

KONRAD KUCHAREK

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EDUCATION

MS in Cybersecurity

August 2025 - May 2027

BS in Computer Science, Minor in Electronics

August 2017 - December 2021

California State University San Marcos, San Marcos, CA.

PROGRAMMING LANGUAGES / LIBRARIES KNOWN

Languages :

- Bash, C, C++, JavaScript, Kusto Query Language (KQL), PowerShell, Python, Rust, Structured Query Language (SQL), TypeScript, and more

Libraries :

- Matplotlib, NumPy, OpenCV, pandas, PyTorch, scikit-learn, seaborn, TensorFlow, Test Authoring & Execution Framework (TAEF), Tkinter, and more

SKILLS / AREAS OF KNOWLEDGE / EXPERIENCE HIGHLIGHTS

Cybersecurity :

- Virtual Machine Monitors (VMMs) / hypervisors
- Ubuntu, Linux Syslog, Linux Input/Output Redirection, Unix file permissions
- Windows Registry, Services, New Technology LAN Manager (NTLM), group permissions
- Kernel, Security kernel, Trusted Computing Base (TCB)
- Access control lists (ACLs), Capability lists, Identity and Access Management (IAM)
- Memory fences, base/bound registers, segmentation & paging (virtual memory)
- Portable Operating System Interface (POSIX) & New Technology File System (NTFS) filesystems

Software Development :

- Automation, DevOps, Continuous Integration & Continuous Deployment (CI/CD), Artificial Intelligence, Machine Learning, Object-Oriented Programming (OOP), data structures, time & space complexity, prompt engineering, solution engineering, debugging, root cause analysis (RCA)

Networking Concepts & Technologies :

- Data communication & security, Ethernet, Open Systems Interconnection (OSI) 7-layer model, LAN/MAN/WAN, network security, Common Gateway Interface (CGI) programming, encryption
- DHCP, Internet Protocol (IP) stacks, Secure Shell (SSH), Server & Client connectivity and related web development, Transmission Control Protocol (TCP), User Datagram Protocol (UDP)

Embedded Systems :

- Real-time embedded systems, baud rate, bus architectures, clocks, counters, driver development, interrupts, Input/Output subsystems, Inter-Integrated Circuit protocol (I2C), Joint Test Action Group (JTAG), Serial Peripheral Interface (SPI), Universal Asynchronous Receiver Transmitter (UART) & Universal Synchronous and Asynchronous Receiver Transmitter (USART) communication formats, timers

Circuit Design & Analysis :

- Design & simplification, alternating current (AC) circuit theory, breadboarding, combinational & sequential networks, filter design, Pulse-Width Modulation (PWM)
- Logic gates, registers, memory, digital circuit analysis & synthesis, continuous & discrete-time Fourier series and transforms, sampling, Laplace & Z transforms, linear time-invariant systems

WORK EXPERIENCE

Software Engineer [Contract]

November 2023 - May 2025

Microsoft, San Diego, CA.

- Developed new Azure automation features & tools to improve & simplify usage across the organization
- Analyzed current processes with customer experience in mind
- Unified software (SW) tools, test collateral to improve usability & prevent duplication of code
- Gathered & examined system requirements, and documented specifications to meet client needs
- Unit tested & modified existing programs to new standards
- Performed code review & post-implementation validation of SW
- Leveraged and consulted Copilot generative AI to spin up early drafts of SW development
- Helped bring Snapdragon-based Microsoft Copilot+ computers (Surface Laptop & Pro models) to market
- Added test coverage & identified improvement areas for streamlining of the development processes, validation of post-silicon compute hardware (HW), various subsystems (battery/power, display, audio, sensors, etc.), system SW and/or firmware, simulation of various use case scenarios, and catching elusive bugs & regressions
- Developed, diversified, optimized and integrated adaptive, product-agnostic & scalable PowerShell, YAML Ain't Markup Language (YAML), JavaScript & TypeScript code while collaborating with subsystem groups, system engineers & architects
- Interfaced with GIT version control, repositories and more to bring features into Azure DevOps automation frameworks & CI/CD pipelines for product-level testing of Windows devices
- Doubled the maximum device capacity by redesigning the physical lab configuration
- Trimmed down turnaround time by 70% by automating historically-manual testing & verification processes
- Developed on-DUT automated smoketesting SW for offline/local testing of device & OS health
- Developed automated methods of configuring a device-under-test (DUT) prior to testing to ensure valid data
- Configured devices w/ debug HW to generate Unified Extensible Firmware Interface (UEFI), System Aggregator Module (SAM) & other logging to enable detailed investigations
- Stabilized lab test environment for SW/HW development by collaborating with internal & external teams
- Performed debugging, RCA and/or troubleshooting of issues observed on the latest HW+SW

Engineering Technician [Contract]

June 2023 - November 2023

Qualcomm, San Diego, CA.

- Managed & parallelized numerous responsibilities with minimal to no supervision
- Set up bench testing of chipsets & test equipment used in manufacturing & SW design
- Conducted post-silicon validation of chipsets while referencing technical specifications and target values
- Documented and reported test failures, device damage, SW bugs and other related statuses
- Debugged complex electrical circuits, mechanical equipment and chipset testing setups

Electrical Hardware Engineer [Contract]

April 2022 - December 2022

Qualcomm, San Diego, CA.

- Led post-silicon verification efforts and worked closely with circuit & systems engineering teams
- Was responsible for post-silicon mixed signal intellectual property & System on a Chip (SoC) lab bring up, characterization, debugging and RCA
- Drove innovative test time reduction techniques.
- Improved lab workflow by developing features in MATLAB, TestStand & LabVIEW test bench SW
- Supported Automated Test Engineering (ATE) and production qualification, data analysis
- Brought up & developed modem blocks to validate the complete radio frequency transceiver chain & production enablement
- Developed novel SW, leveraging Python & XML, to automate data formatting, processing & analysis
- Analyzed digital, analog & mixed signal processing for device characterization, verification & accuracy
- Conducted detailed Analog-to-Digital Converter (ADC) & Phase-Locked Loop (PLL) Intellectual Property (IP) analysis by putting devices under test parameters via scripting & reviewing performance measurements
- Re-created pre-silicon simulations using lab equipment and evaluated various system level circuit use cases.

Engineering Intern [Internship]

August 2016 - January 2018

Ultra Communications, Vista, CA.

- Designed & created HW components, via SolidWorks, that work in sync with the company's products & production of, while maintaining mindfulness of relating requirements, restrictions & tolerances
- Optimized Populated Circuit Board (PCB) layouts, designs & organization using Altium
- Assisted with research, development and production, wire bond testing & assembly of test systems
- Analyzed jitter, Signal-to-Noise Ratio (SNR) of optical cables via digital sampling oscilloscopes
- Improved product throughput & sales by inspecting the quality of components through a microscope prior to assembly processes in a cleanroom environment
- Streamlined company workflow by verifying, editing and drafting current & new company procedures, methods of approach and more
- Designed, created & built custom testbenches & fixtures for equipment