

# Fadhil I. Kurnia

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## RESEARCH INTERESTS

Distributed System, Networked System,  
Privacy-preserving system, Systems for  
Machine Learning

## EDUCATION

### UNIVERSITY OF MASSACHUSETTS AMHERST

MS/PhD in Computer Science - CGPA 3.93/4.0

2020-present

Amherst, MA, USA

### BANDUNG INSTITUTE OF TECHNOLOGY (ITB)

BSc in Computer Science - CGPA 3.83/4.0 Graduated with Cum Laude Distinction

2015-2019

Bandung, Indonesia

## PUBLICATIONS

### Oblivious Paxos: Privacy Preserving Consensus Over Secret-Shares

under submission, 2023

Fadhil I. Kurnia, Arun Venkataramani

### Extending and Programming the NVMe I/O Determinism Interface for Flash Arrays

ACM Transactions on Storage (ToS), 2022

Huaicheng Li, Martin L. Putra, Ronald Shi, Fadhil I. Kurnia, Xing Lin, Jaeyoung Do, Achmad I. Kistijantoro, Gregory R. Ganger, Haryadi S. Gunawi

## RESEARCH EXPERIENCE

### Privacy-Preserving Distributed Replication for Smart Home System

UMass Amherst | Aug 2020-present

Advisor: Dr. Arun Venkataramani

- Implemented prototype for a Paxos based privacy-preserving replication protocol for smart home systems: Oblivious Paxos.
- Contributed to paper writing for submission in SIGCOMM and NSDI conferences.

### Google CS Research Mentorship Program (CSRMP)

Google Research | Feb - Apr 2021

Mentor: Dr. Rahul Garg

- Identified important research directions based on the current trends in the cloud-based privacy-preserving system.
- Summarized and categorized related works from top conferences in the area of distributed systems in the last 2 years.
- Discussed soft skills required for a good researcher: time management, networking & socializing, and prioritization [[link](#)].

### Eliminating Tail Latencies in Flash Arrays with Redundancy

University of Chicago | May 2018-Dec 2019

Advisors: Dr. Haryadi S. Gunawi, Dr. Huaicheng Li

- Implemented RAID-like redundancy in flash arrays to eliminate tail latency, the client sends requests to multiple SSD and proceeds with the fastest responses, using C based SSDSim. Presented the result as my bachelor thesis [[code](#)][[thesis](#)].
- Added checkpoint messages inside the OS kernel for measurement purposes. Profiled prototype performance using fio.
- The result is published on SOSP'21, check my name on the Acknowledgement in the report [[paper](#)]. Published on ACM TOS.

## INDUSTRY EXPERIENCE

### RUANGGURU - BACKEND ENGINEER

Jakarta, Indonesia | Feb-Aug 2020

- Developed and maintained 3 backend services, written in Go, to handle quiz events and online learning platforms, the main feature of the apps, with over 10K req/s. Decreased avg latencies by ~30% with Redis caching layer on top of the services.
- Ensured the correctness of distributed transactions spanning multiple independent backend services. Implemented and registered the rollback mechanism in Cadence, a widely used micro-service orchestrator.
- Initialized LMS development that supports 100+ schools/ organizations and their 100,000+ students during the pandemic.

### BUKALAPAK - MACHINE LEARNING ENGINEER INTERN

Bandung, Indonesia | Jan-Mar 2019

- Developed a light middle layer that intercepts requests and responses to/from machine learning services for the machine learning scientists so they can analyze the deployed machine learning model's performance.
- Successfully gathered the prediction results from 5 machine learning services with small latency overhead.
- Tech stack: Go, Python, Kafka, MongoDB, Docker.

### TOKOPEDIA - SOFTWARE ENGINEER INTERN

Jakarta, Indonesia | May-Aug 2017

- Implemented Tokopedia Feed which adds posts to user feed when their favorite shops are listing new products.
- Implemented online mark & last seen feature in Tokopedia Chat website for 1,000,000+ monthly active users.
- Tech stack: Go, Postgres DB, Redis, NSQ, React JS, Neo4J Graph DB.

## TEACHING EXPERIENCE

2022 Fall - Teaching Assistant of CS653-Advanced Computer Networking, University of Massachusetts Amherst.

2021 Spring, Summer - Teaching Assistant of CS187-Programming w/ Data Structure, University of Massachusetts Amherst.

2019 Spring - Teaching Assistant of IF3111-Platform Based Development, Bandung Institute of Technology (ITB).

## HONORS & AWARDS

2022 The 21st Workshop on Hot Topics in Networks (HotNets 2022) Travel Grant, Austin, Texas, USA.

2021 The Jim Gray Graduate Scholarship in Computer Science, CICS, UMass Amherst, USA.

2019 South East Asia Machine Learning School (SEAMLS) Travel Grant in Depok, Indonesia.

2019 Experience KAIST School of Computing (SoC) Travel Grant in Daejeon, South Korea.

2014 Gold Medal at Indonesia Science Project Olympiad (ISPO 2014), computer category [[regional-news](#)] [[local-news](#)].

2013 Gold Medal at Infomatrix 2013, international science competition (software), in Bucharest, Romania [[national-news](#)].

2013 Silver Medal at Indonesia Science Project Olympiad (ISPO 2013), computer category.

## TECHNICAL SKILLS

Lang: C/C++, Go, Java, Python, PHP, Shell Script

DB: MySQL, Postgres, Redis

Others: Kafka, Hadoop, Docker