Raymond Ly

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EDUCATION

University of California, Berkeley   Berkeley, CA
Bachelor of Arts - Applied Math in Computer Science   *Aug 2015 - May 2019*

Relevant Coursework

- **Computer Science**: Data Structures, Program Structures and Interpretation, Databases, Computer Architecture, Artificial Intelligence, Efficient Algorithms and Intractable Problems, Data Science, Computer Graphics
- **Mathematics**: Linear Algebra, Multivariable Calculus, Discrete Mathematics and Probability Theory, Real Analysis, 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**: Developed a realistic 3D APIC fluid simulation
  - APIC method simulation achieves stable simulation while maintaining lower energy dissipation between steps
  - Rendered fluid dynamics a physically based rendering software; Mitsuba Renderer
- **Path Tracing Simulator**: Implementation of a physically-based renderer using a path tracing algorithm
  - Implemented path tracing algorithm and polygon detection for accurate, realistic light rendering
  - Integrated accurate materials and textures to properly emulate microfacet behavior
  - Recreated camera components virtually to achieve renders at variable depth of field
- **Exploratory Data Analysis over Politics-centric Twitter Posts**: Visualization and analysis of Twitter behavior on political topics
  - Collected, cleaned, and analyzed Tweets and associated data using Twitter's developer API to classify and visualize tweet sentiment
  - Analyzed temporal and spacial behavior patterns by classifying Tweet metadata by device of tweet origin, tweet contents, and tweet sentiment
- **Shrouded by Darkness**: 2D Game built using Unity Game Engine published on itch.io
  - Implemented animations using Unity's built-in Animator Controller, allowing fluid and responsive sprite movement
  - Developed animation assets and physically based material models and textures to achieve appropriate lighting interaction and behavior
  - Provided feedback to main programmers for game design, mechanic implementation, object interaction, and debugging

EXPERIENCE

Operation Jump Start   Long Beach, CA
Community Outreach Intern (Data Entry)   *May 2016 - Sept 2016*

- Compiled, itemized, and cataloged primary source documents into local database
- Conducted interviews with applicants, and their respective references, for assessment, matchmaking, and completion of potential mentors' profiles

The AEGIS Initiative   Berkeley, CA
Unity Game Developer   *Jan 2020 - Present*

- Coordinated with designers and programmers to establish a non-profit organization focused on developing accessible hands-on technologies and educational resources
- Worked with engineering leadership in designing, developing, testing, and refactoring portable user interface modules for smooth, responsive game world navigation and interaction
- Helped design and troubleshoot core game engine components and gameplay routines

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 on Unity operation and interaction
  - Gained knowledge on core aspects of game design including accessibility, development, and marketing
- **Student Library Employee**: Managed front desk and reference related 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