Yuanbo Li

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Github: https://github.com/Liyb2002 Website: https://liyb2002.github.io/

Education

Brown University **(Sep 2022 -May 2024)**
M.S in Computer Science (Visual Computing Track) (GPA: 3.8)
Relevant Courses: Computer Graphics, Advanced Computer Graphics, Deep Learning

Columbia University, Columbia College **(Sep 2018 - May 2022)**
B.A in Mathematics (GPA: 3.6)
Relevant Courses: Advanced Programming, Natural Language Processing, Cloud Computing, Analysis and Optimization, Abstract Algebra

Research Interests

Computer Graphics, 3D Vision, 3D Generation, Mesh Editing and Optimization, Simulation, Natural Languages, AR/VR

Publications

PossibleImpossibles: Exploratory Procedural Design of Impossible Structures, Eurographics 2024 Full paper, (in submission), **Yuanbo Li**, Tianyi Ma, Zaineb Aljumayaat, Daniel Ritchie

Research Experience

Visual Computing Group , Brown University **(Sep 2022 - Sep 2023)**
Worked on Generating 3D Impossible Structures
Advisor: Prof. Daniel Ritchie

- Introduce a new procedural language and an algorithm to generate cycles for the language
- Explored taxonomy of impossible structures, and designed a procedural model to generate them
- Designed scoring functions for characterizing visually pleasing impossible structure, and applied sequential monte carlo to guide the output space of the result

Visual Computing Group, Brown University. **(Feb 2023 -)**
Worked on Creating labels for objects in AR
Advisor: Prof. James Tompkin

- Proposed algorithm to interpolate pixel values based on background image, and implemented the algorithm in Unity shader
- Designed a server request in Unity that hosts a neural network and communicates with it
- Explored human perception of color saliency using a neural network and LPIPS dataset

Collaborative Prediction Market Lab, Columbia University **(Sep 2021 - Jan 2022)**
Worked on making prediction using blockchain service
Advisor: Prof. Siddhartha Dalai

- Built App backend using Django framework and REST API. Deployed service on AWS EC2. Retrieved on-chain data using web3js for analysis.
- Adapted and implemented AMM algorithm to reduce the slippery rate by 15% each transaction.

Work Experience

ARPA Technology **(May 2022 - Aug 2022)**
Software Engineer Intern

- Designed and implemented Behavior Driven Tests for Randcast, a distributed random number generating system for Blockchain Networks.
- Wrote documentations and developer tutorial for Randcast

Tencent CSIG **(May 2021 - Aug 2021)**
Technical Product Manager Intern
- Participated in architecture design for blockchain-based IPFS (InterPlanetary File System).
- Wrote 10+ pages documentation helping open source engineers to build on our IPFS system.
- Drafted 30+ pages whitepaper for business development.

ARPA Technology **(June 2020 - Aug 2020)**
Software Engineer Intern
- Designed Wrote smart contract for Bella.fi, a DeFi protocol, based on Open Zeppelin contract libraries
- Researched on smart contract security and attack cases on Ethereum network

Tencent Videos **(June 2019 - Aug 2019)**
Product Manager Intern
- Used python to write web-crawler for 4 websites and gather view information for a total of 100+ articles on Tencent videos
- Used python (data cleansing) to analyze performance of different 100+ Key Opinion Leader

Talks and Teaching Experiences

Generating 3D impossible structures via guided Sequential Monte Carlo,
Brown Visual Computing Group, Feb 2023

Mathematics behind M.C Escher's Tessellations,
Columbia Mathematics Seminar, Feb 2021

Introduction to Markov chain basics and applications,
Columbia Mathematics Seminar, Oct 2021

Calculus III TA, (class by prof. Daniele Alessandrini) ,
Columbia Mathematics Department, Sep 2021 - Dec 2021

Skills

Programming Languages: C++, Python, C#

Frameworks: OpenGL, Tensorflow, threeJS, Unity, Pyrender, Django

Tools: Adobe Illustrator, Adobe Photoshop, Blender, Mesh Lab, AWS, Final Cut Pro