Pete Wilcox

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Education

- **University of California, Santa Cruz** Santa Cruz, CA
  Doctor of Philosophy in Computer Engineering *Sep. 2019 — Present*
  - **Honors**: Eugene Cota-Robles Fellowship
- **University of California, Santa Cruz** Santa Cruz, CA
  Bachelor of Science in Computer Science; GPA: 3.98 *Sep. 2017 — Jun 2019*
  - **Honors**: Phi Beta Kappa, *summa cum laude*, Dean's List

Experience

- **University of California, Santa Cruz** Santa Cruz, CA
  Graduate Student Researcher *Sep. 2019 — Present*
  - **Storage Accelerator**: Ongoing research in collaboration with UCSC Genomics Institute to develop computational storage devices in order to accelerate genome sequence alignment.
- **TidalScale** Los Gatos, CA
  Kernel Engineer Intern *Summer 2019*
  - **Functional Hypervisor Testing**: Designed and built a functional hypervisor test facility using a custom Linux kernel module and device driver.
  - **Model-Specific Register Support**: Utilized hypervisor test mechanism to implement and verify emulation for model-specific registers in the TidalScale hyperkernel.
  - **Virtual CPU Migrations**: Optimized virtual CPU migration algorithms and data structures in order to reduce migration packet size, improve code readability, and optimize maintability.
  - **VMCS Compatibility**: Developed kernel mechanism for verifying compatibility of virtual machine control structures between servers in a TidalScale cluster.

  Software Engineer Intern *Summer 2018*
  - **Server Management Tools**: Developed management, migration, and deployment tools for WaveRunner servers.
  - **WaveRunner**: Worked with large code base in C and Go to identify and eliminate bugs. Implemented version feature enhancement and provided support for internal NAS feature.
  - **Server and Network Admin**: Configured and deployed WaveRunner server clusters; setup and administrated network infrastructure including switches and servers. Collaborated with sales engineers to provide support for customer installations.
  - **Documentation**: Developed and documented best practices for TidalScale Admin Guide.

Projects

- **Relational Database**: *Spring 2019*
  - Page-oriented relational database management system built in C++ for Database Systems course.
  - Built in layers on top of underlying OS filesystem.
  - Implements page file, relation, and index management modules, along with simple query execution engine.
- **Distributed Key-Value Store**: *Fall 2018*
  - Distributed, fault-tolerant, in-memory key-value store using Docker containers.
  - Provides guarantees of eventual consistency, availability for writes, and large storage capacity.
  - Allows easy modification of system configuration at runtime via REST API.
  - Implements full unit test coverage and continuous integration using CircleCI.
  - Developed using Go, Python, and Docker for Distributed Systems course.
- **OC Compiler**: *Fall 2018*
  - A compiler for the C-like language OC for Compiler Design course.
  - Developed scanner using Flex and parser using Bison.
  - Implemented string tables, symbol tables, and syntax tree generators in C++.

Languages and Tools

- **Languages**: C, C++, Python, Go, Java, Assembly, Bash
- **Technologies**: FreeBSD, Linux, Git, Docker, CircleCI

Interests

- **Academic**: Operating systems, storage systems, computer architecture
- **Hobbies**: Baseball, gaming, road trips