

JINHO CHA, Ph.D.

Artificial Intelligence & Operations Research / Academic and Applied Research

VISA STATUS **U.S. Permanent Resident (Green Card Holder)**
Residing in Georgia, USA since 2024

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| ACADEMIC EDUCATION | Ph.D. in Industrial Engineering , Clemson University, Clemson, SC, 2015 M.S. in Industrial Engineering , University of Florida, Gainesville, FL, 2012 M.S. in Industrial Engineering , Texas A&M University, College Station, TX, 2007 B.S. in Electronic Engineering , Korea Military Academy, Seoul, South Korea, 1999 |
| EMPLOYMENT AND ACADEMIC APPOINTMENT | Independent Research Scholar (Artificial Intelligence & Operations Research) Conducting independent and collaborative research on optimization-driven decision intelligence, machine learning, and resilient supply chain systems, with active collaborations in the U.S., South Korea, and France. Sugar Hill, GA, USA, 2024 – Present Adjunct Faculty , Department of Computer Science, Gwinnett Technical College, Lawrenceville, GA, USA, 2025 – Present Senior Researcher , Korea Research Institute for Defense Technology Planning and Advancement (KRIT), Seoul, South Korea, 2021 – 2025 (Government-seconded AI research specialist at KRIT, a national institute established in 2021 for advancing defense analytics and artificial intelligence) Assistant Professor , Department of Mathematics, Korea Military Academy, Seoul, South Korea, 2017 – 2021 (Government-assigned academic post; non-tenure-track exchange appointment for Ph.D. holders) (Concurrent: Head of Strategic Planning, Army Culture Innovation Center) Military Operations Analyst , Republic of Korea Army Headquarters and Joint Chiefs of Staff, South Korea (Prior to 2017: conducted war-gaming and simulation analysis for US-ROK combined exercises) |
| HONORS AND AWARDS | Republic of Korea, Ministry of National Defense <ul style="list-style-type: none">• Presidential Commendation for Contributions to National Defense Capability Enhancement, 2025 (Recognized for excellence in advancing future science and technology initiatives in national defense)• Ministerial Commendation for Enhancements to Logistics Requirements System, 2023 (Acknowledged for significant contributions to improving the defense logistics and procurement system)• Army Chief of Staff Commendation for Contributions to Army Innovation, 2019 (Awarded for text-mining-based analysis of Army organizational culture and innovation practices)• Superintendent's Citation, Korea Military Academy, 2018 (Recognized for improvements to the cadet AI interview and assessment system)• Chairman of the Joint Chiefs of Staff Commendation, 2017 (For developing and analyzing war-gaming models supporting US-ROK exercises) |
| RESEARCH INTERESTS | Optimization, Machine Learning, and Data-Driven Decision Intelligence for Complex Systems. Focusing on the integration of artificial intelligence, inverse optimization, and statistical inference to design resilient and ethical decision-making |

systems in **supply chain, logistics, healthcare, and defense analytics**. My current research bridges methodological rigor and real-world impact by unifying theoretical optimization frameworks with machine learning for dynamic and uncertain environments.

TEACHING
EXPERIENCE

Department of Computer Science, Gwinnett Technical College, Lawrenceville, GA, USA May 2025–Present Courses:

- CIST 2371 – Java Programming I (Summer 2025, Fall 2025)
- CIST 1305 – Program Design and Development (Fall 2025)

Department of Mathematics, Korea Military Academy, Seoul, South Korea 2017–2021 Courses taught:

- MATH 111 – Calculus I
- MATH 112 – Calculus II
- MATH 211 – Advanced Calculus (Multivariate)
- MATH 212 – Differential Equations
- MATH 221 – Linear Algebra
- MATH 222 – Probability and Statistics
- MATH 311 – Linear Programming
- MATH 422 – Theory of Probability

All lecture evaluation rates exceeded 4.5/5.0.

Department of Industrial Engineering, Clemson University, Clemson, SC, USA 2013–2015 *Teaching Assistant*

- IE 4610 – Quality Engineering
- IE 4620/6620 – Six Sigma Quality

Department of Industrial Engineering, Clemson University, Clemson, SC, USA 2012–2013 *Research Assistant* (Participated in a Six Sigma-based project to improve the operational system of the Clemson University Center for Work Development.)

PUBLICATIONS([Link to Google Scholar Profile](#))

- [1] **Cha, J.***, Cha, E.D., Yoo, E., & Song, H. *Modeling ROI in Chronic Disease Management: A Simulation-Based Framework Integrating Patient Adherence and Policy Timing*. Accepted in **BMC Public Health** (Springer Nature). (*Corresponding Author) Available at [arXiv:2510.06379](#).
- [2] **Cha, J.***, Lee, J., Cho, J., & Shin, J. *FOSSIL: Regret-Minimizing Weighting for Robust Learning under Imbalance and Small Data*. Submission-ready for **International Joint Conference on Artificial Intelligence (IJCAI)**. (*Corresponding Author) Preprint available on [arXiv:2509.13218](#).
- [3] **Cha, J.**, Chung, D. J. *Deep Bayesian Twin Updating under Model Drift: A Stability-Guaranteed Learning Framework*. Manuscript finalized and submission-ready for **Management Science, ABDC (A*)**,
- [4] **Cha, J.**, Pham, L., Vo, T. L. H., Cho, J., Lee, J. *Carbon Compliance Gaps in Multi-Tier Industrial Supply Networks: Why Carbon Taxes Fail to Trigger Technology Adoption*. Manuscript finalized and submission-ready for **Journal of Supply Chain Management, ABDC (A*)**.

- [5] Cha, J., Lee, H.S., and Chung, D.J. *Learning to Self-Correct: A Behavioral–Regret Framework for Fair and Resilient Operations*. Manuscript finalized; planned submission to ***Journal of Operations Management (JOM)***, ABDC (A*).
- [6] **Cha, J.***, Kim, Y., Shin, J., Cho, J., Kim, S. J., & Ryu, J. *Optimization of Bregman–Variational Learning Dynamics*. Under review at ***Journal of Optimization Theory and Applications (JOTA)***. (*Corresponding Author) Preprint available on [arXiv:2510.20227](https://arxiv.org/abs/2510.20227).
- [7] **Cha, J.*** *Dynamic Inverse Optimization under Drift and Shocks: Theory, Regret Bounds, and Applications*. Under review at ***IIE Transactions*** (Taylor & Francis). (*Corresponding Author)
- [8] **Cha, J.***, Yu, J., Cha, E.D., Yoo, E., Geoffrey, C., & Song, H. *Mechanism Design and Equilibrium Analysis of Smart Contract–Mediated Resource Allocation*. Submitted to ***Journal of Industrial & Management Optimization (JIMO)***, ABDC (B), under review. (*Corresponding Author) Preprint available on [arXiv:2510.05504](https://arxiv.org/abs/2510.05504).
- [9] Park, S., Kim, Y.J., **Cha, J.**, Kim, J. *Experimental Analysis of Energy Efficiency of CNN Models for Tactical Edge Devices*. Submitted to ***KSII Transactions on Internet and Information Systems***, under review.
- [10] **Cha, J.**, Lee, H.S., & Chung, D.J. *Online Inverse Optimization under Behavioral Drift: Model, Regret Bounds, and Applications*. Manuscript finalized; planned submission to ***Operations Research***, ABDC (A*), February 2026.
- [11] **Cha, J.***, Han, S., & Pham, L. *Smart Contract Adoption under Discrete Overdispersed Demand: A Negative Binomial Optimization Perspective*. Manuscript finalized; planned submission to ***Annals of Operations Research***, January 2026. (*Corresponding Author) Preprint available on [arXiv:2510.05487](https://arxiv.org/abs/2510.05487).
- [12] Han, S.-M., Kim, M., **Cha, J.***, Choe, S.-W., Cha, E.D., Choi, J., & Jung, K. *FOSSIL: Regret-Minimizing Curriculum Learning for Metadata-Free and Low-Data Mpox Diagnosis*. Manuscript finalized; planned submission to ***Computers in Biology and Medicine***, February 2026. (*Corresponding Author)
- [13] **Cha, J.**, Vo, T. L. H., Pham, L., Cho, J., and Lee, J. *Inverse Portfolio Optimization with Synthetic Investor Data: Recovering Risk Preferences under Uncertainty*. Manuscript under active preparation for submission to ***Annals of Operations Research*** (ABDC A); planned submission: February 2026. Preprint available at [arXiv:2510.06986](https://arxiv.org/abs/2510.06986).
- [14] **Cha, J.**, Vo, T. L. H., Pham, L., Cho, J., and Lee, J. *Smart Contract Adoption in Derivative Markets under Bounded Risk: An Optimization Approach*. Manuscript under active preparation for submission to ***Computational Management Science***; planned submission: February 2026. Preprint available at [arXiv:2510.07006](https://arxiv.org/abs/2510.07006).

- [15] Cha, J., Pham, L., Vo, T. L. H., Cho, J., and Lee, J. *Dynamic Policies for Multi-Supplier Single-Retailer Systems under Carbon Tax and Adoption Cost Trade-offs*. Manuscript under active preparation for submission to *Manufacturing & Service Operations Management (MSOM)*; planned submission: March 2026.
- [16] Cha, J.*, Lee, C., & Butenko, S. *Distributionally Robust Inverse Optimization under Partial Information: Theory, Algorithm, and Computational Validation*. Manuscript under active revision and preparation for submission to *Journal of Global Optimization (JGO)*; planned submission: A 2026. (*Corresponding Author)
- [17] Cha, J., Kim, Y., Ryu, J., Park, S., Kang, J., & Hwang, H. *Smart Contract-Enabled Procurement under Bounded Demand Variability: A Truncated Normal Approach*. In preparation for submission to *Expert Systems with Applications (ESWA)*, ABDC (A), Feb 2026 (planned). Available at [arXiv:2510.07801](https://arxiv.org/abs/2510.07801).
- [18] Cha, J., Yu, J. *Learning under Drift: A Behavioral and Computational Model of Belief Updating in Nonstationary Environments*. Manuscript in preparation; planned submission to *Journal of Economic Dynamics and Control*, January 2026 (planned).
- [19] Cha, J., Cho, J., Lee, H. *BASSIL: Bias–Variance Aware Bilevel Optimization for Imbalanced and Small-Data Learning*. Submitted to *Operations Research*, ABDC (A*), March 2026 (planned).
- [20] Ho, H., Han, S.M., Cha, J., & Pham, L. (2025). *Mobile Banking Customer Satisfaction and Loyalty: The Roles of Technology Readiness*. *Journal of Risk and Financial Management (JRFM)*, Vol. 18(7), Article 403. MDPI. Published. [DOI:10.3390/jrfm18070403](https://doi.org/10.3390/jrfm18070403).
- [21] Kim, S.K., Kim, D., Cha, J. (2024). *A Study on Developing ROK Ammunition Container*. *Journal of the Korea Academia-Industrial Cooperation Society*, Vol. 25, No. 5, pp. 603–610. KCI Accredited Journal. Published. [DOI:10.5762/KAIS.2024.25.5.603](https://doi.org/10.5762/KAIS.2024.25.5.603).
- [22] Lee, H., Cha, J. (2023). *A Study on the Recognition of Korea Armed Forces Nursing Academy and Military Nursing Officers through Web Crawling and Text Mining*. *Journal of the Korea Academia-Industrial Cooperation Society*, Vol. 24, No. 5, pp. 381–388. KCI Accredited Journal. Published. [DOI:10.5762/KAIS.2023.24.5.381](https://doi.org/10.5762/KAIS.2023.24.5.381).
- [23] Kim, S., Cha, J., Lee, J., & Han, C. (2021). *Big Data Analysis to Derive Improvement Direction for Military Mental Force Education: Focusing on the Corpus of Internet News Comments*. *Journal of Spiritual & Mental Force Enhancement (JSMFE)*, No. 65, pp. 3–50. KCI Accredited Journal. Published. [DOI:10.23054/jsmfe.2021.65.001](https://doi.org/10.23054/jsmfe.2021.65.001).
- [24] Han, C., Kim, J., Cha, J., Lee, J., Jung, Y., Park, J., Kim, Y.T., Kim, Y.C., Ha, J., Lee, K., Kim, Y.S., & Bang, S. (2022). *A Methodology of AI*

Learning Model Construction for Intelligent Coastal Surveillance. ***Journal of Internet Computing and Services (JICS)***, Vol. 23, No. 1, pp. 77–86. KCI Accredited Journal. Published. DOI:[10.7472/jksii.2022.23.1.77](https://doi.org/10.7472/jksii.2022.23.1.77).

- [25] Kim, J., Park, S., **Cha, J.**, & Kim, Y. (2021). *Future Tactical Communication System Development Plan*. ***Journal of Convergence for Information Technology (JCIT)***, Vol. 11, No. 6, pp. 14–23. KCI Accredited Journal. Published. DOI:[10.22156/CS4SMB.2021.11.06.014](https://doi.org/10.22156/CS4SMB.2021.11.06.014).
- [26] Kim, J., Park, S., **Cha, J.**, & Kim, Y. (2020). *Future Tactical Communication System Development Plan through Army TIGER Information Distribution Capability Analysis*. ***Journal of Convergence Security (KOCOSA)***, Vol. 21, No. 4, Issue 97, pp. 23–30. KCI Accredited Journal. Published.
- [27] Yoon, S.H., **Cha, J.** (2019). *Convolutions and Determination of Number of Random Variables in Truncated Environment*. ***Korea Military Academy Journal***. Published.
- [28] Krenek, R., **Cha, J.**, Cho, B.R., & Sharp, J.L. (2017). *Development of Statistical Convolutions of Truncated Normal and Truncated Skew Normal Distributions with Applications*. ***Journal of Statistical Theory and Practice***, Vol. 11, pp. 1–25, Taylor & Francis. Published online: 3 Nov 2016. DOI:[10.1080/15598608.2016.1244022](https://doi.org/10.1080/15598608.2016.1244022).
- [29] Krenek, R., **Cha, J.**, Cho, B.R. (2016). *Development of the Convolutions of Truncated Normal Random Variables with Three Different Quality Characteristics in Engineering Applications*. ***Computers & Industrial Engineering***, Vol. 94, pp. 125–137, ABDC (A). Published. DOI:[10.1016/j.cie.2015.12.014](https://doi.org/10.1016/j.cie.2015.12.014)
- [30] Krenek, R., **Cha, J.**, & Cho, B.R. (2015). *Zipping and Re-Zipping Methods to Improve the Precision and Accuracy of Manufacturing Processes*. ***International Journal of Experimental Design and Process Optimisation***, Vol. 4, No. 3/4. Published. DOI:[10.1504/IJVD.2015.073113](https://doi.org/10.1504/IJVD.2015.073113).
- [31] **Cha, J.** (2015). *Re-Establishing the Theoretical Foundations of a Truncated Normal Distribution: Standardization, Statistical Inference, and Convolution*. Doctoral Dissertation, Clemson University, Department of Industrial Engineering, Clemson, SC, USA. Committee: Dr. Byung Rae Cho (Chair), Dr. Julia L. Sharp (Co-chair), Dr. Joel Greenstein, and Dr. David Neyens. *Clemson University TigerPrints*.
- [32] **Cha, J.**, Cho, B.R. (2014). *Classical Statistical Inference Extended to Truncated Populations for Continuous Process Improvement: Test Statistics, P-values, and Confidence Intervals*. ***Quality and Reliability Engineering International***, Vol. 31, No. 8, pp. 1807–1824, ABDC (B). Published. DOI:[10.1002/qre.1719](https://doi.org/10.1002/qre.1719).
- [33] **Cha, J.**, Cho, B.R., Sharp, J.L. (2014). *Rethinking the Truncated Normal Distribution*. ***International Journal of Experimental Design and Process Optimisation***, Vol. 3, No. 4, pp. 327–363. Published. DOI:[10.1504/IJEDPO.2013.059667](https://doi.org/10.1504/IJEDPO.2013.059667).

- CONFERENCE [34] **Cha, J.** (2025). Smart Contract Adoption Decisions under Discrete Overdispersed Demand: A Negative Binomial Optimization Perspective. Presentation at *INFORMS Annual Meeting*, Atlanta, GA, USA, October 23, 2025.
- PUBLICATIONS AND INVITED TALKS
- [35] **Cha, J.** (2024, May; 2024, Nov). Development Measures for Combatant Supporting Systems using AI for Military. *Invited Lecture, Military AI Requirement Planning and Project Management Program*, Sungkyunkwan University, Pangyo, South Korea.
 - [36] **Cha, J.** (2023, Aug). Military R&D Development Direction of the Korean Armed Forces. *Invited Lecture, Korea Military Academy*, Seoul, South Korea.
 - [37] **Cha, J.** (2023, May; 2022, May; 2022, Nov). Strategic Applications of Artificial Intelligence in Combat Support and Defense Systems. *Invited Lecture, Military AI Requirement Planning and Project Management Program*, Sungkyunkwan University, Pangyo, South Korea.
 - [38] **Cha, J.**, Han, C.H. (2019). Analysis of Military Culture in the Army Using Big Data Techniques. *12th International South Korea Army Modeling & Simulation Education Conference*, Daejeon, South Korea, November 19–20, 2019.
 - [39] **Cha, J.**, Krenek, R., Cho, B.R. (2017). Zipping and Re-zipping Methods to Improve the Precision and Accuracy of Manufacturing Processes. *Industrial Engineering Research Symposium*, Clemson University, Clemson, SC, May 2017.
 - [40] **Cha, J.**, Kim, Y.H. (2015). A Study on the Federation Security System for the War Game Models for the U.S. and R.O.K Combined Forces Exercise. *9th International Army Modeling & Simulation Education Conference*, Daejeon, South Korea, November 8–9, 2015.
 - [41] **Cha, J.**, Krenek, R., Cho, B.R., Sharp, J.L. (2015). Development of Statistical Inference using Truncated Statistics with Military Applications. *IIE Annual Conference and Expo*, Nashville, TN, May 2015.
 - [42] **Cha, J.** (2009). Increasing Interoperation with the US Army's Ground War Game Model. *Ground Weapon Conference*, Daejeon, South Korea, June 2009.
 - [43] **Cha, J.** (2008). Performing Interoperation Analyses of Artillery, Aviation, and Air Defense Functions in Ground War-Game Models between U.S. and R.O.K Combined Exercise. *Military Operations Research Conference*, Seoul, South Korea, May 2008.
- GRANTS
- [1] (**Funded, Co-PI**) “Fast-Track to Full Stack: Empowering Junior Developers,” NITIC Mini-Grant Program, Gwinnett Technical College, **\$10,000**, 2025-2026.
 - [2] (**Funded, Co-PI**) “Smart Grader: AI-Based Programming Assessment Platform with Blockchain Logging,” NITIC Mini-Grant Program, Gwinnett Technical College, **\$10,000**, 2025-2026.

- [3] **(Funded, Project Manager)** “Development of Korea Military Fiber Ammunition Container,” Ministry of National Defense of South Korea, **\$1,000,000**, 2021–2024.
- [4] **(Funded, Co-PI)** “Development of Intelligent Coastal Surveillance System,” Korea Army Training and Doctrine Command, **\$750,000**, 2020–2022.
- [5] **(Funded, PI)** “Cost and Operational Analysis of Army Scientific Training Systems,” Army of South Korea, **\$100,000**, 2019–2020.
- [6] **(Funded, Co-PI)** “Cost Analysis of Armored Vehicle Development,” Defense Agency for Technology and Quality, **\$200,000**, 2018–2019.
- [7] **(Funded, PI)** “Study on Officer Human Resource Acquisition and Development,” Army of South Korea, **\$200,000**, 2018–2019.
- [8] **(Funded, Co-Project Manager)** “Maintenance Project for Ground Warfare Model at Corps Level and Above,” Army of South Korea, **\$450,000**, 2007–2010.

GOVERNMENT AND TECHNICAL REPORTS [9] **Cha, J.** (Co-Author). *2025–2034 National Defense Force Support System Requirements Plan (Public Edition)*. Ministry of National Defense (MND) and Korea Research Institute for Defense Technology Planning and Advancement (KRIT), 2024. **Official Government Policy Report.** ([Public access link](#))

PROFESSIONAL SERVICE • *Sustainability (MDPI)*, **Ad Hoc Reviewer**, 2025–Present
 • *PLOS ONE*, **Ad Hoc Reviewer**, 2025–Present
 • *Journal of Research, Innovation & Technologies (JoRIT)*, **Ad Hoc Reviewer**, 2025–Present
 • *KSII Transactions on Internet and Information Systems*, **Ad Hoc Reviewer**, 2025–Present
 • *Korean Journal of the Society for Simulation*, **Ad Hoc Reviewer**, 2022–Present
 • *Korean Journal of Military Art and Science*, **Ad Hoc Reviewer**, 2019–Present
 • *Korean Academy of Organization and Management*, **Ad Hoc Reviewer**, 2019–Present
 • Korea Defense Veterans Association (Georgia Chapter), **Executive Board Member**, 2025–Present
 • Korean Veterans Association (Georgia Chapter), **Executive Board Member**, 2025–Present
 • Institute for Operations Research and the Management Sciences (INFORMS), **Member**
 • Korean Academic Business Administration Society, **Member**
 • Korean Academic Industrial Engineers Society, **Member**