# JEONG HOON CHOI

Los Angeles, California | (323)630-6334 | choijeon@usc.edu

## EDUCATION

**University of Southern California** Aug 2024 - May 2026
**Master of Science in Applied Data Science | GPA 3.9/4.0** *Los Angeles, CA*

**Kyung Hee University** Mar 2017 - Feb 2023
**Bachelor of Science in Physics & Computer Science | GPA 3.8/4.3** *Seoul, Republic of Korea*

## SKILLS

**Programming Languages:** C/C++, Python, R, Assembly x86, Emacs Lisp, SQL, Bash, PowerShell

**Frameworks:** CUDA, Boost, Scikit-Learn, TensorFlow, PyTorch, Apache Spark, Apache Flink, Hugging Face

**Technologies:** Linux, Windows Server, Xen, Docker, AWS, Git, Hadoop, Kafka, MySQL, PostgreSQL, SQL Server, MongoDB

## EXPERIENCE

**Kyung Hee University, Surface Physics & Organic Nano Device Laboratory** Sep 2022 - Feb 2024
*Research Internship* *Seoul, Republic of Korea*

- Collaborated with the **Korea Research Institute of Standards and Science (KRISS)** to generate and analyze high-resolution X-ray Photoelectron Spectroscopy (XPS) data (+100K spectra) for surface contamination layer identification
- Designed and trained a 1D Convolutional Deep Neural Network (4.5M parameters) to predict elemental composition and contamination layers from spectral data
- Achieved an **$R^2 = 0.998$**, demonstrating exceptional accuracy in quantitative surface analysis and outperforming traditional regression-based methods
- Automated AES/XPS data acquisition with centralized server integration, reducing manual preprocessing and visualization time by **~40%** through pipeline optimization

**Kyung Hee University, Complex System & Information Laboratory** Nov 2020 - Feb 2022
*Research Internship* *Seoul, Republic of Korea*

- Researched optical data restoration methods using Compressed Sensing, Deconvolution, PCA, and Machine Learning to recover blurred signals caused by instrumental filters
- Implemented and evaluated algorithms for signal reconstruction with improved sharpness and noise robustness across multiple optical datasets
- Managed and optimized a parallel computing server cluster supporting numerical simulations for four physics laboratories, improving computational efficiency by **~30%** and uptime reliability
- Developed and maintained Python libraries for Computational Physics coursework, enabling undergraduate students to conduct numerical experiments and data visualization with ease

**Maple Investment Partners, Investment Team** May 2020 - Aug 2020
*Data Science & Analytics Internship* *Seoul, Republic of Korea*

- Developed an automated data collection and visualization system in Python and SQL to track real-time venture capital investments in South Korea using web scraping and public APIs, aggregating **+15K** investment events
- Designed data pipelines to aggregate and clean investment metrics, delivering interactive dashboards for market trend monitoring and early-stage opportunity detection
- Conducted in-depth data-driven statistical analysis on the Solar Energy upstream industry, presenting insights and forecasts to investment partners to inform strategic decision-making using data visualization

## PROJECT

**Flow-Based Network Anomaly Detection with Transformer Model** Sep 2025 - Dec 2025

- Compared the performance of sequence flow models, including Baseline Dense (single-flow model), CNN+LSTM, and BERT, evaluating their ability to capture complex sequential patterns in network traffic for anomaly detection
- Achieve Macro F1 score of **0.8** and accuracy over **0.99** using the BERT model on UNSW-NB15 and CSE-CIC-IDS2018 datasets, highlighting its strong capability in detecting a wide range of network anomalies

## CERTIFICATIONS

**Offensive Security Certified Professional (*OSCP & OSCP+*)** Aug 2025

**Chinese Proficiency Test (HSK Lv.5, *CEFR C1*)** Jul 2020