

# David Duplantier

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## EXPERIENCE

### Digitize App

*Present*

- Current iteration of app is intended to allow users to scan handwritten work using camera, which is automatically uploaded to Google Drive as a .txt file
- Uses Google machine learning ML Kit for optical character recognition, and Google Drive API to upload to Google Drive
- Building off my experience from *DejaPhoto*, this project is intended to learn how to implement clean architecture, to explore more technically challenging issues and additionally learn iOS development with Swift and Kotlin for Android development

### Lead Developer

La Jolla, CA

*UCSD CSE Department | Computing Paths Website*

*July 2017 – September 2017*

- Led team of 5 developers to build `computingpaths.ucsd.edu` – an official UCSD site for new CS students– from scratch, gathered and refined requirements from client, and delivered on schedule under strict 8 week deadline
- Created development environment for team by:
  - Writing Node.js scripts to watch for updated files and recompile, so changes are integrated in one command
  - Using Express server so each team member can experiment with website locally
- Used Pug HTML template engine to design webpages loosely coupled to data so the website can be updated frequently without breaking
- Designed simple JSON database to store content separate from HTML and JavaScript

### Software Engineer Intern

Ho Chi Minh City, Vietnam

*Global Cybersoft*

*July 2016 – November 2016*

- Runner-up winner of prize from Student Exchange Vietnam in partnership with the U.S. Embassy in Vietnam for internship in Ho Chi Minh City
- Worked on train system management web app in software engineer as well as business analysis roles over the course of 5 months:
  - Learned the Spring Framework, RESTful APIs, Inversion of Control, and Dependency Injection principles to write Java classes to contain data for the train system, as well as Hibernate and Cassandra
  - Learned AngularJS and MVC pattern with JavaScript to update pages in real-time, and learned HTML and CSS to implement page designs
- Learned how to use Apache as a local development server, and gulp for automating frontend tasks

### Other Experience

### Consultant / Program Assistant

Ho Chi Minh City, Vietnam

*Student Exchange Vietnam*

*June 2018 - August 2018*

- Provided advice on website design, and future technologies to use for an expected expansion of the company to multiple countries in Southeast Asia
- Worked with full-time company study abroad program coordinators, e.g. arranging and conducting activities in Ho Chi Minh City for visiting environmental science student from Switzerland

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## PROJECTS

### Operating Systems Development

*January 2018 – March 2018*

- Implementation of four pieces of the kernel for a UNIX-based, learning operating system written in C:
- Context switch to support multitasking by learning to use assembly routines for saving a process's context
- CPU scheduling policies, and learned how to use shared variables in the kernel to coordinate between processes
- Semaphores, for the kernel to support synchronization
- Thread package – how to use dummy variables, the Yield/Fork system calls, and manipulate stack pointer over function calls to create kernel level threads

### SD HACKS 2017

La Jolla, CA

*NutriLink Web App*

*October 20-22, 2017*

- Built a nutrition web app in 36 hour period, learning the Genome Link API and jQuery in order to complete the project
- Used Node.js for the backend and the Express Framework, as both are amply documented and allow for quick learning
- Used by Awakens, Inc. to research how their Genome Link API can be used in combination with nutrition data

### DejaPhoto Android App

*April 2017 – June 2017*

- Built Android app to update user's wallpaper in real-time according to time and location, using photos from user's gallery and friends' galleries
- Learned Google Firebase to store/send friends' photos, for authentication, and designed a flattened JSON data structure for efficient retrieval
- Simulated two iterations of agile software development, with focus on design patterns: during the 1<sup>st</sup> iteration the class to access photos was built using the Adaptor pattern, as it was not yet known what database would be chosen to store friend's photos

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## SKILLS

**Languages:** C, C++, Java, JavaScript, Python, SQL, Swift

**Technologies:** AngularJS, Bootstrap, D3.js, Hibernate, Node.js, Pug, Sass, Spring

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## EDUCATION

**University of California, San Diego**

La Jolla, CA

*Bachelor of Science in Mathematics & Computer Science*

*September 2013 – March 2018*