Jiali Xing | 邢嘉力

☐ +1 267-764-9803 • ✉ xjiali@seas.upenn.edu • 🌐 My Homepage

Education

Academic Qualifications

University of Pennsylvania   **Philadelphia**
Ph.D. Computer and Information Science, GPA: 3.81/4   *Jan.2021–Present*
Coursework: Beginning Taiwaness, Theory of Computation

Duke University   **Durham**
M.S. Economics & Computation, GPA: 3.96/4   *Sept.2018–May 2020*
Coursework: Computational Economics, Design and Analysis Algorithms, Artificial Intelligence, Ph.D. Econometrics I, II, Machine Learning, Econometrics of Market Design, Distributed System

Wuhan University   **Wuhan**
Bachelor of Economics, GPA: 3.89/4   *Sept.2014–May 2018*
Coursework: Calculus, Real Analysis, Linear Algebra, Ordinary Differential Equation, Dynamic Optimization, Probability Theory and Statistics, Stochastic Processes, Time Series, and Mathematical Modeling

Research

Charon: A Framework for Microservice Overload Control
Joint with Henri Maxime Demoulin, Konstantinos Kallas, and Benjamin C. Lee   *HotNets21*
Modern cloud applications are increasingly large and complex, designing an efficient overload control scheme that scales well is tedious. We argue that part of the challenge is a lack of first principles mechanisms one can use to design scalable and verifiable policies. We present Charon, a market-based scheme for large scale cloud applications. Charon relies on tokens to negotiate the acquisition of compute resources. Charon decouple the mechanisms used to generate and value tokens, and introduces a novel price propagation technique that scales well to large scale cloud applications. We study how one can build, using Charon's primitives, a concrete overload control policy and its performance compared to a policy built without Charon.

Fair Allocation for Complementary and Substitutable System Resources
Joint with Benjamin C. Lee   *Ongoing*
We present a framework to model and allocate a mix of complementary and substitutable resources. The framework operationalizes the nested constant elasticity of substitution utility function and develops an allocation procedure that guarantees sharing incentives and Pareto efficiency. We draw parameters from gem5 experiments and then compare our algorithm against DRF.

Does Centralized Corruption Reduce Bribes?
Sole Author   *Term Paper*

After considering heteroskedasticity, spatial autocorrelation, and robustness, we find that centralized bureaucracy does not lower corruption by reducing minimum bribes, i.e., the bribe frontier, but does lower the bribes by reducing the bribe inefficiency. It means that once the entrepreneurs pay bribes efficiently, a more centralized bureaucratic structure will not help reduce their bribes anymore.

External Collaboration

Summer Research Internship — **Meta, Menlo Park, CA**
Meta Inc. — *May.2022–Dec.2022*

With Bilge Acun, Aditya Sundarrajan, David Brooks, Manoj Chakkaravarthy, Carole-Jean Wu, Benjamin C. Lee, we propose Carbon Responder to reduce datacenter carbon emission. It modulates heterogeneous datacenter computation in response to the marginal carbon intensity of the energy supply. Carbon Responder targets both online and batch workloads for demand response and develops strategies for apportioning curtailments across heterogeneous workloads

Research Collaboration — **Durham, NC**
Raytheon Technologies and William & Mary — *Jun.2020–Mar.2021*

With David Fischer, Nitya Labh, Ryan Piersma, Benjamin C. Lee, Yu Amy Xia, Tuhin Sahai, and Vahid Tarokh, we implemented a framework for simulation of permissioned blockchains for logistics and beyond.

TA Experience

Artificial Intelligence — **Durham, NC**
For Professor Ron Parr, Duke University — *Aug.2020–Dec.2020*

Designing homework and exams, office hours, answering piazza, grading homework and exams.

Computational Microeconomics — **Durham, NC**
For Professor Vincent Conitzer, Duke University — *Jan.2020–May.2020*

Teaching recitations, holding office hours, answering piazza, setuping Sakai and Gradescope, grading homework.

Machine Learning — **Durham, NC**
For Professor Cynthia Rudin, Duke University — *Aug.2019–Dec.2019*

Designing kaggle competition, grading kaggle and most assignments, webmaster, printing both exams, holding office hours, answering piazza, proctoring, and assembling final grades.

Interests and extra-curricular activity

- Game Theory, Social Choice, Causal Inference, Fair Division, and Mechanism Design.
- Russian Political Jokes, Programmer Memes, Video Games, Board Games.
- Dinning, Dancing, Festival Celebration, Movies, Live Music.
- History, Linguistics, Sociology.
- Badminton, Archery.