Howon Kim

Software Engineer

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Education

- **University of California at Berkeley** — Berkeley, CA
  Bachelor of Art in Computer Science — *Aug. 2018 – May. 2021*
  - **Coursework**: Data Structures, Artificial Intelligence, Techniques of Data Science, Software Engineering, Discrete Mathematics and Probability, Adaptive Instruction Methods in CS.

Experience

- **Samsung Electronics** — Suwon, South Korea
  Software Engineer Intern at Framework Department — *Jun 2020 - Aug 2020*
  - **NLP (Natural Language Processing)**: Lemmatize and tokenize the Android notification data. Categorize them into several topics using Latent Dirichlet Allocation.
  - **Android Development**: Analyze legacy code of framework and improve the search speed of queries.
- **Altoygames** — Jeonju-si, South Korea
  Cofounder and Software Engineer — *Jan 2020 - Jul 2020*
  - **C-sharp**: Write scripts to control the game components and build the path-finding algorithm.
  - **Unity**: Familiar with Unity features in 2D and 3D includes physics, lighting, AR, and pixel-perfect.
  - **Product Management**: Educate new software engineer and leads the project in technical aspect.
  - **Performance**: 1 Million Korean Won (About 84,000 USD) Funded by Korean Government.
- **University of California, Berkeley** — Berkeley, CA
  Computer Science Department Tutor — *Jan 2019 - Apr 2019*
  - **Programming and Data Structure**: Teach programming skills using Python and Data Structure using Java.
  - **Data Analysis**: Tutor data science; Teach how to classify big data, visualize it, and interpret it.
  - **Skillset**: Through Adaptive Instruction Methods in Computer Science, learn and teach how to illustrate big-idea into practice; tutor computer and data science by considering psycho-social factors that affect learning in all levels.

Projects

- **RISC-V Neural Net**: Implemented Artificial Neural Net(ANN) to classify handwritten digits into actual numbers by using numerical operations such as vector inner product, matrix multiplication, and thresholding by RISC-V assembly language.
- **Ham and Spam Detection**: Made spam detection using logistic regression model and K-fold cross validation to validate the sigmoid function.
- **Interactive 2D Game**: Designed own data structure to save different tiles, locations of stars and characters. Made own algorithm to generate a randomized game map each time a player played.
- **Collaborative Travel Schedule Application**: Developed iOS Application using Swift, Firebase, MapKit, and Core Location. Users can add or remove location pins for travel plan with the location data synced with Firebase.
- **Maps**: Wrote a library package using Java to emulate a stripped-down version of Google maps. Using Dijkstra's algorithm and A*, the package finds the shortest route to a point from two or more locations and prints out directions and distance.
- **Language Identification**: Built a Recurrent Neural Network (RNN) model that identifies language for one word at a time.
- **Pacman AI**: Built pacman agents on Gridworld, then applied them to a simulated robot controller (Crawler) and Pacman using value iteration and Q-learning.

Programming Skills

- **Languages**: Java, Python, C, C++, C-Sharp, SQL, Pandas, Swift, LaTeX.
- **Technologies**: MySQL, Git, Unity 3D, Xcode.