Christina Shin

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EDUCATION

University of Southern California, Los Angeles, California

- Ph.D. Student in Computer Science — Aug 2019 – Present
  Research Interest: 3D Sensing, LiDAR Sensing, 3D Reconstruction, 3D Mapping, Cooperative Perception, Connected Vehicles, Autonomous Vehicle Systems

Ewha Womans University, Seoul, South Korea

- M.S. in Computer Science and Engineering — Mar 2017 – Feb 2019
  Thesis: Network Diagnosis and Reconstruction in Vehicular Ad-Hoc Networks
- B.S. in Computer Science and Engineering — Mar 2012 – Feb 2017

PROFESSIONAL EXPERIENCE

General Motors R&D, Warren, Michigan

Research Intern & Collaborator (Mentor: Chuan Li and Fan Bai) — May 2021 – Present

- Designed a 3D traffic scene reconstruction system that leverages multi-vehicle point cloud registration via ICP and generates a volumetric video of the traffic scene (details confidential)

Networked Systems Laboratory, University of Southern California

Research Assistant (Advisor: *Prof. Ramesh Govindan*) — Aug 2019 – Present

- Invented an infrastructure-assisted autonomous driving system, which augments vehicle perception beyond occlusions using roadside LiDARs, and offloads perception and planning stacks from vehicles to edge compute
- Devised a 3D building reconstruction system using a drone equipped with a LiDAR, which finds an optimized path planning for the drone to capture the building, and generates a 3D model via SLAM in near real-time

Intelligent Networked Systems Laboratory, Ewha Womans University

Research Assistant (Advisor: *Prof. HyungJune Lee*) — Jan 2017 – May 2019

- Designed an algorithm on traffic density estimation through opportunistic V2V packet probing within time-deadline
- Devised an algorithm on route reconstruction using multiple UAV relays, which finds positions of UAV Relays that optimizes an Ad-hoc Networks connectivity

PUBLICATION

CONFERENCE

Christina Suyong Shin, So-Yeon Park, JinYi Yoon, and HyungJune Lee, "Progressive ad-hoc route reconstruction using distributed UAV relays after a large-scale failure," *IEEE Wireless Communications and Networking Conference (WCNC)*, 2018.

So-Yeon Park, Dahee Jeong, **Christina Suyong Shin**, and HyungJune Lee, "DroneNet+: Adaptive Route Recovery Using Path Stitching of UAVs in Ad-Hoc Networks," *IEEE Global Communications Conference (GLOBECOM)*, 2017.

JOURNAL

Christina Suyong Shin, JiHo Lee, and HyungJune Lee, "Infrastructure-less Vehicle Traffic Density Estimation via Distributed Packet Probing in V2V Network," *IEEE Transactions on Vehicular Technology (TVT)*, vol. 69, no. 10, Oct 2020.

So-Yeon Park, **Christina Suyong Shin**, Dahee Jeong, and HyungJune Lee, "DroneNetX: Network Reconstruction through Connectivity Probing and Relay Deployment by Multiple UAVs in Ad-Hoc Networks," *IEEE Transactions on Vehicular Technology (TVT)*, vol. 67, no. 11, Nov 2018.

AWARD & SCHOLARSHIP

- Annenberg Fellowship, University of Southern California 2019
  For outstanding Ph.D. students joining in Fall 2019
- Qualcomm Innovation Awards, Qualcomm x Ewha 2017
  For proposing a lightweight network hole replacement algorithm through UAV-net and leading to contributions in the fields of Wireless Ad-Hoc Networks
- Silver Prize in Graduation Capstone Design, Ewha Womans University 2016
  For an outstanding project that presented and implemented *SimMusic* language which plays simple musics on *Lego Mindstorms NXT*
- Dean's List, Ewha Womans University 2013, 2015, 2016
  For attaining a GPA of over 3.75/4.3

TEACHING EXPERIENCE

Teaching Assistant in Major Courses, Ewha Womans University

- Computer Architecture (20493-02) Fall 2018
- Arduino Programming (11208-01) Spring 2018
- C Programming (38407-05) Fall 2017
- Programming Language Theory (20499-01, 20499-02) Spring 2017

TECHNICAL SKILL

Languages

C++, Python, C, C#, MATLAB, Java, LaTeX