# AARON AGARUNOV

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## SKILLS

**Languages**

JavaScript, Ruby, SQL, HTML5, CSS, SASS, Git

**Technologies**

React, Redux, Rails, jQuery, AWS, Heroku, Webpack, RSpec, PostgreSQL

## PROJECTS

**Foton** (Rails, React, Redux, Postgres) LIVE – SOURCE

Full-stack single-page photo sharing application inspired by 500px.
- Implements an infinitely scrolling photo feed using React Virtualized and Kaminari pagination to create a fluid, seamless user experience
- Organizes images in a reusable and resizable photo gallery component to create dynamic, responsive photo displays and keep code DRY
- Supports uploads to AWS S3 buckets and conditionally renders different resolutions for performance
- Integrates searching for photos, photo tags, and user profiles using PostgreSQL full-text search
- Leverages modal render states and data fetching operations with Redux using a root switch component to implement routed modals that open in-place yet retain permalinks

**Pathing** (JavaScript, Canvas) LIVE – SOURCE

Interactive demonstration of maze generation and maze searching algorithms
- Draws informative graph animations using HTML5 Canvas responsive to user input
- Implements Prim's algorithm with randomized weight variation to reduce bias during maze generation
- Animates breadth-first, depth-first, Dijkstra's, and A star searching algorithms and records a history of searches for comparing and observing algorithm use cases

**Kume** (JavaScript, D3) LIVE – SOURCE

Interactive visualization of color quantization using k-means clustering to find dominant colors
- Leverages HTML5 Canvas overlayed with SVGs to create a performant and interactive visualization of clustering to demonstrate the pixels & dominant colors in an image
- Features smooth animations to demonstrate an application of k-means clustering with image data, ultimately processing and compressing photos with color quantization
- Implements the perceptually uniform CIE $L^*a^*b^*$ color space and Delta $\Delta E^*_{ab}$ color difference equation to have more accurate color distance comparisons in k-means assignment

## EDUCATION

**App Academy** 2017 – 2018

Full-stack web development course teaching Rails, React, and Redux
- Emphasis on CS fundamentals, design patterns, OOP, and TDD

**Macaulay Honors College at CUNY Hunter College** MAY 2017

B.A. in Chemistry and Bioinformatics, Minor in Math, GPA 3.89
- Data Science Pipeline Fellowship, June 2016

## EXPERIENCE

**Undergraduate Research Assistant** AUG 2015 – AUG 2017
- Honors thesis under Dr. Lei Xie: *Normal Mode Analysis with Gaussian Network Modeling of Hepatitis C Virus NS5A Protein Characterizes Dimer Interfaces* – LINK
- Fabricated microchips at the Grove School of Engineering cleanroom under Dr. Matsui for use in cancer detection research
  - Use of photolithography, thermal evaporation, lift-off nanofabrication

**NYU Langone Hospital—Brooklyn, Dental Clinic Volunteer** FEB 2014 – JAN 2015
- Facilitated health care services and patient scheduling prior to and following procedures