Hyung-gun **Chi**

MASTER STUDENT

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Education

Purdue University	*West Lafayette, IN, USA*
MASTER OF SCIENCE IN MECHANICAL ENGINEERING	*Aug. 2018 - PRESENT*

- Advisor: Prof. Karthik Ramani, Donald W.Feddersen Professor of Mechanical Engineering

Yonsei University	*Seoul, South Korea*
BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING	*Mar. 2010 - Feb. 2017*

- 2011–2013, 2-year military service

Research Experience

Engineering Shape Benchmark (ESB)	*West Lafayette, IN*
GRADUATE ASSISTANT, C-DESIGN LAB	*Jan. 2019 - Present*

- Collected Engineering shape using scrapper and expanded the data with parameterized CAD model to build a database
- Developed Creo Parametric and SolidWorks Python API for data expansion.

Latent Transformation Neural Network (LTNN)	*West Lafayette, IN*
GRADUATE ASSISTANT, C-DESIGN LAB	*Aug. 2018 - Feb. 2019*

- Developed a fully-convolutional conditional generative model which is capable of view synthesis using a light-weight neural network suited for real-time applications.

Interventional Generative Network (IGN)	*West Lafayette, IN*
GRADUATE ASSISTANT, C-DESIGN LAB	*Aug. 2018 - Present*

- Developed the GAN model which generate 3D objects given a discrete category condition and continuous instance-level attributes.

Visual Programming Language for Mobile Robots and IoT Nodes (VIPO)	*West Lafayette, IN*
GRADUATE ASSISTANT, C-DESIGN LAB	*Aug. 2018 - Present*

- Proposed a web-based visual and spatial programming language that allows novice users and small industries to program mobile robots and IoT Nodes to execute planned tasks

ControllAR	*West Lafayette, IN*
GRADUATE ASSISTANT, C-DESIGN LAB	*Aug. 2018 - Dec. 2018*

- Proposed a parametrizing interface, simple and accessible fabrication workflow with no soldering or sewing involved, and a pressure sensor using a soft piezoresistive elastomer material.

3D Object Classification Model Evaluation	*Seoul, South Korea*
RESEARCH ASSISTANT, KNOWLEDGE-BASED DESIGN LAB	*Feb. 2016 – Jul. 2017*

- Proposed a method which evaluate 3D neural network models using the visualization based on the decomposition of a model's predictions to apply the models in the field of mechanical design and manufacturing. (Relevant publication: [C3])

Module Structure Platform for Surgical Workflow Management	*Seoul, South Korea*
RESEARCH ASSISTANT, KNOWLEDGE-BASED DESIGN LAB	*Feb – Jul. 2016*

- Developed a web-based platform for integrated surgical information, to optimize surgical procedures and reduce medical loss caused by communication errors and lack of information.

Skills

Programming	Python, C/C++, JavaScript, HTML, CSS, PHP, Matlab, SQL
Frameworks	ROS, TensorFlow, Keras, Caffe
Software	Creo Parametric, SolidWorks, AutoCAD, HyperWorks
Languages	Korean, English

Publications

Journal Papers

- H. T. Hwang, <u>H. G. Chi</u>, N. K. Kang, H. B. Kong and Soo-Hong Lee. "An Evaluation Methodology for 3D Deep Neural Network using Visualization in 3D Data Classification" (2018) *Journal of Mechanical Science and Technology*, accepted.

Conferences Papers

- S. Kim, <u>H. G. Chi</u>, E. Li and Karthik Ramani. "Interventional Generative Network for 3D Objects via Learning Surface Configuration and Part Relation" (2019) *International Conference on Learning Representations (ICLR)*, under revision.
- S. Kim, N. Winovich, H. G. Chi and and Karthik Ramani. "Latent Transformations for View Synethesis with Cconditional Convolutional Networks" (2019) *Conference on Computer Vision and Pattern Recognition (CVPR)*, under revision.
- Luis, Xun, H. G. Chi and Karthik Ramani. "ControllAR: Design and Fabrication of a Universal Parametric Low-Profile Hand Wearable for Augmented Reality Interactions" (2019) *International conference on Ubiquitous computing (UBICOMP)*, under revision.

Patents

- H. G. Chi. "Computer Input Automation System" KR Patent (2017): 10-1745330

Working Experience

NEIL LAB Corporation   *Seoul, South Korea*

Co-founder & Python Developer   *Sep. 2016 - Aug. 2017*

- Automated an office platform for a tax office to enhance the office's work efficiency and customer service
- Developed a RPA system, using Python, to increase the efficiency of working in the office
- Led and managed the company with more than 20 employees as the CEO and selected as a startup funded by the Seongnam Industry Promotion Agency (fund amount: $ 30,000)

Republic of Korea Army   *Inje, South Korea*

Sergeant & Squad leader   *Apr. 2011 – Jan. 2013*

- In charge of the maintenance of firearms, wireless devices, vehicles, and NBC equipment
- Led a squad as the squad leader; honored as a distinguished soldier

Extracurricular Activity

Habitat for Humanity Korea Campus Chapter   *South Korea*

Member & President   *Mar. 2010 – Aug. 2016*

- Constructed houses for the homeless and worked on improving poor residential environments, during 26 and 7 occasions, respectively
- Led and managed the volunteer group for a year; received the first honor from 2014 Yonsei Club Evaluation

Korea Food for the Hungry International - campus volunteer group   *South Korea*

Member   *Apr. 2013 – Nov. 2013*

- Taught and mentored preschool children and elementary school students at Seoul Children's Center

Honors & Awards

2016	**KISTI (Korea Institute of Science and Technology Information) President's Award,** Edison Challenge – Computer Aided Design Section	*Seoul, South Korea*
2016	**CDE (Society for Computational Design and Engineering) President's Award,** CDE Challenge – Computational Design and Engineering Tools Section	*Daejeon, South Korea*