Raymond Ly

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EDUCATION

University of California, Berkeley   Berkeley, CA
Bachelor of Arts in Applied Math, Computer Science Cluster   *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, LaTeX, 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   Long Beach, CA
Community Outreach Intern (Data Entry)   *May 2016 - Sept 2016*

  - Compiled, itemized, and cataloged 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 catalog 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