Michael O'Driscoll <mike@mikeodriscoll.ca>

mikeodriscoll.ca

SKILLS

- C, C++, Python, ROS, Boost, Django, PostgreSQL, MongoDB, Bash, ZSH, Qt, CMake
- Embedded development: FreeRTOS, ST Microcontrollers (STM32F407), LwIP
- Linux (Debian based) configuration, administration, optimization, package creation, udev rules, logging configuration
- Deployment: Ansible, RunDeck
- Virtualization: VMWare VSphere and VMWare ESX, Docker, Vagrant, VirtualBox
- Storage: NFS, RAID, SMB
- Analysis and debugging: Wireshark, TCP Dump, GDB
- Protocols: TCP, UDP, IEEE 802.11 (Wi-Fi), CAN, CANopen, I2C, EtherNet/IP (PLC)
- Networking: Gateways, Netmasks, Routing, ARP, DNS, VLANs
- Revision control: Git, Perforce, SVN, Bitbucket, GitLab, GitHub

HIGHLIGHTS

Clearpath Robotics:

Being one of the earlier engineers at Clearpath, I have been able to work on almost every component that we build. I work on low level hardware such as microcontrollers, LED drivers, LIDARs, and sonars, as well as high level components such as the distributed networking stack and the fleet management system that relies upon it. Along with work on core product components, I also help develop and evolve the build, infrastructure, logging, and telemetry systems for our ecosystem. As a member of the platform systems and firmware team, I am responsible for ensuring the smooth deployment of these and other teams' components. This includes Ubuntu system configuration of UDEV rules and permissions, and ensuring the production team has a process to flash the correct bootloader on Clearpath's custom microcontroller boards. I've also had the opportunity of going to customer sites to transition them from trial to full deployment of Clearpath's OTTO fleets. This involves working with customer IT to finalize networking configuration and interacting directly with the line side users in a customer's factory.

BlackBerry:

At BlackBerry I started as an intern and returned full time on the radio architecture team. While on this team I helped develop, maintain, and enhance a graphical visualization tool that was widely used across many engineering groups. I developed a major addition to this tool allowing 24/7 operation of BlackBerry devices to generate graphs and charts for each build of the software. This helped radio engineers validate and confirm their changes and bug fixes more easily. After moving to the Wi-Fi team to follow my interest in networking, I gained experience in operating system drivers, Wi-Fi, and networking. As part of the Wi-Fi driver team I investigated interoperability issues with multiple consumer and enterprise level networking equipment.

EXPERIENCE

Clearpath Robotics *November 2016 - Present*
Senior Software Engineer

- Total ownership of the platform layer for the OTTO 100 Self Driving Vehicle
- Long term investigation and optimization of embedded memory layout and usage
- Full replacement of embedded networking stack with LwIP stack
- Prime lead on replacement of some Ansible assets with managed Debian configuration packages
- Design and development of out of the box user network configuration experience

Clearpath Robotics *July 2014 - November 2016*
Software Engineer

- Design and development of industrial autonomous robots and services
- Software prime for platform firmware and software for Clearpath's OTTO 100 autonomous robot
- Microcontroller bringup, development and debugging of STM32 F407 chipset
- Architecture development in conjunction with with the electrical engineering team

- Concept development and review with the application engineering and product teams
- Integration of vendor hardware: battery management systems, motor controllers, and Wi-Fi network bridges
- Networking design and triage; implemented custom networking configuration for fleets of robots
- Linux configuration: custom udev rules, logging strategies, and customized optimization settings
- Robot and VM configuration and asset deployment with Ansible
- Initial design and prototyping of the Clearpath fleet management system
- System crash diagnosis with Sentry and GDB
- On-site customer support, installation, configuration, and consultation

BlackBerry *March 2013 - July 2014*
Systems Software Developer I - WLAN

- Software development in POSIX C maintaining both the Texas Instruments and Broadcom drivers for the Wi-Fi systems on the QNX BlackBerry 10 operating system
- Middleware development and maintenance: API interfaces, user connection management
- Wireshark and Wi-Fi packet capture and analysis for debugging full system interaction to root cause IEEE 802.11 and interoperability issues
- Crash debugging with GDB and deep dive code tracing to root cause issues

BlackBerry *May 2008 - August 2010 July 2010 - March 2013*
Software Tools Developer, Intern/Software Tools Developer

- Windows software development in C, C++ (MFC) and Python for internal applications supporting log analysis and graphical visualization
- Close interaction with the cellular radio and Wi-Fi teams to generate custom visualizations and charts of logging telemetry for real-time analysis
- Designed and developed python automation for control of C++ application featuring real-time BlackBerry device control with post analysis graph viewing and live monitoring
- Monitor and support of testing infrastructure in multiple worldwide offices

City of Kitchener *June 2004 - May 2008*
Lifeguard and Swimming Instructor

- Responsible for supervision and safety education of all patrons in the pool and ensure their well being during events or swimming lessons
- Plan and teach swimming lessons to patrons ranging from toddlers to seniors, all with varying degrees of skill and comfort in the water

PERSONAL PROJECTS

- Much of my hobby work is open source. Find it at: github.com/mikeodr
- I have my own Proxmox virtual environment at home with multiple VMs.
- My phone system is a VM running Asterisk and FreePBX.
- Many smaller services such as my home network Wi-Fi controller run in their own Docker containers.
- My home firewall runs pfSense with more VLANs than some small businesses.

EDUCATION

Software Engineering Technology, Conestoga College *2006 - 2010*
Ontario Colleges Advanced Diploma

CERTIFICATIONS

Standard First Aid, CPR C, AED *Expires January 2018*
St. John Ambulance Canada

REFERENCES

Available on request