

Daniel Nelson  
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## WORK

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GOOGLE, LLC. 2021-PRESENT

Tech Lead/Manager - Platforms/NetInfra

- Manage team of 10 ICs developing next-generation networking platforms
- Drive organization roadmap incorporating new hardware and software programs
- Maintain common platform/low-level software for 15+ devices
- Own end-to-end software stack for Google-developed Optical Circuit Switches

GOOGLE, LLC. 2013-2021

Staff Software Engineer - Platforms/NetInfra

- Designed, developed, and deployed a Linux distribution for Google's unique use cases
- Owned multiple Linux kernel upgrades/migrations for three CPU architectures
- Developed low level control/diagnostic framework for ARM Cortex based networking ASIC
- Created/maintained control algorithms for MEMS-based optical circuit switches
- Drove 4+ NPI through entire product lifecycle, from concept through development to mass production
- Debug *unusual* hardware/software interactions found in the fleet

CISCO SYSTEMS, INC. 2009-2013

Software Engineer - Cisco Telepresence (TSBU)

- Brought up OS and system software on multiple embedded Telepresence systems
- Designed and implemented Linux kernel drivers and user-space utilities for new products
- Created a new, re-usable software architecture for board management microcontrollers
- Performed security audits of Telepresence software and developed proof of concept demonstrations
- Participated in Campus Relations, interviewing students and attending on-campus events at Cal Poly

## PUBLICATIONS

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Reconfigurable Lightwave Fabrics for ML Supercomputers OFC 2024  
<https://opg.optica.org/abstract.cfm?URI=OFC-2024-W3H.1>

Lightwave Fabrics: At-Scale Optical Circuit Switching for Datacenter and Machine Learning Systems SIGCOMM 2023  
<https://dl.acm.org/doi/10.1145/3603269.3604836>

Mission Apollo: Landing Optical Circuit Switching at Datacenter Scale 2022  
<https://arxiv.org/abs/2208.10041>

Internet Scale Reactive Routing and Mobility 2009 Masters Thesis  
<https://digitalcommons.calpoly.edu/theses/100/>

## EDUCATION

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CALIFORNIA POLYTECHNIC STATE UNIVERSITY 2004-2009

B.S. + M.S. Computer Science 2009  
Cumulative GPA: 3.8  
Vice President of Tau Beta Pi, CA Mu (2008)