Tyler Creelan de Laguna

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Software Engineer

EDUCATION

Bachelor of Science in Computer Science with Honors, Oregon State University 2003

Master of Science in Computer Science, Oregon State University 2004

EXPERIENCE

Google Developer Groups Portland 2022 - Current

Leader

Launched GDG chapter, sponsored by Google for Developers. Led volunteer team of six to organize city's first DevFest for 1500+ members. Hosted summits on algorithmics, probability, programming contests.

Microsoft TEALS 2023 - Current

Computer Science Co-Teacher

Taught Advanced Placement Computer Science A course (Java-based) at Lincoln High School (Portland Public Schools), via non-profit TEALS volunteer program sponsored by Microsoft.

Career Break 2017 - 2022

Pause to travel internationally and explore. Established new routes up to AI3 on four remote peaks.

Intel Corporation

Software Design Engineer - Mobile 2013 - 2017

Optimized design of the Intel Atom SoC, focus on low power interactions:

- Added experimental Linux kernel driver support for low-power Display Engine and frame compression in drm/i915 module, extending battery life to attain a prospective Internet of Things customer.
- Expanded LLVM-derived C++ framework (Maestro) to stress interconnect hardware with machine code.
- Rootcaused premature voltage phase shedding via Lauterbach and oscilloscope. Created microcode firmware patch to correct SVID bus signaling, resuming test automation after $10k+ delay.

Software Engineer - Modeling 2010–2013

Simulated Core i7 power controller (PCU) as extended tour of duty, focus on DDR management:

- Benchmarked memory power limits (RAPL) and Turbo2 algorithms in C++, comparing against actual microcode with Coco. Created model in Specimen 'e' to find 11 firmware path bugs before tapein.
- Resolved power spike with running power limits (RAPL); analyzed verilog to create experimental firmware patch and satisfy blade server customers and EU regulations, receiving Division Recognition award.

Software Engineer - Post-Silicon Tools 2004-2010

Team lead for power analysis of new CPUs, creating strategy at tape-in to meet biannual product qual:

- Built new Win7 app in Qt C++ for wattage telemetry, heading off 400mW routing bug in Xeon boards.
- Created new C++ test harness on host/target coupled with JTAG probe to verify S3 using cacheline breakpoints, discovered new circuit bug fixed in first Pentium XD product.
- Discovered catastrophic protocol bug in QuickPath Interconnect (QPI): prototyped solution with Focused Ion Beam edits: inserted fix in time for Core i7 launch, receiving achievement award.

OPEN SOURCE

- Advanced Component Platform Architecture (acpica.org): updated C-states (C, Linux, System states)
- Gnumeric (gnumeric.org), created Testmeric module (C++, gtk, glibc, sockets, TCP/IP).
- Debian GNU/Linux, Sarge Release (debian.org): archives, Bash, dpkg, automation

PUBLICATIONS

1) "Power vs Debug: Solving IEEE JTAG Observability with Deep Powerdown™ (C6) active", Intel Design Technology and Test Conference (2007). T Creelan, N Ashraf and J Maxwell.

2) "Reporting CPU Frequency: The Challenge of Intel Turbo Boost™ Technology", Intel Design Technology and Test Conference (2007). T Creelan and T Baird.

3) "Scaling a Dataflow Testing Methodology", IEEE International Symposium on Software Reliability Engineering. (2006) p13-22. M Fisher, G Rothermel, T Creelan and M Burnett.

4) "Educators Have Hard Choices; Nationally". Science (Letters). Vol 289 (2000). Tyler Creelan.

CERTIFICATIONS

Google: Project Management | Linux Debug: Intel Open Source Technology Center
Win10 Kernel Debug | PCIE-3, USB-3 - MindShare | Google: Data Analytics

PROFESSIONAL ASSOCIATIONS

Google Developer Groups | ACM ICPC State Champion Team | Microsoft TEALS | ACM SIG Micro
ACM Student Chapter Coach | Portland Java User Group | PDX Women In Technology Mentor

TECHNICAL SKILLS

- **Software Programming Skills**: C/C++, Java, Bash, Posix, Sus, Qt, Linux modules, x86 asm
- **Hardware Design and Debug Skills**: Specman, Intel microarchitecture, Test Access Port (TAP)
- **Tools**: Git, Vim, clang, kernel debug, adb, WinDbg
- **Operating Systems**: Debian GNU/Linux, Android
- **Interface Protocols**: ACPI, Extensible Firmware Interface (EFI), JTAG