Suhong Kim

MACHINE LEARNING ENGINEER · EMBEDDED SOFTWARE ENGINEER

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Technical Skills

Software Engineering

OOP, REST API, Data Mining/Analysis, Web/Visualization, Databases

C/C++ | Pytnon | JAVA | SQL | HTML/CSS/JS | Git | Linux

Machine Learning

Statistical/Probabilistic Models, ML, DL(CNN/RNN/GAN), NLP, Computer Vision

Pytorch | SKlearn | Spark | Flask | AWS | Azure | OpenCV | ROS

Embedded Engineering

Micro-controller/Sensors/Actuators, Sytem Design, Modeling, Lab Simulation

RTOS | DSP | Firmware | Debugging | Matlab/Simulink | Assembly

Work Experience

Research Associate, Network System Lab at Simon Fraser University, BC, Canada *2019-2020*

- Conducted several pieces of research on image/video reflection problems, and published two papers
- Participated in all research stages; article reviews, ideal proposals, implementation, evaluation, discussion, and writings

Embedded Software Engineer, Hyundai MOBIS Research Center, South Korea *2012-2016*

- Developed Embedded software of the Electric Parking Brake system; logics, firmware, diagnosis, CAN/SPI, and vehicle testing
- Led an international team of six based in Tech Center in India both remote and on-site for software verification and validation
- Spearheaded a new design project of PBC(Parking Brake Control) aiming the re-architecture of legacy software based on the model-based design and new safety standard, which resulted in major automotive companies adopting the product worldwide

Publications

Unsupervised Single-Image Reflection Separation using Perceptual Deep Image Priors *ArXiv*

First Author, submitted to some conferences to publish *2020*

- Proposed an unsupervised framework to generate two exclusive background and reflection layers from a single input image
- Applied semantic feature embeddings for more meaningful separation similar to human perception

User-assisted Video Reflection Removal *ArXiv*

Second Author, The ACM Multimedia Systems Conference 2021 (MMSys'21) *2020*

- Proposed a computational method using motion cues for video reflection removal with minimal user assistance

Crime Analysis Through Machine Learning *IEEE*

First Author, IEEE 9th Annual Information Technology, Electronics and Mobile Communication Conference *2018*

- Proposed the ML-based crime prediction model to reinforce a patrol system in Vancouver

Projects

An Enhanced Sketch2Scene Using Natural Language

- Designed a system to translate a sketch into realistic scenes
- Evaluated how NLP can improve this task w.r.t quality and variety

Generative Image In-painting

- Implemented a DC-GAN model to restore the corrupted images
- Improved the performance compared to the original paper

Disaster Response Pipeline

- Built ETL+ML Pipeline to classify the type of the disaster messages
- Deployed a web app to provide the user interface for inference

Vehicle Object Detection Using SSD

- Implemented Single Shot Multi-box Detector(SSD) from scratch to detect vehicles on the Cityscapes dataset

Medical Image Segmentation

- Implemented a pixel-wise image segmentation model based on U-NET architecture from scratch

Kaggle Survey 2020 Data Analysis(EDA)

- Performed the data analysis and visualization
- Published the article with insights on Kaggle

Education

Msc In Computer Science (Visual Computing Specialization) Simon Fraser University, BC, Canada *2019-2020*

Bsc In Mechanical and Control System Engineering Handong Global University, South Korea *2008-2016*