Randy Fan

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Education

University of California, Berkeley *Expected Class of 2021*
Master of Science in Electrical Engineering and Computer Science

University of California, Berkeley *Class of 2020*
Bachelors in Computer Science; 3.84 GPA (Magna Cum Laude)

Relevant Coursework:
Computer Graphics, Image Processing and Computer Vision, Algorithms, Data Structures, Computational Color, Artificial Intelligence, Linear Algebra, Data Science, Discrete Math and Probability, Computer Architecture, Circuit Analysis

Work Experience

Microsoft *Redmond, WA*
Gaming Program Manager Intern *May 2020 – Present*
- Drive Xbox PC expansion by identifying potential opportunities within discounting, selection, and social drivers for PC clients
- Identified two key social features (# of hours played listed w/ user reviews and playtime requirement to submit reviews) for proof of concept, continually collaborating with PMs and SWEs to draft experiment proposals and provide strategy recommendations

Department of Electrical Engineering & Computer Science, University of California, Berkeley *Berkeley, CA*
Computer Graphics Researcher (with Professor Carlo Séquin) *Jan 2019 – Present*
- Develop procedural 3D CAD tools (Non-Orientable Manifold Editor) and conduct research on computational geometry (i.e. advanced shape generators and shape eversions), cellular automaton, and reaction-diffusion systems

Department of Electrical Engineering & Computer Science, University of California, Berkeley *Berkeley, CA*
Computer Graphics & Imaging Student Instructor (course link: https://cs184.eecs.berkeley.edu/sp20) *Jan 2020 – Present*
- Taught weekly section w/ average attendance of 40 students (most attended section), lead biweekly project "parties" and review sessions, graded course assignments, answered questions on course Piazza, and wrote exam questions

Microsoft *Redmond, WA*
Finance Business Intelligence Intern *May 2019 – Aug 2019*
- Incorporated PowerBI Q&A feature to existing ML forecast dashboards and led several workshops demoing its uses, resulting in several team members adopting the feature for other dashboards
- Applied OpenCV morphological functions to remove noise in CVL documents and improve CVL's table recognition capability
- Interviewed dozens of stakeholders to document current business rhythms and provide recommendations to automate dashboards

Microsoft *Redmond, WA*
Financial Data Management Intern *May 2018 – Aug 2018*
- Developed and introduced a weighted scoring system for inefficient expense accounts that was adopted by the Financial Data Management (FDM) team, significantly reducing the amount of manual account repurposing work needed
- Implemented SQL queries directly connected to Microsoft's P&L database to generate large data sets (~100 million rows) containing financial transaction details, and identified over 700 expense accounts in Microsoft's CoA that could be blocked
- Synthesized CoA analysis into an article detailing CoA optimization efforts, read by over 5000 Microsoft employees

Projects

3D Snow Simulator
- Built an advanced snow simulator using Disney's hybrid Eulerian/Lagrangian Material Point Method

Color in Nature Inspired Design
- Applied smart color schemes using RGB binning to totalistic cellular automaton and reaction-diffusion models to generate realistic animal textures

Pathtracer
- Implemented a physically based renderer using a ray tracing algorithm, incorporating ray-scene intersection, acceleration structures, physically based lighting, complex materials, environment lighting, and depth of field effects

Cloth Simulator
- Created a real-time cloth simulator using a mass and spring system, calculating forces using numerical integration and handling collisions with other objects and self-collisions to prevent cloth slipping

Transition-based Dependency Parser
- Checked projectivity of dependency trees used, created an oracle method to convert trees to configuration and action pairs, and used oracle data to train neural network to predict actions given a configuration

Erth.io – *Live at http://erth.io.*
- Assisted with graphics development and fine-tuned physics variables for a 2D platform PVP game that has had over a million unique visitors and is sponsored by AddictingGames, Inc.

Skills and Tools

- Python – Experienced, with over 10 Python projects completed from scratch and over a dozen course projects
- C++ – Basic, a year of experience contributing to a large C++ codebase, but still learning this language
- JavaScript – Basic, completed ~5 graphics projects using p5.js around 1.5 years ago
- Java – Used, had 6 months of experience in Java but haven't used it in 2 years

Tools and Technologies: Computer Graphics, Image Processing, Computational Color, Deep Learning, NLP