

Shuze Liu

+1-518-360-5086 | shuzeliu97@gmail.com | <https://shuzeliu.com>

Education

University of Virginia

Aug. 2020 – Current

Ph.D. , Computer Science

Advisor: Haifeng Xu

Yale University

May 2020

M.S. , Computer Science

Cumulative GPA: 3.88/4.0

Rensselaer Polytechnic Institute (RPI)

May 2019

B.S. , Computer Science

Cumulative GPA: 4.0/4.0 (Summa Cum Laude)

Advanced CS Courses & Teaching

AI & Theory Courses: Artificial Intelligence, Economics and Computation, Computational Intelligence for Games, Deep Learning, Game Theory, Computability and Logic, Graph Theory, Advanced Computer Algorithms.

Programming Courses: Operating Systems, Programming Languages, Database Systems, Software Engineering, Software Development & Documentation, Compiler Principles, Object-Oriented Programming.

Undergraduate Teaching Assistant: Intro. to Algorithms (Spring 2019), Intro. to Logic (Fall 2018).

Experience

Alibaba Group, DAMO Academy

June 2019 – Aug. 2019

Algorithm Engineer Intern

Hangzhou, China

- Developed a program in Python to test the actual performance of twelve convolutional neural networks on the server.
- Implemented ShuffleNet v2 by MxNet in Python. Trained this neural network on clothing pictures.
- Achieved 91.8 % accuracy on clothing classification problem by tuning the hyperparameters.
- Developed an API for this network to allow the City Brain project to input any size of pictures and get their labels.

Strengthening Blockchain Code to Handle Unexpected Situations

May 2018 – May 2019

Researcher at RPI (Project funded by IBM)

Troy, New York

- Designed a voting mechanism with an action list to handle unexpected situations in blockchain code.
- Applied Peer Prediction algorithm to reward peers and motivate them to report their true thoughts.
- Augmented this mechanism with generic principles. Created generic APIs for incoming blockchain code.
- Enhanced this mechanism using machine learning to predict peers' preferences.

Publication

- **Shuze Liu**, Farhad Mohsin, Oshani Seneviratne, Lirong Xia. Strengthening Smart Contracts to Handle Unexpected Situations. **Published on IEEE International Conference on Decentralized Applications and Infrastructures**. [\[Link\]](#) [\[PDF\]](#)

Projects & Coursework

Computational Intelligence for Games

Aug. 2019 – Dec. 2019

- Implemented Monte Carlo Tree Search with UCB sampling rule to compute the optimal strategy for Kalah game.
- Implemented an optimal player for finite, impartial, normal combinatorial games based on Sprague-Grundy Theorem.
- Used a linear programming solver to find and verify equilibrium for simultaneous games.
- Created an artificial neural network architecture and trained it for playing solitaire Yahtzee.

Computation and Economics

Aug. 2019 – Dec. 2019

- Proved in online learning setting, the strategy of following the perturbed leader can achieve regret $O(\sqrt{KT})$.
- Proved the 1/2-approximation in Prophet Inequality is tight and cannot be improved.
- Proved a lemma of envy-free allocation and used it to prove the existence of equilibrium where the outcome of Generalized Second-Price auction matches truthful auctions.

Skills & Scores

- Programming Languages: Python, C/C++, Java, Javascript, SQL, Pascal, Prolog, Scheme.
- Tools: TensorFlow, MxNet, Pytorch, Hyperledger Composer, LaTeX, Hugo.