LUCAS JOOHAN LEE

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EDUCATION

Master of Science in Computer Science, University of Southern California, Los Angeles — Dec 2023 (expected)

- Related Course work: Analysis of Algorithms, Database Systems, Web Technologies, Applied NLP, Multimedia Systems Design, Introduction to Computer Networks, Computer Networking (Overall GPA: 3.78)

Bachelor of Engineering in Computer Engineering, Yonsei University, Wonju, Korea — Mar 2015 - Feb 2021

- Bachelor of Engineering in Computer Engineering, GPA 3.97/4.3

EXPERIENCE

Software Engineer Intern - CYCLEAN INC, Chicago, Illinois — May 2023– Jul 2023

- Led the conceptualization, design, and implementation of a dynamic website utilizing React and integrating AWS Lambda, AWS Amplify, AWS CloudFront, AWS Route 53, and AWS S3.
- Developed a user-centric platform enabling efficient access to IoT device information while empowering customers to submit accurate quotations.

Research Assistant - USC WiDeS Lab, Los Angeles, CA — Dec 2022– current

- Received the 1st place award in the 2023 IEEE ICASSP Pathloss Radio Map Prediction Challenge by utilizing deeplabv3+ computer vision models and implementing data augmentation techniques.
- Designed simulators for wireless communication systems in real-world scenarios.
- Developed a PyTorch-based framework to efficiently experiment with models for predicting pathloss radio maps and improved model accuracy by 18% through fine-tuning and data augmentation.
- SKILLS: Computer Vision, NLP, Pytorch, Tensorflow, Linux, Shell, Link-level simulation, OFDM, and Python

RPA Software Engineer - BSG One Co., Ltd., Seoul, Korea — Jul 2020– Aug 2021

- Developed and maintained automation of business processes that use digital systems such as MES, WMS, ERP.
- Developed a system to parse thousands of user-scanned documents per week using OCR, Regex, and C#.
- Increased development productivity by 30% by developing a JSON standard interface using JavaScript.
- Successfully led projects end-to-end by designing digital transformation, developing automation, and communicating with project stakeholders.

PROJECTS

Building own Internet — Sep 2023 - current

- Developed a functional router with static routing capabilities, demonstrating proficiency in processing Ethernet frames, implementing forwarding logic, and enabling access to HTTP servers behind the router.
- Constructed layer-3 networks by configuring OSPF for intra-domain routing and iBGP and eBGP for inter-domain.
- Implemented cTCP, a user-level transport layer, featuring reliable stop-and-wait and sliding window functionality integrated with IP. Incorporating BBR congestion control protocol for compatibility with TCP implementations.
- SKILLS: C, Python, Linux, BGP, TCP, OSPF, Quagga routing software, Shell scripting, Routing Protocols

Business Search Web Application [Github][WepApp][AppDemo] — Sep 2022 - Dec 2022

- Developed a responsive Single-Page Application using JavaScript, Node.js, and Express framework for the back-end and Angular, TypeScript, AJAX, and Bootstrap for the front-end to display business search results.
- Deployed the responsive single-page web application through GCP.
- Built an Android app using Java, Android SDK, and third-party libraries such as Glide, and Volley.

Multimedia Compression and Video Player [Github] — Jan 2023 - May 2023

- Constructed a sophisticated video player capable of extracting precise video indexes, enabling interactive exploration by discriminating distinct shots and scenes using Java and Python.

PUBLICATION

- Ju-Hyung Lee, Joohan Lee, Seon-Ho Lee and Andreas F. Molisch, "PMNet: Large-Scale Channel Prediction System for ICASSP 2023 First Pathloss Radio Map Prediction Challenge," *ICASSP 2023 - 2023 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, Rhodes Island, Greece, 2023, pp. 1-2 (LINK)
- Tai Nguyen, Yifeng Di, Joohan Lee, Muhao Chen, and Tianyi Zhang. Software Entity Recognition with Noise-Robust Learning. In *38th IEEE/ACM International Conference on Automated Software Engineering (ASE '23), September 11–15, 2023, Kirchberg, Luxembourg.* (LINK)

SKILLS

- Languages: Python/C(Proficient), Java/C++/C#(Familiar), JSP, JavaScript, SQL, HTML/CSS, Excel VBA
- Technologies: Flask, Angular, Node.js, MySQL, Selenium, Regex, Android, AWS, GCP, Git, PyTorch, TensorFlow