ALEC MOURI

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Education

UC Berkeley - BS Electrical Engineering and Computer Sciences (GPA: 3.6) September 2012 - May 2016

Experience

- ***Research Assistant – UC Irvine*** June 2014-August 2014
  - Designed, implemented, and documented an image processing pipeline to aid labeling, tracking, and data collection of neurological stem cells and associated features.
  - Implemented preprocessing procedures such as Canny edge detection and convolution of difference in Gaussian kernels to pass into a Watershed algorithm for performing cell segmentation.
  - Built a cell tracking mechanism by approximating a solution for the k-matching problem with chained bipartite graphs to be solved via the Hungarian Algorithm.
  - Applied a blur-detection heuristic by convolution of the Laplacian kernel to filter out unusable images
  - Consulted faculty concerning desired features and overall functionality to aid future research.
- ***Reader – UC Berkeley*** August 2013-May 2014
  - Graded homework and provided assignment feedback for a discrete mathematics and probability course
  - Mentored students through the material through homework sessions and developed homework rubrics
- ***Research Assistant – UC Berkeley*** September 2013-December 2013
  - Investigated symmetries and aesthetics of the 6-1 knot by applying various transformations to create novel geometries present in the knot's topology.
  - Applied graphical modeling techniques to produce a boundary representation of a particular geometry with a cross-sectional sweep intended for construction by a rapid-prototyping machine.
  - Tested the effectiveness of Wolfram Mathematica and Blender for reliably controlling the sweep of various cross sections across B-Spline curves.
  - Implemented lighting techniques and ray-tracing methods for producing aesthetically pleasing computer models.
- ***Data Team Member - UC Berkeley Solar Car Team*** September 2012–May 2013
  - Researched viable solutions for integrating a tire pressure monitoring system onto the car to aid preventing tire blowouts, culminating into a sponsorship with PressurePro.
  - Recompiled the Linux kernel to set up CAN drivers for a BeagleBone-based telemetry server.

Selected Projects – *See more at **https://github.com/AMouri***

- ***Python Compiler*** October 2013-December 2013
  - Implemented mechanisms to perform parsing, type unification, and language translation to develop a compiler for a modified subset of the Python programming language into C++.
  - Rigorously tested each compilation stage to ensure correct functionality with consideration of edge cases.
- ***Pathfinder*** – **https://github.com/akrolsmir/Pathfinder** November 2013
  - Android application for finding pathways on mall maps.
  - Built efficient data structures for map representation and real time location tracking.
- ***Chef Interpreter*** – **https://github.com/AMouri/Chef** September 2013
  - Integrated various techniques from interpreter and compiler design to create an online interpreter for the stack-based esoteric programming language Chef.
  - Won Honorable Mention at Hackjam on September 28 2013.

Activities and Societies

- ***Eta Kappa Nu, Mu Chapter – Officer*** December 2013-present
  - Holding tutoring hours, leading society candidates, and representing Eta Kappa Nu as an organization
  - Currently Bridge Officer for Fall 2014: maintaining and contributing to a photo repository cataloguing all society events and creating a slideshow to be shown at a semesterly banquet.
  - Student Relations Officer in Spring 2014: promoted infosessions hosted by industrial relations, managed sales of EECS apparel, and hosted cookie runs for the majority of EECS midterms.

Skills

- Python, Java, C/C++, Ruby on Rails, JavaScript, Matlab, Git, Android