

Curriculum Vitae : Sungsoo Hong

M.S.

Biomedical Data Science Lab
Department of Digital Health
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Research Scientist

Research Institute for Future Medicine
Samsung Medical Center

Researcher

Medical Research Institute
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EDUCATION

M.S.

2021 – 2023

Department of Digital Health

Sungkyunkwan University, South Korea

B.S.

2008 – 2014

Department of Statistics

University of Suwon, South Korea

EMPLOYMENT

Research Scientist (February 2021 – Present)

Research Institute for Future Medicine, Samsung Medical Center

Team Manager (April 2017 – January 2021)

Department of Solution Business 2 Team (Qlik), Simple Communications Co., Ltd

Research Analyst (October 2015 – October 2018)

Freelancer

Research Analyst (March 2014 – September 2015)

Survey Research Team, NIR (Net, Intelligence & Research)

RESEARCH INTERESTS

- Digital Healthcare; Medical Informatics; Machine Learning
- Statistical Modeling; Clinical Predictive Modeling
- Biomedical Big Data Analysis; Biomedical Statistics
- Data Analysis Systematization; Data Standardization; Data Visualization

PUBLICATIONS**Papers at Refereed Journals in 2022** (*Co-first author, **Co-corresponding author)

- Lee, J., J. Koh, H.K. Kim, S. Hong, K. Kim, S. Park, H.A. Jung, J.M. Sun, S.H. Lee, J.S. Ahn, K. Park, M.J. Ahn (2022) Bevacizumab plus atezolizumab following progression on atezolizumab monotherapy in pretreated non-small cell lung cancer patients: An open-label, two-stage, phase II trial. *Journal of Thoracic Oncology*, S1556-0864(22)00193-9 (SCI, IF: 15.609). 2022-04-12

RESEARCH PROJECTS

- Development of Bacteremia Prediction Model in Pediatric Cancer Patients with Persistent Neutropenic Fever (Jan. 2022 – **Present**)
 - Samsung Medical Center (PI: Yae Jean Kim @ SMC)
 - Analysis and investigation that risk factors of the bacteremia
 - Developing prediction model of bacteremia in pediatric cancer patients
- Development and Implementation of CDM, FHIR and AI-based Precision Medicine Platform to improve National Medical Quality and Safety for Emergency and Critical Patients (Apr. 2019 – Dec. 2021)
 - Ministry of Health and Welfare (No. HI19C0275, PI: Won Chul Cha @ SMC)
 - Part II. Conducting qualitative research for hospital quality indicators based on CDM and developing a management dashboard program (PI: Kyunga Kim @ SMC)

OTHER PUBLICATIONS**Book**

- Sungjun Hong, Sungsoo Hong, Don Kim, Kyungtae Kim (2022) Data Visualization and Interactive Dashboards with Python (English Language), Amazon KDP, United States.
- Hong Sungsoo, Hong Sungjun (2022) Big-Data Modeling and Visualization with QlikSense (Korean Language), BOOKK, South Korea.
- Hong Sungjun, Hong Sungsoo (2021) Interactive Dashboards with Plotly & Dash (Korean Language), BOOKK, South Korea.
- Hong Sungsoo, Hong Sungjun (2021) Big-Data Analysis and Visualization using QlikSense for beginners (Korean Language), BOOKK, South Korea.

BUSINESS EXPERIENCE

- Visualization of map for predicting marine accidents according to the vessel movement route(V-pass) (December 2020)
 - Korea Maritime Transportation Safety Authority (PL: Sungsoo Hong)
 - Monitoring and Analysis System development.
- Enhancement of Analysis System (EIS) (August 2020 – November 2020)
 - Samyang Foods Co., Ltd. (PM: Sungsoo Hong)
 - Conducting Executive interview, SAP BI analysis and ETL.
 - Dashboard & Analysis System by Value Chain(SD, PP, FI, HR, ..., etc) development.
- User Training and Consulting with QlikSense (July 2020)
 - Korea Productivity Center.
 - Training how to use and Dashboard design consulting.
- Establishment of Analysis System (CRM) (January 2020 – May 2020)
 - Korea Ginseng Corp. (PL: Sungsoo Hong)
 - Conducting on-the-job interview, DB(Oracle, Sybase, Maria) analysis, ETL, model design.
 - Dashboard & Analysis System by Brand development.
- Establishment of Analysis System (EIS) (August 2019 – December 2019)
 - SUNTECH Co., Ltd. (PM: Sungsoo Hong)
 - DB(MSSQL) analysis, ETL, model design, screen planning.
 - Dashboard & Analysis System (Sales, Product, Stock) development.
- Enhancement of BI System (June 2019 – August 2019)
 - Tway Air Co., Ltd. (PL: Sungsoo Hong)
 - Analysis screen design improvement.
 - Kiosk Analysis (by Airport, monthly, one-pass) development.
- Establishment of Analysis System (EIS) (March 2019 – May 2019)
 - Tae Yang Metal industrial Co., Ltd. (PM: Sungsoo Hong)
 - DB(MSSQL) analysis, ETL, model design, screen planning, user training.
 - Dashboard & Analysis System (Sales, Product, Stock, Human Resource) development.
- Establishment of Analysis System (EIS) (May 2018 – September 2018)
 - Kukjeon Pharmaceutical Co., Ltd. (PL: Sungsoo Hong)
 - DB(ERP) analysis, ETL, screen planning.
 - Dashboard & Analysis System (Sales, Finance, Product, Stock) development.
- System Management of Integrated HR & Corporate Card Monitoring System (September 2017 – May 2019)
 - LG CNS Co., Ltd. (SM: Sungsoo Hong)
 - Dashboard monitoring, debugging errors.
- Enhancement of BI System (October 2017 – December 2017)
 - MetLife Co., Ltd. (Developer: Sungsoo Hong)
 - DB(DB2) analysis, ETL, model design.
 - Analysis System, Structured & Unstructured Report development.

BUSINESS EXPERIENCE (CONT.)

- Establishment of BI System (May 2017)
 - PARADISE SEGASAMMY Co., Ltd. (Developer: Sungsoo Hong)
 - Apply user rights management by group such as CRM, HMS, CMS, ... etc.
- Establishment of BI System (April 2017 - June 2017)
 - Tway Air Co., Ltd. (Developer: Sungsoo Hong)
 - Dashboard & Analysis (transportation, reservation, operation, ... etc) development.
- 2017 Information System Operation Customer Satisfaction Survey (June 2017 - December 2017)
 - Arts Council Korea(Arko). (Analyst: Sungsoo Hong)
 - Analysis of website usage status, satisfaction, VOC.
 - Presenting improvement points, report creation.
- 2017 Suwon Theater Festival Audience Survey & Consulting (June 2017)
 - Suwon Cultural foundation. (Analyst: Sungsoo Hong)
 - Analysis of frequency, satisfaction, VOC.
 - Presenting improvement points, report creation.
- 2016 Suwon International Music Festival Audience Survey & Consulting (September 2016 - October 2016)
 - Suwon Cultural foundation. (Analyst: Sungsoo Hong)
 - Analysis of website usage status, satisfaction, VOC.
 - Improvement points, report creation.
- 2016 Information System Operation Customer Satisfaction Survey (June 2016 - October 2016)
 - Arts Council Korea. (Analyst: Sungsoo Hong)
 - Analysis of website usage status, satisfaction, VOC.
 - Presenting improvement points, report creation.
- 2016 Siheung Cultural Vision 2030: Survey on the Cultural Environment (June 2016 - July 2016)
 - Korea National University of Arts. (Analyst: Sungsoo Hong)
 - Analysis of Siheung citizen's Survey Results.
 - Evaluation of satisfaction and Awareness, report creation.
- 2016 Suwon Theater Festival Audience Survey & Consulting (June 2016)
 - Suwon Cultural foundation. (Analyst: Sungsoo Hong)
 - Analysis of frequency, satisfaction, VOC.
 - Presenting improvement points, report creation.
- Educational Satisfaction Survey of Art Archives management Experts (December 2015 - January 2016)
 - Arts Council Korea(Arko) Arts Archive. (Analyst: Sungsoo Hong)
 - Analysis of frequency, satisfaction, performance, VOC.
 - Presenting improvement points, report creation.
- A Study on the Development of Culutre and Arts Management Department (September 2015 - December 2016)
 - Seoul Cyber University. (Analyst: Sungsoo Hong)
 - Survey questionnaire design, conducting FGIs for teachers and students.
 - Literature survey, statistical analysis, VOC.
 - Presenting strategies, report creation.

BUSINESS EXPERIENCE (CONT.)

- FGIs with participants of the project to create a space that is happy with culture (April 2015 - September 2016)
 - Korea Craft & Design Foundation. (Analyst: Sungsoo Hong)
 - Make an interview questionnaire, conducting FGIs for project participants.
 - Self-assessment of business, analysis of VOC.
 - report creation, publication.
- Private education Survey of high school students (March 2015)
 - Megastudy Corp. (Analyst: Sungsoo Hong)
 - Conducting a survey on private education status.
 - Comparative survey on curriculum and instructor recognition among competitors of Megastudy.
- 2014 K-Move project awareness Survey (November 2014 - December 2014)
 - Human Resources Development Service of Korea. (Analyst: Sungsoo Hong)
 - Survey on awareness, affinity and perception of K-Move business.
 - Statistical analysis, promotional evaluation, and report creation.
- A Study on the evaluation of NURI program for the age of 3~5 (November 2014)
 - Korea Institute of child care and Education. (Analyst: Sungsoo Hong)
 - Statistical analysis by characteristics (Anova, Post-hoc, Two-step cluster, Cronbach's, ... etc).
 - Report creation.
- Survey on the characteristics and consciousness of participants in the elderly job project (October 2014 - December 2014)
 - Korea Employment Information Service. (Analyst: Sungsoo Hong)
 - Analysis of frequency, satisfaction, VOC.
- Lecture evaluation advancement research service (August 2014 - September 2014)
 - Seoul Cyber University. (Analyst: Sungsoo Hong)
 - Statistical analysis by characteristics (Anova, Factor, MDS, Standardization, ... etc).
 - Re-evaluation the course evaluation criteria, Consulting improvements.
- A Study on the development of the IT/Design Department: Curriculum Improvement Consulting (July 2014 - October 2014)
 - Seoul Cyber University. (Analyst: Sungsoo Hong)
 - Curriculum assessment and Analysis of statistics, satisfaction, FGIs.
 - Consulting improvements, report creation.
 - A Study on the Establishment of Free semester system in middle school (July 2014 - September 2014)
 - Korean Educational Development Institute. (Analyst: Sungsoo Hong)
 - Statistical analysis (Anova, Post-hoc, Two-step cluster, Regression, ... etc).
- Pilot test for Measuring Mode-effects in Mixed-mode Survey (May 2014 - December 2014)
 - Statistical Research Institute. (Analyst: Sungsoo Hong)
 - Conducting on/off Line mixed survey and comparison to understand Mode-effects.
 - Statistical analysis and report creation.

BUSINESS EXPERIENCE (CONT.)

- Reviewing the Press Program Basic Information Survey (May 2014 – December 2014)
 - Korea Communications Standards Commission. (Analyst: Sungsoo Hong)
 - Select various press programs, conduct investigations to ensure compliance with the deliberation regulations.
 - Analysis of Reliability and bias, report creation.

- 2013 Cultural diversity broadcasting, media monitoring and training operation (March 2014 – April 2014)
 - Korea Arts & Culture Education Service. (Analyst: Sungsoo Hong)
 - Watching media clip videos on cultural diversity, conducting evaluation survey and expert interviews, analysis of basic statistics, satisfaction.
 - Presentation and discussion of analysis results for media graduate students.

ACADEMIC PRESENTATIONS

- “Development of Clinical Quality Monitoring System based on Common Data Model in Emergency Department”, Presented at *the Korean Society of Emergency Medicine Fall Conference, On-Line*, South Korea, Nov 4, 2021 (Presenter: S. Hong).
- “Development of Clinical Quality Monitoring System based on Common Data Model in Emergency Department”, Presented at *the Korean Society of Medical Informatics Spring Conference, CHA Bio Complex*, South Korea, July 9, 2021 (Presenter: W.C. Cha).

POSTERS

- S. Hong, S. Hong, W. Jeong, K. Kim (2022) Development of an Automated Framework for optimal Feature Selection in Radiomics-based Prediction Model, Presented at *the 6th Annual SAIHST Symposium*, Hippocrates Hall 9F Irwon Station Building, Seoul, South Korea, December 21, 2022
- S. Hong, S. Hong, S. Lee, K. Kim, Won Chul Cha (2021) Development of Clinical Quality Monitoring System based on Common Data Model in Emergency Department, Presented at *the 5th Annual SAIHST Symposium*, Schweitzer Hall 9F Irwon Station Building, Seoul, South Korea, December 20, 2021
- S. Hong, S. Hong, K. Kim (2021) Impact of COVID-19 Pandemic on Occurrence Trends of Respiratory Diseases in Korea, Presented at *the Korean Society of Medical Informatics Spring Conference, CHA Bio Complex*, South Korea, July 8-9, 2021

OTHER PROFESSIONAL EXPERIENCE**Public Services**

- Research Consultation (Oct. 2021 – Present)
 - Department of Radiology and Center for Imaging Science, Samsung Medical Center
 - **Research Consulting: 68 cases**
 - **Model Design** (Sample Size, Power Analysis, Study Design, Data, Imbalance Problem, Etc.): 21 cases
 - **Predictive Modeling** (Model Development, Validation, Evaluation, Application, Nomogram, Scoring system, Cutoff Selection, Bootstrap, Etc.): 11 cases
 - **Propensity Score Method** (Matching, Weighting, Sensitivity analysis): 5 cases
 - **Radiomics Research** (Feature Redundancy, Relevance, Selection, Radiomics Scoring, Variable Definition, Agreement test, Subgroup Analysis): 7 cases
 - **Statistical Analysis** (Bootstrap, Linear/Logistic Regression, Longitudinal Analysis, GEE, Meta Analysis, Imbalance Problem, Non-Inferiority test, Data Visualization, Variable selection, Etc.): 17 cases
 - **Survival Analysis** (Cox Regression, PH Assumption, Time-dependent Analysis, Competing Risk, Adjusted Survival Curve, Hierarchical Modeling, Etc.): 7 cases

Education

- Data Science: Machine Learning – Harvard University (2020)
 - R Programming skill for Machine Learning
 - Verified Certificate: Online course in edX, Inc.

Lecture Tutor

- Data Analysis and Visualization 1-Day Class for beginner with QlikSense, Tailing (2019 – 2020)
 - From data prepare to visualization

LICENSES AND CERTIFICATES

- Advanced Data Analytics Semi-Professional (2019)
- SAS Analytic
 - SAS Certified Statistical Business Analyst Using SAS 9: Regression and Modeling (2017)
- SAS Foundation
 - SAS Certified Base Programmer for SAS 9 (2016)
- MS Office (2014)
 - Computer Specialist in Spreadsheet & Database Level-I
- Survey Analyst, Junior (2013)

PROFESSIONAL SKILLS

- Statistical Packages
 - Proficient in R, SAS, SPSS
- Programming Languages
 - Proficient in Python, R, SAS, SQL
- Dashboard Visualization
 - Shiny in R
 - Plotly & Dash in Python
 - QlikView & QlikSense

HONORS AND AWARDS

- SAIHSTer Poster Award in the 6th Annual SAIHST Symposium (December 21, 2022)
Sungkyunkwan University
- Best Poster Award in the Spring Conference (July 9, 2021) Korean Society of Medical Informatics