## OFFICIAL TRANSCRIPT

| N   |   |                                    | LI L  |          | 1441113C1(11 1 PAX. + 82-(0)2-9                               | 70-6088    |
|---|---|------------------------------------|---|----------|---|------------|
| Name  | CHEN HAOT   |                                    |   |          | Date of Admission March 02, 2017                              |            |
| Date of Birth   | March 30, 19  | 98                                 | Sex   | Male     | Date of Graduation August 26, 2021                            |            |
| Affiliated Department   | Department of   | of Computer                        | Scie  | nce an   | d Engineering   |            |
| Degree Conferred  | Bachelor of S   | Science in Er                      | gine  | ering    |   |            |
| Program   | Engineering 1   | Program                            |   |          |   |            |
| Certificate Registration  | n Number  | Seoul Tech2                        | 0200  | )1963    |   |            |
| Course Title  | Term  |                                    | Cr.   | Gr.      | Course Title Term Cr.   | Gr.        |
|   | Spring 201  | 7                                  |   |          | 100-point scales : 88.2/100                                   | -          |
| Presentation in Korean for Foreign Students 3 A0  |   |                                    |   |          |   |            |
| Selected Readings in Korean for Foreign Students 2 B0<br>Introduction to Programming(1) 3 B+  |   |                                    | Fall 2019 Practical English Conversation(1) | ΛΟ       |   |            |
| Introduction to Computer Engineering 2 AO   |   |                                    | Engineering Mathematics 3                   | C+       |   |            |
| Physics and Experiment(general,1) 3 A+  |   |                                    | Computer System Architecture 3              | C+       |   |            |
| Computational Thinking  | dits: 15  | OD4 - 6 -                          | 2   | CO       | Information Security 3 Computer Graphics 3                    | BO<br>BO   |
|   | point scales :  | GPA : 3.6                          | 50  |          | Computer Graphics 3 Database Programming 3                    | <b>A</b> + |
|   | point deales .  | 03.17100                           |   |          | Basic Engineering Design 3                                    | B+         |
| Dhyaiaa and Europi  | Fall 2017   |                                    |   |          | Credits : 19 GPA : 3.21                                       |            |
| Physics and Experiment<br>Understanding Politics  |   |                                    | 3   | A+       | 100-point scales : 85.3/100                                   |            |
| Introduction to Progra  | nmming(2)   |                                    | 3   | A+<br>BO | Fall 2020   |            |
| Korean Academic Compos  | sition for Fore   | ign Students                       | 3   | ΛO       | Linear Algebra 3  | B+         |
| Korean Expressions for  |   |                                    | 3   | AO       | Project(2) 3  | A+         |
|   | edits : 15<br>-point scales :   | GPA : 4.0                          | )0  |          | Data Communication 3 Artificial Intelligence 3                | B+<br>BO   |
| 100   | point scares .  | 34.3/100                           |   |          | Big data Analysis   | ВО         |
| V 5   | Spring 201  | 8                                  |   |          | Web Server Programming 3                                      | BO         |
| Korean Reading and Wri<br>Discrete Mathematics  | iting for Forei   | gn Students                        | 2   | A+       | Credits: 18 GPA: 3.42<br>100-point scales: 87.7/100           |            |
| Calculus(1)   |   |                                    | 3   | B+<br>A+ | 100-point scales : 67.77 100                                  |            |
| Creative Thinking   |   |                                    | 2   | A+       | Spring 2021   |            |
| Physics and Experiment  | (advanced,1)  |                                    | 3   | A+       | Understanding Korean Culture for Foreign Students 3           | AO AO      |
| Modern Culture Theory<br>Recognition to Korean  | History   |                                    | 3   | B+<br>BO | Project(1) 3<br>Computer Network Protocols and Architecture 3 | ΛO<br>ΛΟ   |
|   | edits: 19   | GPA : 3.9                          |   | ВО       | Operating System 3  | B+         |
|   | -point scales :   |                                    |   |          | Credits: 12 GPA: 3.88<br>100-point scales: 92.9/100           |            |
| Practical English Read  | Fall 2018   |                                    | 0   | DO       | Taral Arrange I Conding 1 121                                 |            |
| Logical Thinking  | ing and writin  | В                                  | 2 2   | BO<br>B+ | Total Attempted Credits: 131 Total Completed Credits: 131     |            |
| Calculus(2)   |   |                                    | 3   | A+       | Total Grade Points: 473.5                                     |            |
| Data Structure  |   |                                    | 3   | BO       | Total Grade Point Average : 3.64                              |            |
| Digital System<br>Understanding Korean L  | anguage and Cu  | Iture for Fore                     | 3   | A0<br>A+ | GPA(a 100-point scale) : 90.2                                 |            |
| ign Students  |   |                                    |   |          | RANK : 10/34 (Graduating major class)                         |            |
|   | edits : 15<br>-point scales :   | GPA: 3.7<br>91.7/100               | 77  |          | •••• The End of Transcript ••••                               |            |
|   | Spring 201  | 9                                  |   |          |   |            |
| Understanding Music   | Opring 201  |                                    | 2   | Λ0       |   |            |
| Presentation & Debate   |   |                                    | 3   | AO       |   |            |
| Database  |   |                                    | 3   | A+<br>BO |   |            |
| Algorithm<br>Object Oriented Progra   | amming Languag  | e                                  | 3   | BO       |   |            |
| Web Programming   |   |                                    | 3   | C+       |   |            |
| Career Design for Empl<br>Cre   | loyment & Entre<br>edits : 18   | preneurship<br>GPA: 3.             |   | PASS     |   |            |
| Remarks 1 credit is equal to or two hours of labors 1 semester is equal to academic year. Grade Point System A+(4.5) AO(4.0) B+(1.5) CO(2.0) D+(1.5) The lowest passing gri | atory work per we be 16 weeks and 2  3.5) BO(3.0) 1.5) DO(1.0) F(ade is DO(60). | eek, per semeste<br>semesters make | r.  | semester | Date: September 27, 2023  DongHoon Lee                        |            |
| Cr. = Credit. Gr. = Gr<br>Grade Label Change: Dr  | ue to the revisio   | n of the univer                    | sity i                                      | ules on  | President   |            |
| October1,2021, Pass/Fai<br>and U (Unsatisfactory)   | I courses will be<br>starting from the  | graded with S(<br>Fall 2021 seme   | ster.                                       | (actory) | Seoul National University of Science and Technology           |            |
| and o (ondationation)   |   |                                    |   |          |   |            |

This certificate may be confirmed with the original copy on docu, seoultech, ac.kr

## OFFICIAL TRANSCRIPT

Seoul National University of Science and Technology 232 Gongneung-ro, Nowon-gu, Seoul, 01811, Korea TEL +82-(0)2-970-6114 FAX. +82-(0)2-970-6088

| Name   | : CHEN HAOTIAN  |   |                                 | Date of Admission : September 06, 2021  |     |  |  |  |  |  |
|--|---|---|---------------------------------|---|-----|--|--|--|--|--|
| Date of Birth : March 30, 1998   |   |   | Date of Degree Awarded :        |   |     |  |  |  |  |  |
| Sex : Male I   |   |   | Degree of Awarded               |   |     |  |  |  |  |  |
| Degree Level : Ph.D  |   |   | Registration Number of Degree : |   |     |  |  |  |  |  |
| Graduate School : Graduate School  |   |   |                                 | Advisor : Park, Jong Hyuk   |     |  |  |  |  |  |
| Affiliated Depart  | ment: Computer Science and Engir  | Major: Computer Science and Engineering | $\Box$                          |   |     |  |  |  |  |  |
| Title of Thesis  A Smart Contract and Digital Twin-based Heuristic Multi-cooperation Scheduling Framework for Smart Manufacturing in IloT Environments   |   |   |                                 |   |     |  |  |  |  |  |
|  | Course Title  | Cr.                                     | Gr.                             | Course Title Cr. (  | Gr. |  |  |  |  |  |
| 2021 2nd Term Advanced Database Management Systems Advanced Ubiquitous Computing Mobile Network Completed Credit : 9 Grade Point Average : 4.50  |   | 3 3                                     | A+<br>A+<br>A+                  |   |     |  |  |  |  |  |
| 2022 1st Term Data Warehousing & Data Mining Seleted Topics in Algorithms Advanced Smart City & Security Completed Credit : 9 Grade Point Average : 4.50   |   | 3 3 3                                   | A+<br>A+<br>A+                  |   |     |  |  |  |  |  |
| Comple   |   | 3 3 3                                   | BC<br>AC<br>AC                  |   |     |  |  |  |  |  |
| Comple   | 2023 1st Term Cryptography hysical System Security eted Credit : 6 Point Average : 4.50 | 3 3                                     | A-I                             |   |     |  |  |  |  |  |
|  | leted Credit : 33<br>e Point Average : 4.27<br>: 97.4/100                               |   |                                 |   |     |  |  |  |  |  |
|  |   |   |                                 |   |     |  |  |  |  |  |
| Remarks:  1. One hour of class work per week for 1 semester makes 1 credit.  2. 15 weeks make 1 semester and 2 semesters make one academic year.  3. Grades A+ 4.5 C+ 2.5 A0 4.0 C0 2.0 B+ 3.5 F 0 B0 3.0  The lowest passing grade point average for graduation is 3.0. |   |   |                                 | DongHoon Lee President Seoul National University of Science and Technology The University was renamed SNUT from the original SNPU(Seoul National Polytechnic University) in May 1998. |     |  |  |  |  |  |

This certificate may be confirmed with the original copy on docu.seoultech.ac.kr