

# Domen Puncer Kugler

Software Engineer

## Personal Statement

I like to know how things work.

I believe that makes me a good programmer in general, and also an embedded developer and bug hunter. Although I have over two decades of experience programming in C and Linux, and would consider myself fluent in C, I think any new code should probably avoid it.

At a future role I would be interested in Software Security, using Rust for system level development or Optimisation (doing more with less, embedded or not). Remote or mostly remote role.

I'm capable and used to independent work, but would prefer working with skilled coworkers.

## WORK EXPERIENCE

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### Principal Security Consultant

*NCC Group, UK Remote*

2022-Present

### Senior Software Engineer

*Samsung Electronics, UK*

2012-2022

**Ethical Hacker** (since 2013): Security assessment of Linux Kernel, system software, Android framework and mobile applications on latest flagship devices.

This included source code analysis, reverse engineering, network traffic interception and analysis. I used a variety of existing tools for Linux and Android analysis and testing. Wrote my own tools, for example a one-liner CLI tool to construct buffer and call any ioctl, or a Java package explorer that used reflection to enumerate and call all methods. Main result were reports of analysed vulnerabilities with proof-of-concept exploits. During my time there, I have discovered on average nearly thousand vulnerabilities.

**BSP Engineer** (until 2013): Member of a team working on board bringup, Linux Kernel and Android. Improving and creating debugging tools to get RAM dumps, extract data from them and upload firmware binaries to mobile devices.

**Other achievements:** Top level on global in-company software competition (like ACM contests, or TopCoder). Consistent above-average performance reviews.

### Software Engineer

*Visionect, Slovenia*

2008-2012

**Lead Firmware Developer:** Software support on microcontroller platforms, from reset handlers to simple user interfaces. Cooperated with hardware team to discover and eliminate bugs in prototype hardware.

Main company project at that time was V-tablet, an e-paper based, water-resistant product to be used in hospitality. I was the main developer of the firmware running on the tablet: capturing user input, sending data to and from PC through wireless modules, displaying pictures on e-paper display, implementing simple configuration GUI and making sure device was power efficient with weeks of autonomy.

I was also the firmware developer for microcontrollers of various sensorics and industrial smart lighting projects. Most work was done on STM32 platform (arm-cortex-m3).

## Part-Time Software Engineer

2006-2008

*Ultra and Telargo, Slovenia*

**BSP Engineer:** Linux Kernel support Lite5200scmb (PowerPC) and DbAu1200 (MIPS) embedded platforms.

Development of complete support for sleep modes, and merging of it into mainline Linux and Das U-Boot. This made mpc52xx the second PowerPC platform to have suspend-to-RAM support in official Linux.

Other development and Linux upstreaming.

## EDUCATION

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### OSCP - Offensive Security Certified Professional

2021

*Offensive Security*

### ISCED 5A (BSc/MSc equivalent) in Computer Science

2001-2008

*Faculty of Electronics and Computer and Information Sciences (FERI), University of Maribor, Slovenia*

## SKILLS

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### Software Development and Security

<i>Languages</i>	C, C++, Bash, Python, Java, PHP, Assembly on multiple architectures
<i>Source Code</i>	Git, Perforce, Subversion
<i>Network</i>	Wireshark, mitmproxy, nmap, dirbuster
<i>Debugging</i>	gdb, strace, ltrace, Frida, ASAN, KASAN
<i>Reverse Engineering</i>	objdump, gdb, IDA, Ghidra, radare2
<i>Fuzzing</i>	syzkaller, AFL++
<i>Operating Systems</i>	Linux kernel and system software
<i>Open Source</i>	Was Linux kernel committer and maintainer of Kernel Janitors project

### Electronics

<i>Microcontrollers</i>	arm-cortex-m*, LPC11xx, LPC13xx, STM32
<i>Communications</i>	SPI, I2C, RS232, 1-Wire, display
<i>Wireless</i>	Bluetooth, Zigbee, WiFi
<i>Problem solving</i>	Oscilloscope, multimeter, soldering iron
<i>Other</i>	Power consumption optimisation, basic PCB design