleet wide.

- Deployed, maintained and configured the datacenters, servers, & production infrastructure to the Google fleet. Particular highlights included; an 800% reduction in the GCVE regionally identified production issues.

  This was spread over corporate, production, and "New Product Integration" fleet operations.

- Leveraged Google Incident Management solution for tracking progress on high severity incidents impacting multiple customer sites.
- Provisioned, maintained and managed biometric, RFID, and physical building access systems and user credentials to gain access.
- Received 19 Peer Bonuses, and 2 Awards for Hurricane & Pandemic Support

Switch LTD | Datacenter Technician

Network Operations | Las Vegas, Nevada | July 2017 – Dec 2018

- Developed an internal mail handling script utilizing AutoHotKey and JavaScript that would parse incoming help-desk email and collect it into assorted groups to aid in processing incoming ticket requests.

  The system would locate the most commonly requested items, and given a confidence value of over 0.85, it would generate the tickets for the technician automatically.

- Provided network incident detection in the internal Network Operations Center (NOC) and issue escalation, for outages on customer nodes as well as production upstream links.
- Deployed customer network configurations from schematic to configuration, utilizing a wide variety of industry vendors including Cisco, Juniper, Cienna, Palo-Alto, Dell, HP, Checkmate, Alcatel-Lucent as well as other proprietary equipment.
- Coordinated with Engineering teams from over 2,300 customer deployments to provide regional technical support issues on customer provided infrastructure ranging on deployments that ranged from 1RU, to multi-campus / LAN and multi-sector-wide / WAN deployments.

Pinnacle Community Services | IT Support Technician IV

Information Technology | Las Vegas, Nevada | Oct 2016 – June 2017

- Developed a parser in Python to scrape the user logs for time entries during one of the HR legal investigations for one of our users.

  Using the timestamps from the user logins and cross referencing it with the timestamps from the emails, I created a visual interface representing the times which displayed the user's use of the computing systems.

- Designed and implemented the internal communications network for the regional office back to the headquarters using IPSEC over GRE on Cisco 2800 series ISRs, and 3600 series layer 2 switches.

- Implemented, secured and converted the VOIP infrastructure to its own internal VLAN.
- Provided systems administration, network design, deployment and support for the Nevada region covering 30 remote locations and three office campuses; in a mixed Windows Server 2016, RedHat, OpenSuse, FreeBSD and Ubuntu environment.
- Designed, built and migrated the company back-end infrastructure over to HIPAA compliant, open source and license free solutions.
- Implemented strategy to acquire ISO 27001 compliance for the internal datacenter.
- Conducted forensic investigations to procure data for human resource and legal departments utilizing Autopsy, the Sleuth toolkit, PhotoRec and self-developed Log analysis software.

Scientific Games | Technical Specialist II

Technical Training & Documentation | Las Vegas, Nevada | Nov 2013 – April 2015

- Developed internal training database utilizing SQL on a MySQL deployment; and supported migration to production SharePoint servers.
- Hardened the production instances of the Arch Linux kernels; and implemented the IP tables firewalls for each of the units in accordance with security best practices.
- Designed and built the mem-cached Arch Linux prototype server infrastructure to distribute the in-house training videos out via the company WAN.
- Interfaced with Hardware & Software Engineering teams to develop internal training to distribute to ~680 technicians globally on a monthly release cycle.
- Designed, developed and deployed the companies first Casino simulation laboratory. This mirrored the in-field deployment for the entire product line of gaming machines and networks.
- Wrote, filmed, edited and distributed training content using video production methodology to integrate into videos for distribution using Adobe Premiere, After Effects in the five phase production lifecycle.

Alchemy Computing | Freelance Technical Consultant

Web Development, Computer Repair, Electronics Prototyping | Los Angeles, CA | Sept 2009 – Nov 2013

- Freelance web development and design, data recovery, SMB cloud conversion, forensic analysis, wireless network design and server disaster recovery.
- Notable clients were primarily in the legal, entertainment, cosmetic and automotive industries; Associated Nevada State Bar Attorneys, Henry Strange, Kerastase, Sephora, Drybar, Sassoon Salon, Aaron Cohen (The Truth Collective), Artdoc Inc., Phillip Morris

British Telecom | Network Event Management Technician III

Global Operations Tier 3, Converged Services Management Center | El Segundo, California | May 2008 – Sept 2009

- Implemented a computer vision application utilizing the OpenCV API to notify technicians of network alarm status. The system utilized machine vision to collect a series of screenshots in sequence and would detect when an ”excess” amount of ”red” was on the monitor.
- Created a platform-agnostic automated ticket closure system using the windows based AutoHotKey API, JavaScript, and the OpenCV libraries.

  The system executed a set of customizable sequences of mouse clicks to automate a routine ”ticket closure” procedure which otherwise averaged anywhere from 1-4 hours of a technician’s time per night.
- Provided Tier 3 support, including the provisioning, maintenance and performance monitoring of BT-Infonet’s internet backbone; in a cross-platform; mixed vendor environment. Platforms included:

  Cisco, Alcatel Lucent, Juniper & Cienna based equipment. Protocols included: MPLS, EIGRP, IGRP, Frame-Relay, TCP/IP V4/V6, SIP, ARP, CDP, EIGRP, OSPF, BGP, VTP, Etherchannel, 802.1Q trunking, QoS, Multicast, 802.11a/b/g/n/ac, IPSec, LDAP, RADIUS/TACACS+, SNMP, NTP, VRF and HTTP/HTTPS.

Synetcom Digital | Junior Electronics Engineer

Torrance, California | June 2006 – Nov 2007

- Primary UI engineer on GUI development, implementing vendor provided libraries to portray graphics on LCD panels of real-time information regarding system-wide sensor status. Main customers were in the Oil and gas industries, systems included:

  Graphics of pump relays, liquid depth levels in fuel, water and other tanks, dispersion rates through pipelines, planar field ”dryness” levels in lake beds using resistance wire, system internal and external temperatures.
- Secondary engineer on BASIC stamp programming for main systems operation, code verification and testing. Areas included:

  Sensor testing and verification of ADCs, DACs, 4-20ma loops, and results accuracy over stress testing including temperature, network interference, RF noise jamming testing (in laboratory) and antenna modifications and tampering.
- Staff Engineer working with Ladder Logic on Allen Bradley Programmable Logic Controllers (PLCs). Applications typically included temperature monitoring, relay switching and remote switch (SPST) engagement.
- Developed and implemented embedded software utilizing the System on Chip (SoC) encryption modules with AES256 to secure video over radio communications.
- Conducted Wireshark traffic and packet analysis to help secure and harden SCADA radio networks in point-to-point, star, bus and wireless mesh topologies.

- Conducted wireless penetration testing and 802.1X assessments leveraging Kismet, Spectrum analyzers and custom built software to ensure communication security.
- Designed and converted existing customer networks to support fail over resistant mesh network topology utilizing FHSS (frequency hopping spread spectrum) radios.

DeVry University | Academic Tutor

Office of Academic Support and Instruction Services, Advanced Development Laboratory, Network Laboratory, Computer Laboratory, Electronics Laboratory | Long Beach, California | Mar 2004 – June 2006

- Tutored students in the office of academic support and instructional services, Advanced Development Laboratory, as the resident Teachers Assistant in advanced micro peripheral and processor courses.
- Focused specialties included:

- C++, C, Visual Basic, Basic, Assembly & ARM programming assistance.
- Senior Project I&II, Design and Implementation strategies
- FA for Physics I, II
- Microprocessor Architecture
- Electronics Design
- Digital Logic I,II
- Java, JavaScript & OOP

Technical Skills & Security Tools:

Vulnerability Assessment Tools:

Nmap, Net Stumbler, Netcat, Kismet, Wireshark, Kali Linux, Pentoo Linux

Languages:

Python, Ruby, Assembly, Embedded C, C++, Java, SQL, BASH, LaTeX, YACC, YAML, XML, HTML, CSS

Cloud / Server / HyperVisor Operating Systems:

Windows 10, Windows 2016, RHEL 7, Linux (VMWare), ESXi, OpenBSD, FreeBSD, NetBSD, Docker, XCP-NG

Applications:

Office, SharePoint, Adobe Premiere, Adobe After Effects, Adobe Photoshop, Adobe Illustrator, MATLab, Slicer (3D Printing)

Databases:

PostreSQL, MS SQL Server 2008, MS Access, MySQL

Personal Projects:

"Homelab" – FOSS Home Computing

https://sites.google.com/view/justinsdevlab/home

Description:

Fully self hosted search, DNS, firewall, remote access, file storage, cryptocurrency mining and blockchain hosting.

Technologies used:

SearxNG, dnsmasq, Cisco 1841, Palo-Alto PA-500, OpenVPN, IPSEC, GRE, BGP (dn42), FreeNAS, NFS, Monero, Dash, Litecoin, Ethereum, Bitcoin (miners and full-nodes)

"Cyboard" – Longboard Security System and Datalogger

Description:

Raspberry Pi based "Smart skateboard", with on-device weather detection, keyfob to "lock" the board, motion and location detection for "ride-data".

Technologies used:

Python, SQLLite, GPS PA1616S, Raspbian, NeoPixel LED, Remote Control Encoder PT2262, SHT30 Sensor, ADXL343 - Triple-Axis Accelerometer

"Video LAN Checker" – VOIP Security Camera Management

https://github.com/jknoxdev/video-lan-checker

Description:

Scripts to aid the secruity camera installer, currently scans the network to detect any cameras, shows encrypted traffic status. Draws diagram of connections to router.

Technologies used:

LLaMA 7B, ChatGPT, Python, PostgreSQL, SQLLite, Azure, GCP, AWS, ARP, DNS, DHCP, RTSP, RTP

Education:

(Studying), Master of Science in Computer Science

University of Tennessee, Knoxville, Dec 2022 - Present

Web Development Full Stack Bootcamp

LeWagon, Rio de Janeiro, Brazil, June 2021 - Sep 2021

Bachelor of Science, Computer Engineering Technology

DeVry University, Long Beach, California, Oct 2003 - March 2008 GPA: 3.58, Summa Cum Laude, Academic Honors: Dean's List, 2003 - 2007

Certificates:

$(ISC)^2$ Certified in Cybersecurity / CC

International Information System Security Certification Consortium $(ISC)^2$ Active as of: September 2022