

Raymond Ly

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4389 Maury Ave, Long Beach, CA 90807

EDUCATION

University of California, Berkeley

Bachelor of Arts in Applied Math, Computer Science Cluster

Berkeley, CA

Aug 2015 - May 2019

Relevant Coursework

- **Computer Science:** Data Structures, Databases, Computer Architecture, AI, Efficient Algorithms and Intractable Problems, Data Science, Computer Graphics
- **Mathematics:** Linear Algebra, Multivariable Calculus, Discrete Math and Probability Theory, Intro to Real Analysis, Intro to Complex Analysis, Numerical Analysis

SKILLS

- **Languages:** Java, Python, C/C++/C#, SQL, MATLAB, ~~TeX~~TeX, HTML
- **Libraries:** Scikit-Learn, Numpy, Pandas, Jupyter, Seaborn
- **Technologies:** GitHub, Unity

PROJECTS

- **Affine Particle in Cell Fluid Simulation:** A realistic graphical implementation of fluid particle physics
 - APIC method simulation achieves stable simulation while maintaining lower energy dissipation between steps
 - Assisted in implementation of 3D APIC Method Fluid Simulation
 - Rendered fluid dynamics frame-by-frame using Mitsuba Renderer
- **Path Tracing Simulator:** Implementation of a physically-based renderer using a path tracing algorithm
 - Implemented path tracing algorithm for both direct and global illumination settings to emulate diffuse
 - Modeled refractive and reflective properties of transparent, opaque, and textured material
 - Emulated camera effects to achieve renders at variable depth of field by altering focal distance and aperture
- **Exploratory Data Analysis over Politics-centric Twitter Posts:** Visualization and analysis of Twitter behavior
 - Collected Tweets through Twitter's developer API
 - Analyzed temporal and spacial behavior patterns by classifying Tweet metadata
- **Shrouded by Darkness:** 2D Game built using Unity Game Engine
 - Implemented animations using Unity's built-in Animator Controller, allowing fluid and responsive sprite movement
 - Created art and animation assets, as well as material models and textures for appropriate lighting behavior
 - Provided feedback to main programmers for game design, mechanic implementation, object interaction, and debugging
 - Published final product on itch.io

EXPERIENCE

Operation Jump Start

Community Outreach Intern (Data Entry)

Long Beach, CA

May 2016 - Sept 2016

- Compiled, itemized, and catalogued source documents into local database
- Conducted interviews with applicants, and their respective references, for assessment, matchmaking, and completion of potential mentors' profiles
- Aided in the recruitment of mentors from the local community

ADDITIONAL EXPERIENCE & ACHIEVEMENTS

- **Game Design and Development at Berkeley:** Fundamentals of game design using the Unity Game Engine
 - Developed an understanding of the game design pipeline reflecting current-day development cycles
 - Produced elementary game projects to build fundamental knowledge in Unity operation and interaction
 - Acquired foundational knowledge on aspects of game design including accessibility, development, and marketing
- **MESA Mentor:** Consulted on the curriculum of a middle-school level STEM-centric class
 - Established course syllabus and lesson plans based on regional and national level mathematics and engineering competitions
 - Mentored students in approach and construction of projects
- **Student Library Employee:** Managed front desk and patron-centric duties on the UC Berkeley campus between Aug 2017- May 2019
 - Utilized Millennium software, a standard library catalogue and database containing both on and off-site texts and research resources
 - Assisted university librarians in research projects by compiling online articles and physical texts in a consolidated spreadsheet