#### Sung Jin Kim Ph.D.

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| **Research Fellow** |  |
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| Korea Institute for Defense Analyses (KIDA) | Mobile: 631-202-7292 (USA) |
| 37 Hoegir-ro Dongdaemun-gu,  Seoul 02455, Korea | Website: <https://sites.google.com/view/websungjinkim/>  LinkedIn: <https://www.linkedin.com/in/sungjin-kim-784805104/>  Github: <https://github.com/sjkim2357/data_science> |
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| **[Adjunct Professor](https://ts.sunykorea.ac.kr/ts/html/sub04/0401.html?mode=V&mng_no=f6e7c70c487201cdf08bfec27b54ad2b)** |  |
| Department of Technology and Society |  |
| The State University of New York, Korea –  Extended Campus of Stony Brook University | |

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Incheon 21985, Korea

**Summary**

Pinpointed root causes from complex backgrounds and communicated actionable alternatives with clarity; Transformed scattered ideas into visualized, quantifiable comparisons using in-depth data analysis; Uncovered improvement opportunities and crafted advanced analytics solutions; Boasts 10+ years delivering evidence-based recommendations, recognized with awards, and 6+ years spearheading data mining projects with outstanding evaluations; Always at the forefront of emerging tech and skills.

**Skills**

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| * Python, R, R Shiny, STATA, SQL, SAS, SPSS * Tidying and analyzing large, messy data (relational & non-relational, structured & unstructured, stationary & non-stationary time series) * Data import, wrangle, transform, visualization * Descriptive, inferential, & predictive statistics | * Unsupervised and supervised machine learning, classification and regression, feature selection, parameter tuning, regularization, ensemble learning * Natural Language Processing (NLP), topic model * Cross-industry standard process for data mining * [Hierarchical decision modeling](https://pairwisecomparison.github.io/NewPCM/), AHP, Delphi process |

**Research Experience**

2021-present *Research Fellow*,Center for Defense Resource Management, Korea Institute for Defense Analyses (KIDA)

* **A study on the development direction of submarine industry policy (in-progress)**: Responsible for a research project aimed at revitalizing the Korean submarine industry. Proposed a 14-year cycle for design, construction, and improvement programs. Suggested batch-wise planning to maintain the minimum industrial infrastructure. Compared the pros and cons of specialization and competition alternatives among participants to formulate submarine acquisition policies. Presented the research findings at a submarine federation-led seminar and broadcasted them through various media outlets.
* **Future Policy for Military Unmanned Systems**: Helped the Ministry of National Defense (MND) write the document, ‘The Future Direction of the Military Unmanned System.’ Suggested the resource planning strategy to incorporate AI, drones, robots, and sensing & mobility technologies into military forces. Presented the result to high officials from governments at the Agenda Forum 2022; Won the Minister of Defense Award in 2022
* **Defense 2050 research program**: Investigated the theories on the revolution in military affairs and speculated what future technology brings to 2050’s military sustainment in terms of resource planning; Discussed how Industry 4.0 technologies, e.g., AI, IoT, Big data, VR/AR, and additive manufacturing impact the digital supply chain from the perspective of the military’s operational concepts and organizations.
* [**Military-to-civilian conversion research project**](https://www.kida.re.kr/frt/board/frtNormalBoardDetail.do?sidx=382&idx=1934&depth=3&lang=kr) **(Korean)**: Proposed the concept of military-to-civilian conversion suitable for the reality of the ROK military; Computed the possible scale of civilianization (including contracting-out) using military occupation code; Led a cadre of Army-Navy-Air Force officers to explore the nature of each military occupation code; the policy memo was reported to the deputy minister for planning and coordination, MND; Won a bronze medal in 2021 from KIDA.

2012-2021 *Associate Research Fellow*, Center for Defense Resource Management, KIDA (2017-19 gap years for PhD)

* [Improvement of warfighters' safety by administering a system safety program (English)](https://www.kida.re.kr/frt/board/frtNormalBoardDetail.do?sidx=2326&idx=39&depth=3&lang=kr)**[:](https://www.kida.re.kr/frt/board/frtNormalBoardDetail.do?sidx=2326&idx=39&depth=3&lang=kr)** Analyzed 'MIL-STD-882E: System Safety' so that it can best tailor the current ROK military's R&D systems; Proposed a roadmap for developing a Korean system safety program that is in line with the current system engineering procedures; The memo was directly reported to the head of the military force and resources management office, MND.
* [**Policy study for military use of civil unmanned aerial systems**](https://www.kida.re.kr/frt/board/frtNormalBoardDetail.do?sidx=2326&idx=27&depth=3&lang=kr) **(English)**: Prepared a policy memo to acquire and operate commercial drones coordinating the current domestic information and communication technology infrastructure; Suggested drone classification systems based on technological specifications; Surveyed constraints by tasks and suggested a technology development plan; Appointed as an advisor to the Unmanned System Development Committee of MND, after the memo was reported to the deputy minister, MND.

2017-2019 *Research Assistant*, Department of Technology and Society, The SUNY at Stony Brook

* **Open-source media article text-mining**: Used R for text mining on media articles applying topic models; Kmeans and hierarchical clustering, and network analysis were used for text visualization. A dissertation defense was completed based on the work; A co-authored paper was published in a Scopus-indexed journal.
* **Expert judgment gathering and multiple criteria decision modeling**: Applied R and SAS for analyzing survey data from experts; Hierarchical cluster analysis, correlation/intra-class coefficients, and ANOVA/MANOVA were used; A co-authored paper was published in a Scopus-indexed journal
* **Defense spending preference analysis**: Used STATA to explore how personal beliefs affect the US defense spending preference; Performed ordered logit regression on covariates from US General Social Survey data; The paper was selected as the best in the multivariate regression techniques class.

2011-2012 *Researcher*, Center for Defense Acquisition, KIDA

* **Investment feasibility study for defense procurement programs**: Participated in research projects for budget recommendations for the Government Investment Advisory Council, Congress, and Ministry of Finance; Analyzed each investment alternative's technological and economic spillover effects.

**Teaching Experience**

Feb. 2021-current *Adjunct Professor*, Department of Technology and Society, SUNY Korea

* **EMP 530 – Introduction of Big Data and Data Science:** Taught data science using structured and unstructured data; Instructed descriptive, inferential, and predictive statistics and machine learning techniques (supervised and unsupervised) in the R and Python environment; Led class activities on regression and classification problems; Instructed tidy-based text mining methods, e.g., sentiment analysis, network analysis, and topic modeling; Received “As” in course evaluations.
* **EMP 532 – Big Data Systems for Technology Management:** Taught big data technologies, e.g., Hadoop/MapReduce, SQL and NoSQL DB; Instructed data-driven decision making using the cross-industry standard process for data mining; Led R sessions to transform relational data sets in the R environment; Built R Shiny apps for teaching and class activities; Visualized the data sets using Heatmap, Clustering, and Classification; Received an “A” in course evaluations.
* **EMP 583 – National Energy Decision Making:** Led students to write graduate-level research papers on national energy decision-making. Discussed the energy-related topics, e.g., renewable energy, energy security, efficiency, and behavioral aspects of decision-making. A [web-based pairwise comparison method](https://pairwisecomparison.github.io/NewPCM/) was redesigned and provided to help students understand and utilize multi-criteria decision analysis.

Sep.-Dec. 2018. *Teaching Assistant*, Department of Technology and Society, The SUNY at Stony Brook

* **(Fall 2018) EMP 504 – Quantitative Methods:** Evaluated students' performance on assignments and exams; Assisted students with a textbook problem from Financial Decision-Making for Engineers.

**Other Professional Experience**

2009. 2.-9. *Analyst (Intern)*, Michigan Venture Capital – Seoul, Korea

* Applied valuation models (Excel spreadsheet) to determine fair values of project/equity financing alternatives.

2009-2011. *Sr. Staff*, Korea Asset Management Corporation – Seoul, Korea

* Managed state-owned properties, including project finance collateralized debt obligations, asset-backed securities, non-performing loan, and national real estate.

2004-2007 *Staff*, Hanwha Chemical Corporation – Seoul, Korea

* Managed business-to-business customer credit transactions and analyzed clients' financial statements; Analyzed up and downstream production yields of the naphtha, ethylene, and polymers manufacturing industry.

2000-2002 *Sergeant*, The 1st Signal Brigade, The 8th US Army – Seoul, Korea

* Served as an operator of the Brigade NBC room and led the company headquarters personnel as a Senior KATUSA (Korean Augmentation Troops to the United States Army).

**Publications (30+)**

Ph.D. dissertation

* Kim, S. (2019) [*Arms import policy guidance framework for major defense acquisitions*](https://www.proquest.com/openview/dd52f9627e8483ee5856ef9249a42fb9/1?pq-origsite=gscholar&cbl=51922&diss=y) (Doctoral dissertation, The State University of New York at Stony Brook, New York, USA) ProQuest Available from ProQuest Dissertations & Theses Global database. (ProQuest No. 13882680)

Academic journals

(in English)

* Kim, S., and Sheikh, N. (2022) [Behavior patterns of three archetypal arms suppliers based on empirical media analysis of the First Korean Fighter Jet Program](https://ijb.cyut.edu.tw/var/file/10/1010/img/927/V27N3-4IJB-2021-1006.pdf). *International Journal of Business.* Premier Publishing.
* Kim, S., Sheikh, N., and Stokes, G. (2019). [Assessment of arms import policies using a hierarchical decision model and expert judgments](https://www.worldscientific.com/doi/abs/10.1142/S0219877019500457): case study of South Korean arms procurement organizations. *International Journal of Innovation and Technology Management*, *16*(6). World Scientific.
* Kim, S. (2015). [Policy implications for third-tier countries considering ACTD programs: South Korea as a case study](https://doi.org/10.1016/j.techsoc.2014.11.001). *Technology in Society*, *41*, 45-53. Elsevier.

(in Korean)

* Kim, S., Choi, G., and Jin, A. (2021). [Policy implications for civil/commercial drone acquisition and management.](https://www.kci.go.kr/kciportal/ci/sereArticleSearch/ciSereArtiView.kci?sereArticleSearchBean.artiId=ART002726635) *Korea Association of Defense Industry Studies. 28*(1), 107-119.
* Kim, S. (2014). [An analysis of feasibility study data for diagnosis of current defense R&D system applications.](https://www.kci.go.kr/kciportal/ci/sereArticleSearch/ciSereArtiView.kci?sereArticleSearchBean.artiId=ART001920141) *Korea Association of Defense Industry Studies, 21*(3), 27-48.

Conference proceedings

(in English)

* Kim, S. & Sheikh, N. J. (2022). [Acquisition of commercial-off-the-shelf (COTS) unmanned aerial systems: lessons learned from the South Korean military](https://ieeexplore.ieee.org/document/9882659). In *2022 Portland International Conference on Management of Engineering and Technology (PICMET).* IEEE*.*
* Kim, S. (2021, August). Empirical evidence of three archetypal arms suppliers' behaviors: application of topic models to open-source media. In *2021 IEEE International Conference on Social Sciences and Intelligent Management (SSIM)*, Taichung (Virtual), Taiwan, 2021.
* Kim, S., & Sheikh, N. J. (2018, August). [Developing a decision model framework to assess arms supplier policies.](https://ieeexplore.ieee.org/document/8481801) In *2018 Portland International Conference on Management of Engineering and Technology (PICMET)* (pp. 1-15). IEEE.
* Kim, S., & Sheikh, N. J. (2017, July). [Assessment of arms import policies: literature review.](https://ieeexplore.ieee.org/document/8125251) In *2017 Portland International Conference on Management of Engineering and Technology (PICMET)* (pp. 1-12). IEEE.
* Kim, S. (2014, April). Lesson learned from Korean ACTD programs: based on comparative analyses on the US cases. In *the 17th ROK-US Defense Analysis Exchange*, KIDA-US Army Center for Army Analysis.

(in Korean)

* Kim, S. (2017, June). System safety for warfighters: status and tasks in R&D. In *2017 Weapon System Test & Evaluation Seminar*. Daejeon, Korea, ROK Joint Chiefs of Staff & The Korean Reliability Society.

Working papers

(in English)

* Kim, S., Park H., Kim, J., and Min, C. (2021) [*System safety for acquisition programs*.](https://www.kida.re.kr/frt/board/frtNormalBoardDetail.do?sidx=2326&idx=39&depth=3&lang=kr) Seoul: Korea Institute for Defense Analyses, KIDA press.
* Kim, S., Choi, G., Jin, A., and Yoon, H. (2020) [*Acquisition and administration of commercial drones.*](https://www.kida.re.kr/frt/board/frtNormalBoardDetail.do?sidx=2326&idx=27&depth=3&lang=kr) Seoul: Korea Institute for Defense Analyses, KIDA press.

(in Korean)

* Kim, S. (2021) [The meaning of military-to-civilian conversion and its future direction](https://www.kida.re.kr/frt/board/frtNormalBoardDetail.do?sidx=382&idx=1934&depth=3&lang=kr). Seoul: Korea Institute for Defense Analyses, KIDA press.
* Shim, S., Kim, S., Kim, Y., and Park, T. (2020) *Test and evaluation procedure improvement for defense information system*. Seoul: Korea Institute for Defense Analyses, KIDA press.
* Choi, S., Lee, S., Nam, K., Kim, S., Yoo, D. (2016) *Defense program test & evaluation system improvement plan.* Seoul: Korea Institute for Defense Analyses, KIDA press.
* Choi, S., Lee, S., Kim, S., and Nam, K. (2015) *Research on the management plan for the Agency for Defense Development (ADD) and the Defense Agency for Technology and Quality (DTaQ).* Seoul: Korea Institute for Defense Analyses, KIDA press.
* Paik, J., Kim, S., Hong, S., and Jung, H. (2014) *National economic effects analysis of the Ministry of National Defense's expenditure*. Seoul: Korea Institute for Defense Analyses, KIDA press.
* Park, J., Choi, G., Yoon, H., Kim, B., and Kim, S. (2014) *Strengthening the cooperation between civil and defense science & technology sectors.* Seoul: Korea Institute for Defense Analyses, KIDA press.
* Yoon, H., Jeong, H., and Kim, S. (2013) *Study on analysis methodologies for technological spillover effects in defense acquisition programs.* Seoul: Korea Institute for Defense Analyses, KIDA press.

Issue papers

(in Korean)

* Kim, S. (2022). [Unmanned systems for military application: concept definition, and classification.](https://www.kida.re.kr/frt/board/frtNormalBoardDetail.do?sidx=382&idx=1982&depth=3&lang=kr) *Defense Issues and Analyses,* *1919*(22-40). KIDA press.
* Kim, S. (2020). [How do we define the term ‘drone’?](https://kida.re.kr/frt/board/frtNormalBoardDetail.do?sidx=382&idx=1869&depth=3&searchCondition=&searchKeyword=&pageIndex=1&lang=kr) *Defense Issues and Analyses,* *1810*(20-27). KIDA press.
* Kim, S., and Yang, Y. (2020). [The meaning and policy direction of localization of defense materials](http://www.kida.re.kr/frt/board/frtNormalBoardDetail.do?sidx=382&idx=1849&depth=4&searchCondition=&searchKeyword=&pageIndex=1)*. KIDA Defense Issues and Analyses*, *1790*(20-7). KIDA press.
* Choi, S., Lee, S., and Kim, S. (2017). [Policy directions for test and evaluation in acquisition programs.](https://kida.re.kr/frt/board/frtNormalBoardDetail.do?sidx=382&idx=1709&depth=3&searchCondition=title&searchKeyword=%EC%8B%9C%ED%97%98%ED%8F%89%EA%B0%80&pageIndex=1&lang=kr) *KIDA Defense Weekly*, *1655*(17-4). KIDA press.
* Kim, S., and Kim, S. (2014) [Trends and implications of military unmanned aerial vehicles in major countries.](http://www.kida.re.kr/frt/board/frtNormalBoardDetail.do?sidx=382&idx=1551&depth=4&searchCondition=itmval3&searchKeyword=%EA%B9%80%EC%84%B1%EC%A7%84&pageIndex=1) *KIDA Defense Weekly*, *1501*(14-6). KIDA press.
* Jeon, H., Kim, S. (2012) Technology trends and implications for unmanned ground sensors. *Quarterly JCS(53)*. ROK Joint Chiefs of Staff.
* Kim, S., and Park, S. (2012). [Technology trends and policy implications for emergency floating systems of naval helicopters.](http://www.kida.re.kr/frt/board/frtNormalBoardDetail.do?sidx=382&idx=1459&depth=4&searchCondition=itmval3&searchKeyword=%EA%B9%80%EC%84%B1%EC%A7%84&pageIndex=1) *KIDA Defense Weekly*, *1409*(12-18). KIDA press.
* Lee, H and Kim, S. (2012) [The role of amphibious helicopters in amphibious warfare.](http://www.kida.re.kr/frt/board/frtNormalBoardDetail.do?sidx=382&idx=1465&depth=4&searchCondition=itmval3&searchKeyword=%EA%B9%80%EC%84%B1%EC%A7%84&pageIndex=1) *KIDA Defense Weekly*, *1415*(12-24). KIDA press.
* Eo, H., Jeon, H., Lee, C., and Kim, S. (2011) [Acquisition program feasibility study: procedures and perspectives.](http://www.kida.re.kr/frt/board/frtNormalBoardDetail.do?sidx=382&idx=1426&depth=4&searchCondition=itmval3&searchKeyword=%EA%B9%80%EC%84%B1%EC%A7%84&pageIndex=1) *KIDA Defense Weekly*, *1376*(11-36), KIDA press.

Media appearances

(in Korean)

* Ha, C. (2022). “"[Worried about the overlapping in military unmanned systems development... Needs a joint perspective](https://www.yna.co.kr/view/AKR20220803075900504?input=1195m),” *Yonhap News.*
* Park, E. (2022). “[Need for comprehensive plan for military unmanned systems and a roadmap for critical technologies](https://www.news1.kr/articles/4761964),” *NEW1.*
* Park, D. (2022). “[Possibility of overlapping in technology development programs for military unmanned systems](https://newsis.com/view/?id=NISX20220803_0001966338&cID=10301&pID=10300),” *NEWSIS.*
* Kim, S. and Yang, Y. (2020). “[One step ahead from ‘localization of production’ to ‘localization of technology](https://kookbang.dema.mil.kr/newsWeb/20200304/1/BBSMSTR_000000010026/view.do),’” *The Kookbang-Ilbo.*
* Kim, S. (2020). [How do we define the term drones](https://www.youtube.com/watch?v=9rTI1rgraJ0) [Video]? *KIDA*. YouTube.
* Kim, S. (2020). [Military operation of commercial drones: current status and tasks](https://www.youtube.com/watch?v=6X6UeQdX2QQ) [Video]. *Korea Drone Industry Promotion Association.* YouTube.

(in English)

* Jung, W. (2021). “[South Korea to spend $37.6 million on drone destroyers](https://www.nknews.org/2021/04/south-korea-to-spend-37-6-million-on-drone-destroyers/), " *NK News*.
* Kim, S. (2020). “[Science and technology in defense, security](http://www.koreatimes.co.kr/www/news/opinon/2013/06/162_137370.html),” *The Korea Times*.

Computer software & Websites

* Kim, S. (2023). [Variables affecting monthly earnings: data from 1980 for 935 individuals](https://sjkim2357.shinyapps.io/Variables_affecting_earnings/). [R Shiny app.]
* Kim, S. (2023). [Mall customer analysis project](https://sjkim2357.shinyapps.io/Mall_customer_analysis_project/). [R Shiny app.]
* Kim, S. and Min, S. (2022). [Web-based pairwise comparison method](https://pairwisecomparison.github.io/NewPCM/).

**Education**

**The State University of New York at Stony Brook, Ph.D**./**Technology, Policy, Innovation**, NY, USA, May 2019 (GPA: 3.94/4.00)

**Korea Advanced Institute of Science and Technology, MBA**, Seoul, Korea, Feb 2010 (GPA: 3.36/4.30)

**Sogang University,** Seoul, Korea, Feb 2004 (GPA: 3.17/4.30)

**Awards and Honors**

Awards

* Recipient of the Minister of Defense Award for the contribution to policymaking of military unmanned systems based on commercial technologies (2022)
* Recipient of the KIDA Research Bronze Medal for the military-to-civilian conversion research project (2021)
* Recipient of the KIDA Special Research Award for the contribution to building Institute-wide Research Support Systems (2020)
* Recipient of the Best KIDA Defense Issues and Analyses paper for the meaning and policy direction of localization of defense materials (2020)
* Recipient of the KIDA Research Gold Medal for the Military RDT&E process improvement research project (2016)
* Recipient of the KIDA Special Achievement Award, 2013 (2013)

Honors

* Appointed lecturer for [*Senior Policy Expert Course*](https://www.kida.re.kr/frt/board/frtNormalBoard.do?sidx=2504&depth=2) at KIDA (2023)
* Invited lecturer at *the Military Staff College*, ROK Army (2023)

Scholarship

* 2017-2018: The student participating researcher funded by Information Technology Creative Consilience Program (ITCCP)
* 2015-2016: The scholarship recipient funded by the Electronics Times
* 1998-2004 (2000-2002 gap year): The entrance scholarship (4-year renewable) recipient

Journal Reviews

* Reviewer, *Pacific Affairs*, The University of British Columbia (2023)
* Editorial Board Member, *The Quarterly Journal of Defense Policy Studies*, Korea Institute for Defense Analyses (2022 ~)
* Reviewer, *Defense & Security Analysis*, Taylor & Francis Online (2022)

**Certificate**

**Coursera,** SQL for Data Science, Sep 2023 ([Certificate#](https://www.coursera.org/account/accomplishments/certificate/EPD42Z3ZTHCS): EPD42Z3ZTHCS)

**Udemy,** Python Data Science with Pandas: Master 12 Advanced Projects, Feb 2023 ([Certificate#](https://www.udemy.com/certificate/UC-f7ea2d82-c46d-4dd1-ad97-8ff537c8cfcc/): UC-f7ea2d82-c46d-4dd1-ad97-8ff537c8cfcc)

**Udemy,** R Shiny interactive Web Apps – Next level data visualization, Dec 2022 ([Certificate#](https://www.udemy.com/certificate/UC-49b7511d-a41c-4b3f-9e9b-f5c0faca81a2/): UC-49b7511d-a41c-4b3f-9e9b-f5c0faca81a2)

**Udemy,** Data science with Python and Pandas, Nov 2022 ([Certificate#](https://www.udemy.com/certificate/UC-e1bb986c-a95a-4b51-86bc-cec82100b0d1/): UC-e1bb986c-a95a-4b51-86bc-cec82100b0d1)

**Udemy,** Machine Learning A-Z™: Hands-On Python & R In Data Science, Feb 2022 ([Certificate#](https://www.udemy.com/certificate/UC-e6737842-c4df-455b-b5da-a519466fc7fb/): UC-e6737842-c4df-455b-b5da-a519466fc7fb)

**Language**

**English –** Professional working proficiency

**Korean –** Native

**References**

**Gerald Stokes, Ph.D.,** Visiting Professor, Department of Technology and Society, The State University of New York at Stony Brook, C.P.: 202-306-0144, email: [gerald.stokes@stonybrook.edu](mailto:gerald.stokes@stonybrook.edu)

**Nasir Sheikh, Ph.D.,** Senior Director, Supply Chain Research, Gartner, C.P.: 503-880-3380, email: [nasirsheikh5@gmail.com](mailto:nasirsheikh5@gmail.com)

**Jung Lim, Ph.D.,** Research Fellow, Center for Defense Acquisition and Requirements Analysis, Korea Institute for Defense Analyses, C.P.: 82-10-3291-8772, email: [jlim@kida.re.kr](mailto:jlim@kida.re.kr)

**Sangchan Park, Ph.D**., Department Chair, Technology and Society, The State University of New York, Korea, C.P.: 82-10-8806-4707, email: [sangchan.park@sunykorea.ac.kr](mailto:sangchan.park@sunykorea.ac.kr)