

**Daniel Hiranandani**

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## RESUME

- Work Experience:** Verily Life Sciences Sep 2016 - Current
- Senior Software Engineer
- Tech Lead of Verily Surgical On-Device Machine Learning Apr 2020 – Current
    - Designed architecture for running multiple on-device ML models for inference, in real-time, in a surgical setting
    - Implemented end-to-end pipeline for video capture, processing, and running inference using an off the shelf camera [Python, C/C++, TensorFlow]
  - IC & Tech Lead of Verb Surgical Data Mgmt & Connectivity Oct 2018 – Mar 2020
    - Verb Surgical was an independent company, and co-venture between Verily and J&J. Verily SWEs were embedded at Verb and designed/implemented many core software pieces to create the multi-machine, multi-OS, multi-threaded surgical robotic platform. Verb was acquired by J&J in Q1 2020
    - Led team of ~7 people across Verily and Verb to implement various critical logging, local network, and cloud-connectivity features [C/C++, Bash]
    - Top 5 code committer and reviewer in 400+ person company over 2016 – 2020
    - Author of several company-wide influential software eng. “Best Practices” guides
- Software Engineer III
- Individual Contributor for Verb Surgical Sep 2016 – Oct 2018
    - Designed/implemented all on-robot upload, download, and case/user/patient data processing software [C++]
    - Designed/implemented HL7v2 data processor to integrate with OR devices [C++]
    - “Go-to” person for troubleshooting/debugging majority of on-robot issues
- Google Software Engineer Jun 2012 – Sep 2016
- Software Engineer III
- Google Fiber Apr 2016 – Sep 2016
    - Hardware diag scripts/features built atop vendor switch chip SDK [Bash, C++]
  - Google Air Feb 2015 – Apr 2016
    - Designed/implemented DS-301 and DS-402 CANOpen support for Elmo motor controllers for antenna positioning [C++]
    - Designed/implemented generic multi-threaded CAN/CANOpen stack to control Elmo motor controllers (NMT, SDOs, PDOs, Rx filtering, error handling) [C++]
- Software Engineer II
- Platforms Networking Jun 2012 – Feb 2015
    - Large-scale networks, SDN & OpenFlow, Vendor chip SDK [C/C++, Python]
    - Owned development of network route/flow monitoring script [Python]
- Google Platforms Networking Software Engineering Intern Jun 2011 – Sep 2011
- Ported network stack to evaluation hardware with new vendor switch chip [C/C++]
- iControl Networks Software Engineering Intern Jun 2010 – Sep 2010
- Lead research and analysis of 802.11n repeater performance and reliability tests
  - Independently designed and developed Atmel-based LED controller [C]
  - Implemented Real-Time Clock, I2C, and SPI drivers on Atmel-based devices [C]
- Raytheon Space and Airborne Systems Soft. Eng. Intern Jun 2009 – Sep 2009
- Designed/developed dynamic Command Input and Display Tool used for Radar hardware testing and analysis of output data [VBA, Perl, XML]
  - Obtained United States Department of Defense Secret Clearance

Teaching Assistant at University of California, Santa Cruz Fall 2009 – Spring 2012

- Created grade retrieval/lecture download/grade plotting scripts/sites [Perl, PHP]
- Created cheating-detection software for Microsoft Office files [VBA]
- Prepared and held supplemental lectures, designed lab assignments, graded labs and quizzes, held office hours, responsible for 50-200 students per quarter

AeroVironment Software Engineering Intern Jun 2008 – Sep 2008

- Created control/monitor software for Broadcom Ethernet chip on custom switches [C]
- Designed/implemented RS-422 protocol for multiple devices on a single bus [C]

**Education:**

University of California, Santa Cruz, September 2009 to June 2012

Master's of Computer Engineering, Emphasis in Computer Networks, GPA: 3.80

California Polytechnic State University, San Luis Obispo, September 2004 to June 2009

Bachelor's of Computer Engineering, GPA: 3.47

**Skills:**

- Proficient in C/C++, experience in Python, Bash, VBA, Perl, Java, PHP, and Assembly
- Experience implementing TCP/IP, I2C, SPI, CAN/CANOpen, RS-232, RS-422, F-Bus
- Firmware for Microchip PIC, Atmel ATmega/ATxMega, and Motorola 8-bit microcontrollers
- Proficient in using an oscilloscope, logic analyzer, multimeter, and a debugger to solve digital and analog issues caused by software and hardware

**Selected Research:**

Standards, Metrics, and Benchmarks in MANETS Sep 2010 – Jun 2012

- Researched metrics and scenario candidates for standardizing evaluations of Mobile Ad-Hoc Network (MANET) routing protocols
- Performed survey of ~200 published papers to characterize the state of the art of how MANET routing protocols were being evaluated

International Computer Engineering Experience (ICEX) Jan 2009 – Mar 2009

- Developed sonar maps of ancient underground water cisterns on island of Malta using Simultaneous Localization and Mapping (SLAM) algorithm and VideoRay ROV
- Created parser to extract/interpolate SmartTether GPS data to enhance map accuracy
- Designed and implemented nonlinear joystick controls for the ROV

**Publications:**

The Malta Cistern Mapping Project: Underwater Robot Mapping and Localization within Ancient Tunnel Systems, White, C., Hiranandani, D., Olstad, C.S, Buhagiar, K., Gambin, T., and Clark, C.M, *Journal of Field Robotics*, July/August, 2010.

Underwater Robots with Sonar and Smart Tether for Underground Cistern Mapping and Exploration, Hiranandani, D., White, C., Clark, C.M, Gambin, T., and Buhagiar, K., *Proc. of VAST International Symposium on Virtual Reality, Archaeology and Cultural Heritage (VAST 09)*, Sep, 2009.

The Malta Cistern Mapping Project: Expedition II, Clark, C.M, Hiranandani, D., White, C., Boardman, M., Schlactman, M., Phillips, P., Kuehn, J., Gambin, T., and Buhagiar, K., *Proc. of International Symposium on Unmanned Untethered Submersible Technology (UUST 09)*, Aug, 2009.

**U.S. Patents:**

Fault-Tolerant, Frame-Based Communication System, Rolland Mitchell Koch, William Stuart Sechrist, Daniel Bailey Hiranandani, Patent #12,889,284.

Active Multi-Path Network Redundancy with Performance Monitoring, Rolland Mitchell Koch, William Stuart Sechrist, Daniel Bailey Hiranandani, Patent #12,889,293.

**References:**

Available Upon Request

**Website:**

More detailed information on research and projects available at [www.danielhira.com](http://www.danielhira.com)