Augustine Cha

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Education

- **Columbia University** — New York, NY
  Master of Science in Computer Science — *Exp. Dec. 2020*
  - **Relevant Courses:** Databases, Machine Learning, Computer Vision, Analysis of Algorithms
- **Konkuk University** — Seoul, South Korea
  Bachelor of Science in Electrical and Electronics Engineering — *Feb. 2019*
  - **Relevant Courses:** Image Processing, Digital Signal Processing, Applied Algorithm, Random Process

Programming Skills

- **Languages:** C/C++, C#, Python, Matlab, SQL, LaTeX, Markdown
- **Frameworks:** OpenCV, PyTorch, TensorFlow

Work Experience

- **Analogue Plus** — Seongnam-si, South Korea
  Software Engineer — *Dec 2018 - Jun 2019*

  Smart Farm Project
  - Contributed to a project to make an autonomous harvesting system using robot arms and cameras.
  - Implemented computer vision and deep learning algorithms using OpenCV and TensorFlow for object detection.
  - Created a GUI program that assists other engineers to test a variety of algorithms for detection using Python and C#.
  - Created a program that parses and visualizes raw data from two LiDAR sensors using C#.

Research Experience

- **Deep Computer Vision Lab** — Konkuk University, South Korea
  Undergraduate Researcher — *Nov 2016 - Jun 2018*

  Saliency-guided Feature Detection
  - Applied saliency detection as a filtering weight to guide feature matching algorithms.
  - Inlier ratio increased by 11.14% and the execution time improved by 106.8% using SIFT from OpenCV/C++.
  - Published an international paper and gave a poster presentation based on the work.

  Haze Removal via Multi-scale Superpixel
  - Collaborated with a colleague in a project on haze removal.
  - Applied multi-scale superpixel using SLIC to establish a precise Dark Channel Prior(DCP) map using C++ and OpenCV.
  - Published a domestic paper and gave a poster presentation based on the work.

Publications

- Augustine H. Cha and Wonjun Kim, "Saliency-guided feature matching for self-driving systems," in *proc. IEEE International Conference on Consumer Electronics-Asia (ICCE-Asia)*, Jun 2018
- Jehee Tae, Augustine H. Cha, and Wonjun Kim, "Haze removal via multi-scale superpixel," in *proc. 30th Workshop on Image Processing and Image Understanding(IPIU)*, Feb 2018. (Korean)
- Hyunjong A. Cha, Gyu-In Jee, and Wonjun Kim, "Method for locating an unmanned vehicle using saliency based feature matching," in *proc. Society for Aerospace System Engineering Spring Conference*, Apr 2017. (Korean) ***Best Paper Award***