

Hyojung Kang

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APPOINTMENTS

Assistant Professor Kinesiology & Community Health, University of Illinois at Urbana-Champaign, Champaign, Illinois	2019 to present
Affiliated Faculty Informatics, University of Illinois at Urbana-Champaign, Champaign, Illinois	2019 to present
Affiliated Faculty Health Care Engineering Systems Center, University of Illinois at Urbana-Champaign, Champaign, Illinois	2023 to present
Research Assistant Professor Systems and Information Engineering, University of Virginia, Charlottesville, Virginia	2015 to 2018
Joint Appointment University of Virginia Health System, Charlottesville, Virginia	2015 to 2018
Research Assistant Industrial and Manufacturing Engineering, The Pennsylvania State University, University Park, Pennsylvania	2011 – 2015
Research Assistant Industrial and Systems Engineering, Georgia Institute of Technology, Atlanta, Georgia	2009 – 2010

EDUCATION

The Pennsylvania State University, University Park, Pennsylvania	2015
• Ph.D. in Industrial Engineering and Operations Research	
Georgia Institute of Technology, Atlanta, Georgia	2009
• M.S. in Industrial and Systems Engineering	
Yonsei University, Seoul, Korea	2007
• B.S. in Industrial and Systems Engineering	
• B.B.A. in Business Administration	

PUBLICATIONS

(† = corresponding author; * = Dr. Kang's advisees/co-advisees)

Articles under Review

- **Kang, H.**, Sohn, M.W., Kim, S., Zhang, S., Balkrishnan, R., Anderson, R., McCall, A., McMurry, T., & Lobo, J. M. Diabetes Belt has lower efficiency in providing diabetes preventive care than surrounding counties. *Health Services and Outcomes Research Methodology*
- **Kang, H.**, Tian, J., & Milavetz, G. National trends and characteristics of opioids, cannabis, and co-use in the U.S., 2015-2019. *American Journal of Drug and Alcohol Abuse*.
- Lobo, J. M., **Kang, H.**[†], Brennan, M., Kim, S., McMurry, T., Balkrishnan, R., Anderson, R., McCall, A., & Sohn, M.W. Disparities in major amputation rates in the Diabetes Belt and surrounding counties among Medicare beneficiaries. *BMJ Open Diabetes Research & Care*

Book

- Griffin, P. M., Nembhard, H. B., DeFlicht, C. J., **Kang, H.**, Bastian, N. D., & Munoz, D. A. (2016). *Healthcare Systems Engineering*. John Wiley & Sons.

Journal Articles (Published or In Press)

- **Kang, H.**[†], Clary, K., Zhao, Z., Quintero Silva, L., & Bobitt, J. (2023). Characteristics of Cannabis and Opioid Users among Older Veterans and Their Health Outcomes: A longitudinal perspective. *Journal of Psychoactive Drugs*. 1-11. <https://doi.org/10.1080/02791072.2023.2186286>
- Bobitt, J., Clary, K., Krawitz, M., Silva, L. Q., & **Kang, H.** (2023). Prevention, practice, and policy: Older US Veterans? perspectives on cannabis use. *Drugs & Aging*, 40, 59-70. <https://doi.org/10.1007/s40266-022-00995-2>
- Zhu, X., Zhang, P.* , **Kang, H.**, Marla, L., Robles Granda, M. I., Ebert-Allen, R. A., Ramirez, S.S.D., Oderwald, T., McGee, M., & Handler, J. A. (2023). Derivation of a Unique, Algorithm-Based Approach to Cancer Patient Navigator Workload Management. *JCO Clinical Cancer Informatics*, Accepted
- **Kang, H.**[†], Zhang, P., Lee, S., Shen, S. and Dunham, E. (2022). Racial Disparities in Opioid Administration and Prescribing in the Emergency Department for Pain. *The American Journal of Emergency Medicine*, 55, 167-173. <https://doi.org/10.1016/j.ajem.2022.02.043>
- Choi, J.* , Lee, J., Yeh, A. B., Lan, Q., & **Kang, H.**[†]. (2022). Spatial Clustering of Heroin-Related Overdose Incidents: A Case Study in Cincinnati, Ohio, *BMC Public Health*, 22(1):1-2. <https://doi.org/10.1186/s12889-022-13557-3>
- Clary, K., **Kang, H.**, Quintero Silva, L., & Bobitt, J. (2022). Weeding Out the Stigma: Older Veterans in Illinois Share Their Experiences Using Medical Cannabis. *Journal of Psychoactive Drugs*. 1-8. <https://doi.org/10.1080/02791072.2022.2082901>
- McMurry, T., Lobo, J. M., **Kang, H.**, Kim, S., Balkrishnan, R., Anderson, R., McCall, A., & Sohn, M. (2022). Annual Wellness Visits Are Associated with Increased Use of Preventive Services in Patients with Diabetes Living in the Diabetes Belt. *Diabetes Epidemiology and Management*, 7, 100094. <https://doi.org/10.1016/j.deman.2022.100094>
- Kaskie, B., **Kang, H.**, Bhagianadh, D. & Bobitt, J. (2021). Cannabis Use among Older Persons with Arthritis, Cancer and Multiple Sclerosis: Are We Comparing Apples and Oranges?. *Brain Sciences*, 11(5), 532. <https://doi.org/10.3390/brainsci11050532>
- **Kang, H.**, Hunnicutt, J., Quintero Silva, L. , Kaskie, B., & Bobitt, J. (2021). Analysis of Biopsychosocial Factors and Health Outcomes Associated with Cannabis, Opioids and Benzodiazepines Use among Older Veterans. *American Journal of Drug and Alcohol Abuse*. 47(4). 497-507. <https://doi.org/10.1080/00952990.2021.1903479>
- Ahn, S., Lobo, J.M., Logan, J. G., **Kang, H.**, Kwon, Y., & Sohn, M.W. (2021). A Scoping Review of Racial/Ethnic Disparities in Sleep. *Sleep Medicine*. 81, 169-179. <https://doi.org/10.1016/j.sleep.2021.02.027>
- Liu, X., Logan, J., Kwon, Y., lobo, J. M., **Kang, H.** & Sohn, M.W. (2021). Visit-to-visit Blood Pressure Variability and Sleep Architecture. *Journal of clinical hypertension*. 23(2), 323-330. <https://doi.org/10.1111/jch.14162>
- **Kang, H.**, Kim, S., Malloy, K., McMurry, T., Balkrishnan, R., Anderson, R., McCall, A., Sohn, M.W. & Lobo, J. M. (2021) Evaluating Efficiency of Counties in Providing Diabetes Preventive Care using Data Envelopment Analysis. *Health Services and Outcomes Research Methodology*. 1-15. <https://doi.org/10.1007/s10742-020-00237-1>
- **Kang, H.**[†] & Haswell, E.* (2020). Patient Flow Analysis Using Real Time Locating System Data: A Case Study in an Outpatient Oncology Center. *JCO Oncology Practice*. 16(12), e1471-e1480. DOI: 10.1200/OP.20.00119

- Bobitt, J., **Kang, H.**, Croker III, J. A., Quintero Silva, L., & Kaskie, B. (2020). Use of Cannabis and Opioids for Chronic Pain by Older Adults: Distinguishing Clinical and Contextual Influences. *Drug and Alcohol Review*. 39(6), 753-762. <https://doi.org/10.1111/dar.13080>
- Issabakhsh, M., Lee, S., & **Kang, H.** (2020). Scheduling Patient Appointment in an Infusion center: A Mixed Integer Robust Optimization Approach. *Health Care Management Science*. 1-23. DOI: 10.1007/s10729-020-09519-z
- An, R., **Kang, H.**, Cao, L., & Xiang, X. (2020). Engagement in outdoor physical activity under ambient fine particulate matter pollution: a risk-benefit analysis. *Journal of Sport and Health Science*. S2095-2546(20)30127-7. Advance online publication. <https://doi.org/10.1016/j.jshs.2020.09.008>
- Davis, R. E., Markle, E. S., Windoloski, S., Houck, M. E., Enfield, K. B., **Kang, H.**, Balling, R. C., Kuehl, D. R., Burton, J. H., Farthing, W., Rubio, E. R., & Novicoff, W. M. (2020). A Comparison of the Effect of Weather and Climate on Emergency Department Visitation in Roanoke and Charlottesville, Virginia. *Environmental Research*. 191:110065. <https://doi.org/10.1016/j.envres.2020.110065>.
- Logan, J., **Kang, H.**, Kim, S., Duprez, D., Kwon, Y., Jacobs, D., Forbang, N., Lobo, J. M., & Sohn, M.W. (2020). Association of Obesity with Arterial Stiffness: the Multi-Ethnic Study of Atherosclerosis (MESA). *Vascular Medicine*. 25(4):309-318. doi:10.1177/1358863X20918940
- Davis, R. E., Houck, M., Markle, E., Windoloski, S., Enfield, K. B., **Kang, H.**, ... & Novicoff, W. M. (2020) The Impact of Heat Waves on Emergency Department Visits in Roanoke, Virginia. *Academic Emergency Medicine*. 27: 614-617. doi:10.1111/acem.13919
- Lobo, J. M., Kim, S., **Kang, H.**, Ocker, G., McMurry, T., Balkrishnan, R., Anderson, R., McCall, A., Benitez, J., & Sohn, M.W. (2020) Trends in Uninsured Rates Before and After Medicaid Expansion in the Diabetes Belt and Non-Belt Counties. *Diabetes Care*. <https://doi.org/10.2337/dc19-0874>
- **Kang, H.**, Waselewski, M., & Lobo, J. M. (2019) Understanding provider-level properties that influence the transmission of healthcare associated infections using network analysis *Operations Research for Health Care*. 23, 100223. <https://doi.org/10.1016/j.orhc.2019.100223>
- Lobo, J. M. , Erdogan, S. A., Berg, B. P., **Kang, H.**, Clements, M. B., Culp, S. H., & Krupski, T. L. (2019) Provider Scheduling to Maximize Patient Access. *Urology Practice*. 10-1097. <https://doi.org/10.1097/UPJ.0000000000000115>
- Corotto, P., **Kang, H.**, Mazimba, S., Harding, W., Massaro, B., Shah, N., Gadi, S., Shields, M., Bilchick, K., & Kwon, Y. (2019) Obstructive Sleep Apnea and Electrocardiographic P-wave Morphology. *Journal of Electrocardiology*. 24(4):e12639. doi: 10.1111/anec.12639
- **Kang, H.**, Lobo, J. M., Kim, S. & Sohn, M.W. (2018). Cost-Related Medication Non-Adherence Among US Adults with Diabetes. *Diabetes Research and Clinical Practice*. 143, 24-33. <https://doi.org/10.1016/j.diabres.2018.06.016>
- Logan, J. G., **Kang, H.**, Lobo, J. M., Sohn, M.W., Lin, G., Lima, J., Punjabi, N., Redline, S. & Kwon, Y. (2018) Actigraphy-based sleep characteristics and aortic stiffness: the Multi-Ethnic Study of Atherosclerosis. *Journal of the American Society of Hypertension*. 12(12), 841-849. <https://doi.org/10.1016/j.jash.2018.09.008>
- Brennan, M., Guihan, M., Budiman-Mak, E., **Kang, H.**, Lobo, J. M., Sutherland, B., Emanuele, N., Huang, E. , & Sohn, M. (2018). Increasing systolic blood pressure variability is associated with an increased risk of developing incident diabetic foot ulcers. *Journal of Hypertension*. 36(11). 2177-2184. doi: 10.1097/HJH.0000000000001783.
- Brennan, M., Huang, E., Lobo, J. M., **Kang, H.**, Guihan, M., Basu, A., & Sohn, M.W. (2018) Longitudinal trends and predictors of statin use among patients with diabetes. *Journal of Diabetes and Its Complications*. 32(1), 27-33. <https://doi.org/10.1016/j.jdiacomp.2017.09.014>
- **Kang, H.**[†], Nembhard, H. B., DeFlitch, C. J., & Pasupathy, K. S. (2017). Assessment of Emergency Department Efficiency Using Data Envelopment Analysis. *IIE Transactions on Healthcare Systems Engineering*. 7(4), 236-246. <https://doi.org/10.1080/24725579.2017.1367978>

- **Kang, H.[†]**, Nembhard, H. B., Curry, W. J., & Ghahramani, N. (2017). A System Dynamics Approach to Planning and Evaluating Interventions for Chronic Disease Management. *Journal of the Operational Research Society*. 1-21. <https://doi.org/10.1057/s41274-017-0279-3>
- **Kang, H.[†]**, Bastian, N. D., & Riordan, J. P. (2017). Evaluating the Relationship between Productivity and Quality in Emergency Departments. *Journal of Healthcare Engineering*, 2017. <https://doi.org/10.1155/2017/9626918>
- Grabowski, M., **Kang, H.**, Wells, K., Sifri, C. D., Mathers, A. J. & Lobo, J. M. (2017). Provider Role in Transmission of Carbapenem-resistant Enterobacteriaceae. *Infection Control & Hospital Epidemiology*. 38(11), 1329-1334. <https://doi.org/10.1017/ice.2017.216>
- Lobo, J. M., Anderson, R., Stukenborg, G. J., McCall, A., **Kang, H.**, Camacho, F. & Sohn, M.W. (2018). Disparities in the Use of Diabetes Screening in Appalachia. *Journal of Rural Health*. 34(2), 173-181. DOI: 10.1111/jrh.12247
- **Kang, H.**, Nembhard, H. B., Curry, W. J., Ghahramani, N., & Hwang, W. (2017). A Systems Thinking Approach to Prospective Planning of Interventions for Chronic Kidney Disease Care. *Health Systems*, 6(2), 130-147. <https://doi.org/10.1057/hs.2015.17>
- Bastian, N. D., Ekin, T., **Kang, H.**, Griffin, P. M., Fulton, L. V., & Grannan, B. C. (2017). Stochastic Multi-Objective Auto-Optimization for Resource Allocation Decision-Making in Fixed-Input Health Systems. *Health Care Management Science*, 20(2), 246-264. <https://doi.org/10.1007/s10729-015-9350-2>
- Sohn, M.W., **Kang, H.**, Park, J., Yates, P., McCall, A., Stukenborg, G., Anderson, R., Balkrishnan, R. & Lobo, J. (2016). Disparities in Recommended Preventive Care Usage among Persons Living with Diabetes in the Appalachian Region. *BMJ Open Diabetes Research and Care*. 4(1):e000284, doi:10.1136/bmjdr-2016-000284
- Bastian, N. D., **Kang, H.**, Nembhard, H. B., Bloschichak, A., & Griffin, P. M. (2016). The Impact of a Pay-for-Performance Program on Central Line Associated Blood Stream Infections in Pennsylvania. *Hospital Topics*, 94(1), 8-14. <https://doi.org/10.1080/00185868.2015.1130542>
- Bastian, N. D., **Kang, H.**, Swenson, E. R., Fulton, L. V., & Griffin, P. M. (2016). Evaluating the Impact of Hospital Efficiency on Wellness in the Military Health System. *Military Medicine*, 181(8), 827-834. <https://doi.org/10.7205/MILMED-D-15-00309>
- Bastian, N. D., **Kang, H.**, Griffin, P. M., & Fulton, L. V. (2016). Measuring the Effect of Pay-for-Performance Financial Incentives on Hospital Efficiency in the Military Health System. *IIE Transactions on Healthcare Systems Engineering*, 6(1), 33-41. <https://doi.org/10.1080/19488300.2015.1132488>
- **Kang, H.**, Nembhard, H. B., Rafferty, C., & DeFlicht, C. J. (2014). Patient Flow in the Emergency Department: A Classification and Analysis of Admission Process Policies. *Annals of Emergency Medicine*, 64(4), 335-342. <https://doi.org/10.1016/j.annemergmed.2014.04.011>

Peer Reviewed Conference Proceedings

- Zhang, J.* & **Kang, H.** (2019) Exploring Machine Learning Models for Analyzing National Opioid Treatment Completion. In *Proceedings of the 2019 Industrial and Systems Engineering Research Conference*.
- Lu, G.* & **Kang, H.** (2019) Analysis of Visit Patterns of High Frequency Users in the Emergency Department. In *Proceedings of the 2019 Industrial and Systems Engineering Research Conference*.
- Pan, H.*, Gao, S., Grant, K., Novicoff, W., & **Kang, H.** (2018). Analyzing national and state opioid abuse treatment completion with multilevel modeling. In *Proceedings of 2018 IEEE Systems and Information Engineering Design Symposium (SIEDS)*, 123-128. IEEE. doi: 10.1109/SIEDS.2018.8374721
- Haswell, E.*, **Kang, H.** (2018) Detection and correction of errors in Real-Time Locating System data. In *Proceedings of the 2018 Industrial and Systems Engineering Research Conference*.
- Issabakhsh, M., Lee, S., & **Kang, H.** (2018) A Mixed Integer Programming Model for Patient Appointment in an Infusion Center. In *Proceedings of the 2018 Industrial and Systems Engineering Research Conference*.

- Bapat, R.*, Mandya, A., Liu, X., Abraham, B., Brown, D. E., **Kang, H.**, & Veeraraghavan, M. (2018) Identifying malicious botnet traffic using logistic regression. In *Proceedings of the 2018 IEEE SIEDS*. 266-271. IEEE. doi: 10.1109/SIEDS.2018.8374749
- **Kang, H.**, Orlowsky, R. L.*, Gerling, G. J. (2017) A Discrete-Event Simulation Approach to Identify Rules That Govern Arbor Remodeling for Branching Cutaneous Afferents in Hairy Skin. In *Proceedings of the 2017 Winter Simulation Conference*. 2662-2671. doi:10.1109/WSC.2017.8247992.
- Lee, K., Rucker, M., Scherer, W., Beling, P., Gerber, M. S., & **Kang, H.** (2017) Agent-Based Model Construction Using Inverse Reinforcement Learning. In *Proceedings of the 2017 Winter Simulation Conference*. 1264-1275. <https://doi.org/10.1109/WSC.2017.8247872>
- Lensing, J., Vilankar, K., **Kang, H.**, Brown, D. E., Mathers, A. J., & Barnes, L.E. (2017) Environmental Reservoirs of Nosocomial Infection: Imputation Methods for Linking Clinical and Environmental Microbiological Data to Understand Infection Transmission. In *AMIA Annual Symposium Proceedings* American Medical Informatics Association. 1120-1129. PMID: 29854180
- Ewing, A.*, Rogus, J., Chintagunta, P., Kraus, L., Sabol, M., & **Kang, H.** (2017) A Systems Approach to Improving Patient Flow at UVA Cancer Center Using Real-Time Locating System. In *Proceedings of the 2017 IEEE SIEDS*. 259-264. IEEE. Best Paper Award
- Fowler, B.*, Rajendiran, M., Schroeder, T., Bergh, N., Flower, A., & **Kang, H.** (2017) Predicting Patient Revisits at the University of Virginia Health System Emergency Department. In *Proceedings of the 2017 IEEE SIEDS*. 253-258. IEEE. <http://doi.org/10.1109/SIEDS.2017.793772>
- Zhang, J.*, Jones, K., Song, T., **Kang, H.**, & Brown, D.E. (2017) Comparing Unsupervised Learning Approaches to Detect Network Intrusion Using NetFlow Data. In *Proceedings of the 2017 IEEE SIEDS*. 122-127. IEEE. <http://doi.org/10.1109/SIEDS.2017.7937701>
- Sun, M.* & **Kang, H.** (2017). Risk Prediction Models for Patients Who Leave without Being Seen. In *Proceedings of the 2017 Industrial and Systems Engineering Research Conference*. 1157-1162. IISE.
- Whitehead, N. P., Adams, S. C., Scherer, W. T., **Kang, H.**, & Gerber, M. (2016) Systems Thinking and Predictive Analytics to Improve Veteran Healthcare Scheduling. In *Proceedings of the 2017 Annual IEEE International Systems Conference*. 1-8. IEEE
- **Kang, H.** & Lobo, J. M. (2016). Identifying the Optimal Configuration of an Express Care Area in an Emergency Department: A DES and DOE Approach. In *Proceedings of the 2016 Winter Simulation Conference*. 1961-1969. IEEE
- Johnson, G.*, Kiernan, G., Swan, A., Botwick, E., Spier, W., White, K. P., Valdez, J., **Kang H.**, & Lobo, J. M. (2016). Designing Patient Throughput and Task Management Innovations in Orthopedics. In *Proceedings of the 2016 IEEE SIEDS*. Best Paper Award
- Cocke, S.*, Guinn, D., MacBlane, E., Walshak, S., Willenbrock, N., White, K. P., Lobo, J. M., & **Kang, H.** (2016). UVA Emergency Department Patient Flow Simulation and Analysis. In *Proceedings of the 2016 IEEE SIEDS*.
- **Kang, H.** & Munoz, D. (2015). A Dynamic Network Analysis Approach for Evaluating Knowledge Dissemination in a Multi-Disciplinary Collaboration Network in Obesity Research. In *Proceedings of the 2015 Winter Simulation Conference*. Huntington Beach, CA. 1319-1330. IEEE
- **Kang, H.**, Nembhard, H. B., & DeFlicht, C. J. (2014). Identifying Emergency Department Efficiency Frontiers and the Factors Associated with their Efficiency Performance. In *Proceedings of the 2014 Industrial and Systems Engineering Research Conference*. Montreal. 3974. IISE
- **Kang, H.**, Hostetler, S., Devapriya, P., Banciu, M., & Andrews, Z. (2014). RTLS and EHR Enabled Workflow Modeling in the Emergency Department. In *Proceedings of the 2014 Industrial and Systems Engineering Research Conference*. Montreal. 3112. IISE

- Lee, E. K., Cinalioglu, D., **Kang, H.**, Brown, N., Davis, L. and Frank, G. (2014) Systems modeling for reducing medication errors. In *Proceedings of Bioinformatics and Biomedicine (BIBM), 2014 IEEE International Conference*, 35-42. IEEE.

RESEARCH SUPPORT

Ongoing Research Support

- Center on Health, Aging, and Disability, University of Illinois at Urbana-Champaign, Kang (PI)
 “Geospatial Variability of Illicit Opioid Use and Disparities in Treatment Resources”
 Role: Principal Investigator
 Period: 07/01/2022 – 12/31/2023
 Total: \$29,687
- Campus Research Board, University of Illinois at Urbana-Champaign, Gao, Kang, Chiu (MPI)
 “Analyzing the COVID impacts on the vulnerable minorities’ mental health and exploring interventions: machine learning and simulation approaches.”
 Role: Multiple Principal Investigator
 Period: 11/01/2021– 5/31/2023
 Total: \$14,850

Pending Research Support

- National Science Foundation, Nagi (MPI), Kurz (MPI)
 “D-ISN/Collaborative Research: Mitigating the harm of fentanyl through holistic demand/supply-chain interventions and equitable resource allocations”
 Role: Co-Investigator
 Period: 02/01/2023– 1/31/2026
 Total: \$1,000,000
- National Heart, Lung, and Blood Institute (R21), Kwon, Vena (MPI)
 “Characterizing physiological endotypes and consequences of obstructive sleep apnea in children with Down Syndrome”
 Role: Co-Investigator
 Period: 12/01/2023– 11/30/2025
 Total: \$275,000
- Jump ARCHES Grant, University of Illinois at Urbana-Champaign, Kang, Handler, Lavanya (MPI)
 “STREAM-ED: Simulation to Refine, Enhance, and Adapt Management of Emergency Departments”
 Role: Multiple Principal Investigator
 Period: 08/01/2023– 12/31/2024
 Total: \$97,112
- Jump ARCHES Grant, University of Illinois at Urbana-Champaign, Kang, Stapel, Kim (MPI)
 “Predicting medication non-adherence in type 2 diabetes: addressing disparities with machine learning”
 Role: Multiple Principal Investigator
 Period: 08/01/2023– 12/31/2024
 Total: \$99,924

Completed Research Support

- National Institute of Diabetes and Digestive and Kidney Diseases (R01), Sohn, Lobo (MPI)
 “Detecting, understanding, and reducing diabetes belt preventive care disparities”
 Role: Co-Investigator Period: 02/01/2018 – 01/31/2023
 Total: \$2,199,215
- National Heart, Lung, and Blood Institute (R21), Kwon, Sohn(MPI)
 “Cardiovascular implications of sleep characteristics using real-world objective sleep data”

Role: Co-Investigator
Period: 02/01/2018 – 01/31/2023
Total: \$260,831

- Ohio Department of Higher Education, Lee (PI)
“Data-driven predictive models for identifying risk factors leading to opiate abuse”
Role: Co-Investigator
Period: 02/01/2020 – 08/31/2022
Total: \$475,535
- Jump ARCHES Grant, University of Illinois at Urbana-Champaign, Handler, Kang, Lavanya (MPI)
“Precision population science: Optimal deployment of cancer prevention through digital health workers”
Role: Multiple Principal Investigator
Period: 06/01/2021– 05/31/2022
Total: \$75,000
- Jump ARCHES Grant, University of Illinois at Urbana-Champaign, Handler, Kang, Lavanya (MPI)
“Optimizing deployment of community health workers”
Role: Multiple Principal Investigator
Period: 06/01/2021– 05/31/2022
Total: \$75,000
- Chez Veterans Center, University of Illinois at Urbana-Champaign, Kang (PI)
“Examining the intersection between cannabis, opioids and benzodiazepine use by older veterans in Illinois”
Role: Principal Investigator
Period: 06/15/2020– 8/31/2021
Total: \$15,000
- Illinois Department of Public Health, Bobitt (PI)
“Opioid alternative pilot program”
Role: Co-Investigator
Period: 07/1/2019– 6/30/2020
Total: \$131,559
- Kirby Medical Center, Kang (PI)
“Effectiveness of a wellness program”
Role: Principal Investigator
Period: 8/18/2019– 12/21/2019
Total: \$3,456
- University of Virginia, Kang (PI)
“Engineering-Medicine partnership on sleep and cardiovascular research”
Role: Principal Investigator
Period: 8/1/2018 – 7/31/2019
Total: \$88,659

TEACHING EXPERIENCE

Instructor

University of Illinois at Urbana-Champaign, Champaign, Illinois

- *Health Data Analysis* (CHLH 421) Fall 2019 – present (every semester)
– Undergraduate level
- *Operations Management in Healthcare* (CHLH 594) Spring 2019 – present (every year)
– Graduate level

Instructor

University of Virginia, Charlottesville, Virginia

- *Discrete-Event Simulation* (SYS 3062) Spring 2018
 - Undergraduate level (juniors), 115 students
- *Discrete-Event Simulation and Quality Engineering* (SYS 6582) Spring 2018
 - Graduate level, 15 students
 - Cross listed with a course in Public Health Sciences (PHS 7379)
- *Agent-Based Simulation* (SYS 7002) 2017, 2018
 - Accelerated Masters Program in Systems Engineering
 - Lectured one day (8 hours)

Instructor

Shandong University, Jinan, China

- *Quantitative Methods for Health Systems Design and Analysis* 2017, 2018, 2019
 - Masters Program in School of Health Care Management
 - Lectured 10 days (4 hours per day)

Instructor

The Pennsylvania State University, University Park, Pennsylvania

- *Statistical Quality Control* (IE 434) Fall 2013
 - Online course, undergraduate level (seniors), 90 students

Graduate Teaching Assistant

The Pennsylvania State University, University Park, Pennsylvania

- *Healthcare Systems Engineering* (IE 597D) Fall 2014
 - Graduate level, 26 students
 - Assisted instructor on developing course framework and materials
- *Simulation Modeling for Decision Support* (IE 453) Spring, Fall 2011
 - Undergraduate level (seniors), 88 students (Spring), 65 students (Fall)
 - Taught labs where students learn to develop simulation models using ARENA

Guest Lecturer

University of Virginia

- Discrete Event Simulation (SYS 3062) Spring 2016

Northwestern University

- Stochastic Simulation and Monte Carlo Methods (PREDICT 490) Spring 2016

City University of New York

- Simulation and Modeling Techniques (IS 604) Fall 2015
- Business Analytics and Data Mining (DATA 621) Spring 2016

The Pennsylvania State University

- Healthcare Systems Engineering (IE 568) Fall 2012, 2014

Capstone Project Advisor

Systems Information Engineering, University of Virginia

2015 – 2018

Data Science Institute, University of Virginia

2016 – 2018

Global Engineering Leadership Program, The Pennsylvania State University

2014 –2015

HONORS & AWARDS

Ignite Scholar at University of Virginia

2015 –2016

Best Paper Award at the College of Engineering Research Symposium	2014
INFORMS Doctoral Colloquium	2014
NSF Student Travel Grant for Health Systems Optimization Workshop	09/2014
NSF Student Travel Grant for ISERC	05/2014
CIHDS scholar at The Pennsylvania State University	2010 – 2013
Honor Student at Yonsei University	Fall 2006
High Honor Student at Yonsei University	Spring 2005

PRESENTATIONS

Hanyang University , Seoul, Korea (Virtual)	04/2023
<ul style="list-style-type: none"> • Leveraging data analytics for improved health service management. 	
Interdisciplinary Health Science Institute , Urbana, Champaign (Virtual)	03/2023
<ul style="list-style-type: none"> • Racial/ethnic and geographic disparities in opioid use disorder treatment. 	
INFORMS , Indianapolis, Indiana	10/2022
<ul style="list-style-type: none"> • Predicting adverse COVID19-related outcomes among individuals with and without opioid use disorder. 	
INFORMS , Anaheim, California (Virtual)	10/2021
<ul style="list-style-type: none"> • Outcomes of Patients with Opioid Use Disorders and COVID-19. 	
INFORMS , (Virtual)	07/2021
<ul style="list-style-type: none"> • Spatial Clustering of Heroin-Related Incidents and Accessibility of Healthcare Facilities. 	
Yonsei University , Seoul, Korea (Virtual)	1/2021
<ul style="list-style-type: none"> • Data Analytics Applications in Healthcare. 	
INFORMS , National Harbor, Maryland (Virtual)	11/2020
<ul style="list-style-type: none"> • Evaluating Efficiency of Counties in Providing Diabetes Preventive Care Using Data Envelopment Analysis. 	
INFORMS , Seattle, Washington	10/2019
<ul style="list-style-type: none"> • A Predictive Analytics Model for Opioid Treatment Completion. 	
INFORMS , Seattle, Washington	10/2019
<ul style="list-style-type: none"> • Analysis of Emergency Department Visits By Frequent Users Using Machine Learning 	
ISERC , Orlando, Florida	06/2019
<ul style="list-style-type: none"> • Exploring Machine Learning Models for Analyzing National Opioid Treatment Completion. 	
ISERC , Orlando, Florida	06/2019
<ul style="list-style-type: none"> • Analysis of Visit Patterns of High Frequency Users in the Emergency Department. 	
Winter Simulation Conference , Las Vegas, Nevada	12/2017
<ul style="list-style-type: none"> • A Discrete-Event Simulation Approach to Identify Rules that Govern Arbor Remodeling for Branching Cutaneous Afferents in Hairy Skin. 	
Winter Simulation Conference , Washington, D.C.	12/2016
<ul style="list-style-type: none"> • Identifying the Optimal Configurations of Areas in an Emergency Department: A DES and DOE Approach. 	
INFORMS , Nashville, Tennessee	11/2016
<ul style="list-style-type: none"> • Statistical and Network Modeling Approaches to Understanding Provider Role in Transmission of Healthcare-Associated Infections 	
Winter Simulation Conference , Huntington Beach, California	12/2015
<ul style="list-style-type: none"> • A Dynamic Network Analysis Approach for Evaluating Knowledge Dissemination in a Multi-Disciplinary 	

Collaboration Network in Obesity Research

- INFORMS**, Philadelphia, Pennsylvania 11/2015
- Assessing Efficiency and Quality of Emergency Departments Using Data Envelopment Analysis
- INFORMS HEALTHCARE**, Nashville, Tennessee 07/2015
- A Data Mining Approach to Understand Factors Associated with Frequent Emergency Department Use
- ISERC**, Nashville, Tennessee 06/2015
- A Modeling-based Approach to Assess Efficiency Performance of Emergency Departments
- ISERC**, Nashville, Tennessee 06/2015
- Modeling Time and Space in the Emergency Department to Improve Flow
- ISERC**, Nashville, Tennessee 06/2015
- A System-level Analysis of the Organization of Healthcare Systems for Skin Cancer
- INFORMS**, San Francisco, California 11/2014
- A System Dynamics Approach to Predict the Overall Impact of Interventions to improve Chronic Kidney Disease Care
- CHOT-NSF Workshop**, Waltham, Massachusetts 10/2014
- Identifying ED Efficiency Frontiers and the Factors Associated with their Efficiency Performance
- ISERC**, Montreal, Canada 06/2014
- Identifying ED Efficiency Frontiers and the Factors Associated with their Efficiency Performance
- ISERC**, Montreal, Canada 06/2014
- RTLS and EHR Enabled Modeling for Workflow and Operational Performance in the ED
- College of Engineering Research Symposium**, University Park, Pennsylvania 04/2014
- Patient Flow in the Emergency Department: A Classification and Analysis of Admission Process Policies (*Best Paper Award*)
- Winter Simulation Conference PhD Colloquium**, Washington, D.C. 12/2013
- A System Dynamics Approach to Support Prospective Planning of Interventions to Improve Chronic Kidney Disease Care
- CHOT-NSF Workshop**, Boston, Massachusetts 10/2013
- ED Flow Optimization of Throughput, Non-Emergent Re-routing, and Observation Units: Data-Driven Benchmarks on Advanced Models of Practices
- INFORMS Healthcare**, Chicago, Illinois 06/2013
- Leveraging the Admission Process Policy to Improve Patient Flow and Quality of Care in the ED
- CIHDS workshop**, University Park, Pennsylvania 04/2013
- Care Coordination and Ambulatory Care Management for Primary Care Practice
- INFORMS**, Phoenix, Arizona 10/2012
- A Simulation Study of Patient Flow: The Admission Process from the Emergency Department to Internal Medicine
- CHOT-NSF Workshop**, Hershey, Pennsylvania 09/2012
- Data Visualization Tools for Primary Care Visits
- CHOT-NSF Workshop**, Atlanta, Georgia 09/2009
- Reducing Medication Errors

PROFESSIONAL ACTIVITIES

Journal Review

- Health Care Management Science, IIE Transactions on Healthcare Systems Engineering, Health Systems, Operations Research for Health Care, International Transactions in Operational Research, Engineering Management Journal, Logistics, Health Policy, Medical Care, Public Health, PLOS ONE, Journal of Rural Health

Member

- INFORMS: Simulation, Health Application, Manufacturing and Service Operations Management Society
- American Public Health Association
- American Diabetes Association