Youjeong Jang

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EDUCATION

South Dakota State University
Master of Science, Computer Science
Cumulative GPA: 3.54
Expected Graduation Date: May 2021

South Dakota State University
Bachelor of Science, Computer Science
2017 - 2018

SKILLS & QUALIFICATIONS

- Experienced in Microsoft **.NET** framework (**C#, Typescript, & HTML/CSS**)
- Efficient in **Git** version control system
- Effectively use **critical thinking** and **problem solving** to develop efficient software
- Skilled at using **object-oriented programming** to organize programs and develop re-usable pieces
- Increasing knowledge in **React**, and **Bootstrap** frameworks to create web applications
- Experienced in creating and modifying stored procedures and **SQL** scripts using **SQL Server Management Studio**
- Knowledgeable in **Linux** and **Bash** to navigate files and compile/run programs
- Familiarity with **Docker** containers
- Experience with **VirtualBox** and **Conda** VM environments
- Versed in the practices and ideologies of the **Scaled Agile Framework (SAFe)**
- Familiarity with building Android applications using **Flutter** and **Android Studio**
- Experience with iOS application development using **Xcode** IDE and **Swift** programming language
- Deep understanding in **Machine Learning, Deep Learning** and **Natural Language Processing**
- Proficient in **Python** programming language and **CUDA** programming
- Experienced in **multi-class anomaly detection**, **unsupervised/supervised learning** and **time-series data analysis**
- Familiar with **PyTorch**, **Tensorflow**, **OpenCV**, **Scikit-Learn** and **Keras** machine learning frameworks
- Expertise in **Generative models**, **Pattern Recognition** and **Computer Vision**

ORGANIZATIONS

Vice President - Association for Computing Machinery (ACM) August 2020 – Present
South Dakota State University – Brookings, SD

- Work directly with the President, Treasurer, and Joint Engineering Council Representative of ACM to facilitate bi-weekly group meetings
- Coordinate and engage with companies from around the state
- Introduce and share the knowledge of recent technologies with members

Chapter Member – SDSU Robotics Club (Autonomous Snowplow Team) Nov 2020 – Present
South Dakota State University – Brookings, SD

- Participate meeting and discussing about Autonomous Snowplow project process
- Analyzing LiDAR data to get the location of object and apply computer vision techniques for self-driving

Chapter Member – Women in STEM October 2019 – Present

South Dakota State University – Brookings, SD

- Participate meeting and answer the questions about experiences in graduate school with STEM major as Q&A speaker panel

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EXPERIENCE

Machine Learning Graduate Research Assistant May 2019 – Present

Intelligent Vision System Laboratory, South Dakota State University – Brookings, SD

- Work in 3D object reconstruction using single-view images with Generative models to scale certain objects without human labor
- Construct deep learning networks to extract information from sentences using LSTM models from EMF-related literature
- Work on post-earthquake serviceability of reinforced concrete bridge deterioration using visual inspections with multi-class object detection networks to determine deficiency levels
- Use reinforcement learning to accelerate speed of network training time and to compress neural networks and allow real-time network communication between satellites
- Perform CUDA programming to quicken training time and parallel training of networks
- Build generative models, object detection networks and natural language processing models using PyTorch, Tensorflow, Scikit-Learn, OpenCV and Keras machine learning frameworks

Front-End Developer October 2018 – May 2019

RkMedia – Los Angeles, CA

- Built web services using PHP scripting language and Bootstrap framework to maintain internal services
- Coordinated with team members to plan and work through development using Scaled Agile Framework (SAFe) development methodology
- Worked with Swift programming language to turn custom applications into iOS applications
- Managed customer information with SQL Server Management Studio

Software Developer May 2018 – October 2018

Division of Technology & Security, South Dakota State University – Brookings, SD

- Built custom web services using Microsoft .NET framework (C#, Typescript, & HTML/CSS) to improve internal processes for various departments
- Created and modified stored procedures and SQL scripts using SQL Server Management Studio
- Maintained South Dakota State University websites and kept them up-to-date with changing policies and procedures

Information Technology Technician July 2016 – July 2017

Shinhan Bank America – Los Angeles, CA

- Provided in-person and remote desktop technological support to internal company employees
- Troubleshooted networking, software, and hardware issues
- Applied problem-solving every day to establish solutions to complex scenarios
- Established proficiency with the IT ticketing system and tools

Android Developer Dec 2015 – Mar 2016

IOLite Pvt – Bengaluru, India

- Worked with a development team to create an Android application centered around promoting self-defense
- Integrated application alarm systems with Google Maps geolocation API to communicate with authorities

- Quality-tested before launching with full system development lifecycle experience, including designing and implementing test plans and test cases

Computer Science Teaching Assistant Jan 2015 – Dec 2015

Department of Computer Science, Kyungpook National University – Daegu, South Korea

- Assisted with teaching data structures to a laboratory classroom
- Worked with students daily to complete data structure programming assignments using the C family language (C, C++, C#)

PROJECTS

Post-Earthquake Serviceability of Bridge Columns Using Visual Inspection May 2020 – Current

This project is a co-project between the Computer Science Department and the Civil Engineering Department at South Dakota State University. The main goal of this project, which is the first phase of a multi-phase project, is to accelerate post-earthquake bridge inspection using computer vision. The neural network in this project consists of two stages. In the first stage, the classification model will detect the bridge columns and determine the shape of the column using three classifications. In the second stage, the neural network will detect the dimension of the deteriorated part from the instances detected by the first stage in the object detection network. Currently, the first stage of the object detection network has been built and has state-of-art result.

Autonomous snowplow Nov 2020 – Present

This is a group project that create autonomous snowplow machine with SDSU Robotics club. I am in charge of software programming with using computer vision techniques to detect object by machine itself and analyzing linear LiDAR data for localization information.

Utilization of Home Energy Management System (HEMS) Aug 2020 – Nov 2020

This is a group project with Electrical Engineering department to participate JUMP into STEM project. This competition was organized from Department of Energy (DOE) and goal was to maximize the utilization of installed solar generation through an intelligent load scheduling system. I was in charge of data analyzing to expect future real time price and solar irradiance forecasting. Also, combine those expected data with analyzed user lifestyle to suggest best scheduling to reduce total electrical bills. Also, to reduce PV curtailment, this program suggested to use blockchain system for selling each user's over loads to other users independently and securely.

Portfolio Website Mar 2020 – Present

This is an in-development, fully-responsive portfolio website where I will showcase my apps/projects. I am currently developing this website using React and Bootstrap.

License Plate Number Detection System March 2015 – July 2015

This is a group project that create software to detect auto license plate number for managing parking space. This program take plate number image and number is detected by using image processing with C# and CV libraries. This software is mounted on raspberry pi and image taken by Kinect. Once plate number detected, number is compared with existing database to check if this auto violated the parking.

Facial Recognition Authentication System September 2014 – December 2014

This is a group project that create software to authenticate person's identification by using face recognition. Face recognition program is written with C# and cv libraries. Face image is captured by any cameras and detect the location of eyes, nose and lips. With those data, compare pixel values of each images with existing data. This software needs future work to detect more precisely.

Refrigerator Management System March 2014 – July 2014

This is a group project that involves building a website that handles management of refrigerator with Java. This software has services which manage expiration date of each items and user preference of items, remind of short amount of certain items and recommendation of recipes with existing item in storage.

Mini C Compiler March 2014 – July 2014

This is a C language compiler that I developed using C. It accepted a subset of C keywords from a text file, lexically analyzed each individual token. This compiler project was good study material to learn about various techniques used in compilers. Built lexer, preprocessor and parser to understand C source code at each stage. This compiler is slower than GCC and support x86-64 Linux only.

PUBLICATIONS

Semantic Classification of EMF-related Literature using Deep Learning Models with Attention Mechanism October 2020

This paper is published by Research in Adaptive and convergent Systems, ACM on 2020. We have conducted a neural architecture search to find the most suitable model for the task. In addition, we have employed a fully convolutional network (FCN) to implement an attention mechanism for the semantic classification of EMF-related literature. This paper shows the use of FCN-based attention model increased the performance of the semantic classification by providing the location of important sentences in the input text.

Evaluation of Deep learning models for information extraction from EMF-Related Literature October 2019

This paper is published by Research in Adaptive and convergent Systems, ACM on 2019. We compared Bi-directional LSTM with convolutional layer model with other models to figure out how each component of the model contribute to the performance. Models are implemented with Keras and PyTorch. LSTM or Bi-directional LSTM unit plays an important role in classifying publications according to the adverse effect observed in their experiments.

A SSLBP-based Feature Extraction Framework to Detect Bones from Knee MRI Scans October 2018

This paper is published by Research in Adaptive and convergent Systems, ACM on 2018. Research is to build feature extraction framework to detect bones from MRI images. This network use DL based knowledge and use segmentation method. This network is trained with SVM which is traditional classification method. In this paper, we proposed employing the Scale Space Local Binary Pattern feature extraction, a variant of local binary pattern extractions. The experimental results demonstrate that the proposed method has outperformed accuracy. Training and implementing is implemented in Docker container and coded with C family language.

VOLUNTEER EXPERIENCE

Brookings Regional Humane Society May 2019 – Current

Volunteered time to care for rescued animals

Licenses & Certifications

An Introduction to Interactive Programming in Python (Part 1) Issued August 2018

Coursera

RERERENCES

Sung Shin
Computer Science Professor & Graduate Advisor, South Dakota State University
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Kwanghee Won
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