# SHAN LIU
*Curriculum Vitae*

Industrial and Systems Engineering
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## EDUCATIONAL HISTORY

**Stanford University**, Stanford, CA
Ph.D., Management Science & Engineering
June 2013
"Optimizing Hepatitis C Treatment Decisions in an Era of Rapid Technological Advances: Models and Insights." Doctoral dissertation. Advisors: Jeremy Goldhaber-Fiebert and Margaret Brandeau

**MIT**, Boston, MA
S.M., Technology and Policy
May 2008
"Process Based Cost Modeling of Emerging Optoelectronic Interconnects: Implications for Material Platform Choice." Master's thesis. Advisor: Dr. Randolph E. Kirchain, Jr.

**University of Texas-Austin**, Austin, TX
B.S., Electrical Engineering
May 2006

## EMPLOYMENT HISTORY

University of Washington
Seattle, WA, USA
Associate Professor, Industrial & Systems Engineering, 2019-present
Assistant Professor, Industrial & Systems Engineering, 2013-2019

Stanford University, Center for Primary Care and Outcomes Research
Stanford, CA, USA
Graduate Research Fellow, 2009-2013

Veteran Affairs Palo Alto Health Care System
Palo Alto, CA, USA
Medical Decision Model Analyst II, summer 2011 and 2013

United Nations Industrial Development Organization
Beijing, China
Research Fellow, summer 2008

MIT Microphotonics Center
Cambridge, MA, USA
Graduate Research Fellow, 2006-2008

HP Labs

Beijing, China
Intern, summer 2007

Cable Television Laboratories, Inc.
Boulder, CO, USA
Intern, summer 2004 and 2005

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### AWARDS AND HONORS

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Lee B. Lusted Prize Finalist, 2011 & 2013, Society for Medical Decision Making
Stanford Graduate Fellowship, 2008-2011, Stanford University
MIT Far East Graduate Fellowship, 2006, MIT
University of Texas Distinguished College Scholar, 2006, UT-Austin
T.C. & Grace T. Ho Endowed Scholarship, 2005–2006, UT-Austin

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### AFFILIATIONS AND OTHER APPOINTMENTS

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Adjunct Assistant Professor, Radiology, University of Washington, 2014-present

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### PUBLICATIONS

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**Refereed Archival Journal Publications**
Google Scholar (08/28/23): total citation: 1182; h-index: 16; i10-index: 21

J1. Lee S[1], Zabinsky ZB, Wasserheit J, Ross J, Chen S, **Liu S**. COVID-19 Transition to Endemicity: Impact of vaccination and non-pharmaceutical interventions with possible viral evolution using an agent-based simulation. Conditional accepted at *AJPM Focus*, Aug 2023. An early version of this paper is on medRxiv, June 4, 2022, https://www.medrxiv.org/content/10.1101/2022.06.03.22275834v1

J2. **Liu S**, Cao, K, Garner A, Punjabi N, Pietzsch J. Cost-effectiveness of neuromuscular electrical stimulation for the treatment of mild obstructive sleep apnea: an exploratory analysis. In press at *International Journal of Technology Assessment in Health Care*. 2023 Jun 6;39(1):e32.

J3. Gong J[1] and **Liu S**. Partially observable collaborative model for optimizing personalized treatment selection. In press at *European Journal of Operational Research (EJOR)*, Mar 2023.

J4. Dolan S[1], Wittenauer R, Njoroge A, Onyango P, Owiso G, Shearer J, Lober B, **Liu S**, Puttkammer N, Rabinowitz P. Time utilization among immunization clinics using an electronic immunization registry (part 2): A time and motion study of modified user workflows. *Journal of Medical Internet Research Formative Research* 2023;7;e39777.

J5. Dolan S[1], Wittenauer R, Shearer J, Njoroge A, Onyango P, Owiso G, Lober B, **Liu S**, Puttkammer N, Rabinowitz P. Integration of a digital health intervention into immunization clinic workflows in Kenya: qualitative, realist evaluation of technology usability. *Journal of Medical Internet Research Formative Research* 2023;7;e39775.

J6. Ho T[1], Zabinsky ZB, Fishman PA, **Liu S**. Prevention of seasonal influenza outbreak via healthcare insurance. In press at *IIE Transactions on Healthcare Systems Engineering*, Nov 2022.

J7. Dolan S[1], Burstein R, Shearer J, Lymo DC, Lyons H, Carnahan E, Beylerian E, Thompson J, Puttkammer N, Lober B, **Liu S**, Gilbert SS, Werner L, Ryman TK. Changes in on-time vaccination following the introduction of an electronic immunization registry, Tanzania 2016-2018: interrupted time-series analysis. *BMC Health Services Research* 2022(1):1175.

J8. Siriruchatanon M[1], **Liu S**, Carlucci JG, Enns EA, Duarte H. 2021. Addressing pediatric

HIV pretreatment drug resistance and virologic failure in sub-Saharan Africa: A cost-effectiveness analysis of diagnostic-based strategies in children $\geqslant$ 3 years old. *Diagnostics* 11(3): 567.

J9.   Lee S[1], Zabinsky ZB, Wasserheit J, Kofsky SM, **Liu S**. 2021. COVID-19 pandemic response simulation in a large city: impact of non-pharmaceutical interventions on reopening society. *MDM* 41(4): 419-429.

J10.  Pietzsch JB, Richter AK, Randerath W, Steffen A, **Liu S**, Geisler BP, Wasem J, Biermann-Stallwitz J. 2019. Clinical and economic benefits of upper airway stimulation for obstructive sleep apnea in a European setting. *Respiration* 98:38-47.

J11.  Ho T[1], **Liu S**, Zabinsky ZB. 2019. A branch-and-bound approach for dynamic resource allocation in population disease management. *OR Letters* 47(6):579-586.

J12.  Wagner AD, Gimbel S, Asbjornsdottir KH, Cherutich P, Coutinho J, Crocker J, Cruz E, Cuembelo F, Cumbe V, Eastment M, Einberg J, Floriano F, Gaitho D, Guthrie BL, John-Stewart G, Kral AH, Lambdin BH, **Liu S**, Maina M, Manaca N, Matsuzaki M, Mattox L, Mburu N, McClelland RS, Micek MA, Mocumbi AO, Muanido A, Nduati R, Njuguna IN, Oluoch G, Oyiengo L, Ronen K, Soi C, Wagenaar BH, Wanje G, Wenger LD, Sherr K. 2019. Cascade analysis: an adaptable implementation strategy across HIV and non-HIV platforms. *Journal of Acquired Immune Deficiency Syndromes (JAIDS)* 82: S322-S331.

J13.  Gong J[1], Simon GE, **Liu S**. 2019. Machine learning discovery of longitudinal patterns of depression and suicidal ideation. *PLOS ONE* 14(9): e0222665.

J14.  Wagner AD, Crocker J, **Liu S**, Cherutich P, Gimbel S, Fernandes Q, Mugambi M, Ásbjörnsdóttir K, Masyuko S, Wagenaar BH, Nduati R, Sherr K. 2019. Making smarter decisions faster: systems engineering to improve the global public health response to HIV. *Current HIV/AIDS Reports* 16:279.

J15.  Faucett SC, Geisler BP, Chahla J, Krych AJ, Kurzweil PR, Garner AM, **Liu S**, LaPrade RF, Pietzsch JB. 2019. Meniscus Root Repair vs Meniscectomy or Nonoperative Management to Prevent Knee Osteoarthritis after Medial Meniscus Root Tears: Clinical and Economic Effectiveness. *The American Journal of Sports Medicine* 47(3): 762–769.

J16.  **Liu S,** Wang S, Chaovalitwongse WA, Bowen SR. 2019. Cost-effectiveness of patient-specific motion management strategy in lung cancer radiation therapy planning. *Engineering Economist* 64(4): 368-386.

J17.  Lin Y[1], Huang S, Simon GE, **Liu S**. 2019. Cost-effectiveness analysis of prognostic-based depression monitoring. *IIE Transactions on Healthcare Systems Engineering* 9(1):41-54.

J18.  Ho T[1], **Liu S,** Zabinsky ZB. 2019 (epub 2018). A multi-fidelity rollout algorithm for dynamic resource allocation in population disease management. *Healthcare Management Science* 22(4):727-755.

J19.  Cipriano LE, Goldhaber-Fiebert JD**, Liu S**, Weber TA (*alphabetical author order*). 2018. Optimal information collection policies in a Markov Decision Process framework. *MDM* 38(7):797-809.

J20.  Cipriano LE, **Liu S**, Shahzada KS, Holodniy M, Goldhaber-Fiebert JD. 2018. Economically efficient hepatitis C virus treatment prioritization improves health outcomes. *MDM* 38(7):849-865

J21.  Lin Y[1], **Liu S**, Huang S. 2018. Selective sensing of a heterogeneous population of units with dynamic health conditions. *IISE Transactions* 50 (12):1076-1088.

J22.  Lin Y[1], Huang S, Simon GE, and **Liu S**. 2018. Data-based decision rules to personalize depression follow-up. *Scientific Reports* 8(1): 5064.

J23.  Lin Y[1], Liu K, Byon E, Qian X, **Liu S**, Huang S. 2018 (epub 2017). A collaborative learning framework for estimating many individualized regression models in a heterogeneous population. *IEEE Transactions on Reliability* 67(1):328-341.

J24.  Feller-Kopman DJ, **Liu S**, Geisler B, Decamp M, Pietzsch JB. 2017. Cost-effectiveness of a bronchial genomic classifier for the diagnostic evaluation of lung cancer. *Journal of Thoracic*

*Oncology* 12(8):1223-1232.

J25. Li Y[1], Huang H[1], Zabinsky ZB, **Liu S**. 2017. Optimizing implementation of hepatitis C birth-cohort screening and treatment strategies: model-based projections. *MDM Policy & Practice* 2(1).

J26. Lin Y[1], Huang S, Simon GE, **Liu S**. 2016. Analysis of depression trajectory patterns using collaborative learning. *Mathematical Biosciences* 282(2016):191-203.

J27. **Liu S**, Barnett PG, Holodniy M, Lo JJ, Joyce VR, Gidwani R, Asch SM, Owens DK, Goldhaber-Fiebert JD. 2016. Cost-effectiveness of treatments for genotype 1 hepatitis C virus infection in non-VA and VA populations. *MDM Policy & Practice* 1(1).

J28. Feeley BT, **Liu S**, Garner AM, Zhang AL, Pietzsch JB. 2016. The cost-effectiveness of meniscal repair versus partial meniscectomy: a model-based projection. *The Knee* 23(4):674-80.

J29. Noblett KL, Dmochowski RR, Vasavada SP, Garner AM, **Liu S**, Pietzsch JB. 2017 (epub 2016). Cost profiles and budget impact of rechargeable vs. non-rechargeable sacral neuromodulation devices in the treatment of overactive bladder syndrome. *Neurourology and Urodynamics* 36(3):727-733.

J30. **Liu S**, Brandeau M, Goldhaber-Fiebert JD. 2017 (epub 2015). Optimizing patient treatment decisions in an era of rapid technological advances. *Healthcare Management Science* 20(1):16-32.

J31. Pietzsch JB, **Liu S**, Kezirian E, Strollo P. 2015. Long-term cost-effectiveness of upper airway stimulation for the treatment of obstructive sleep apnea: a model-based projection based on the STAR trial. *SLEEP* 38(5):735–744.

J32. **Liu S**, Watcha D, Holodniy H, Goldhaber-Fiebert JD. 2014. Sofosbuvir-based treatment regimens for chronic, genotype 1 hepatitis C infections in US incarcerated populations: a cost-effectiveness analysis. *Annals of Internal Medicine* 161:546-553.

J33. **Liu S**, Cipriano LE, Holodniy M, and Goldhaber-Fiebert JD. 2013. Cost-effectiveness analysis of risk-factor guided and birth-cohort screening for chronic hepatitis C infection in the United States. *PLOS ONE* 8(3): e58975. doi:10.1371/journal.pone.0058975

J34. **Liu S**, Cipriano LE, Holodniy M, Owens DK, and Goldhaber-Fiebert JD. 2012. New protease inhibitors for the treatment of chronic hepatitis C: A cost-effectiveness analysis. *Annals of Internal Medicine* 156: 279-290.

J35. **Liu S**, Schwarzinger M, Carrat F, and Goldhaber-Fiebert JD. 2011. Cost effectiveness of fibrosis assessment prior to treatment for chronic hepatitis C patients. *PLOS ONE* 6(12): e26783. doi:10.1371/journal.pone.0026783

J36. Fuchs E, Kirchain R, and **Liu S** (*alphabetical author order*). 2011. The future of silicon photonics – not so fast? Insights from 100G ethernet LAN transceivers. *Journal of Lightwave Technology* 29(15): 2319-2326.

**Papers Submitted for Archival Journals**

J37. Wang Y[1], Kingwara L, Wagner A, Yongo N, Hassan S, **Liu S**, Oyaro P, Patel R. Optimizing HIV drug resistance testing laboratory networks in Kenya: insights from systems engineering modeling.

J38. Casas FR, Armitage J, Yuan J, **Liu S**, Mokdad AH. Creating the vaccine improvement potential index: using key factors to measure the capacity to improve and sustain high-vaccination coverage among 200 countries from 1990 to 2019.

J39. Wang Y[1], Wagner A, **Liu S**, Kingwara L, Oyaro P, Brown E, Karauki E, Yongo N, Patel R. Using queueing models as a decision support tool for policymakers to allocate point-of-care viral load testing machines in Kenya. Minor revision at *Health Policy and Planning,* July 2023.

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[1] Published with graduate students

J40. Palmer AZ, Zabinsky ZB, **Liu S**. Optimal control of COVID-19 infection rate considering social costs. Published on arxiv, July 27 2020 (updated Feb 12 2021). https://arxiv.org/pdf/2007.13811.pdf.

J41. Sun X[1], Wissow LS, **Liu S**. Cost-effectiveness analysis of adaptive monitoring technology: a case study on chronic depression treatment.

J42. Siriruchatanon M[1], **Liu S**. Personalized treatment selection algorithm in chronic depression: a comparison of model-based and model-free approaches.

J43. Sun X[1], **Liu S**, Mock C, Vavilala M, Bulger E, Maine R. Unsupervised clustering analysis of trauma/non-trauma centers using non-surgical care and surgical care features.

## Conference Proceedings and Other Non-Journal Articles
### *Fully refereed publications*

C1. Huang H[1], Zabinsky ZB, Li Y[1], **Liu S.** Analyzing hepatitis C screening and treatment strategies using probabilistic branch and bound. *Proceedings of the 2016 Winter Simulation Conference*. TMK Roeder, PI Frazier, R Szechtman, and E Zhou, eds Washington D.C., 2016.

C2. **Liu S**, Cipriano LE, and Goldhaber-Fiebert JD. Combining statistical analysis and Markov models with public health data to infer age-specific background mortality rates for hepatitis C infection in the U.S. (Extended Abstract). *Lecture Note in Computer Science Series*, Springer. International Conference on Smart Health, LNCS 8549 proceedings. 2014.

C3. Goldhaber-Fiebert JD, Barnett PG, Dally S, Asch SM, **Liu S**, Cipriano L, Owens DK, Miake-Lye IM, Beroes JM, Shekelle PG. Assessment of alternative treatment strategies for chronic genotype 1 hepatitis C. VA Evidence-Based Synthesis Program Project 05-226, 2013. http://www.hsrd.research.va.gov/publications/esp/hcv.cfm#.UXOBOqK86So

### *Refereed by abstract only*

C4. Lee S[1], **Liu S,** Zabinsky ZB. "Optimal vaccination campaigns under disease transmission and opinion propagation," 44th Society for Medical Decision Making (SMDM) Annual Meeting, Seattle, 2022.

C5. Sun X[1], **Liu S,** Mock C, Vavilala M, Bulger E, Maine R. "Trauma/non-trauma centers unsupervised clustering analysis using non-surgical and surgical care features," 44th SMDM Annual Meeting, Seattle, 2022.

C6. Wang Y[1], Wagner A, Patel R, Kingwara L, **Liu S**. "Optimizing HIV viral load testing systems in Kenya based on queuing and optimization model," 44th SMDM Annual Meeting, Seattle, 2022.

C7. Sun X[1], **Liu S,** Bulger E, Vavilala M, Mock C, Maine R. "Operative trauma case mix does not distinguish trauma centers by verification level." The American Association for the surgery of trauma (AAST) conference, 2022.

C8. Sun X[1], **Liu S,** Bulger E, Vavilala M, Mock C, Maine R. "Patient Characteristic distinguish trauma centers more than operative trauma care." AAST conference, 2022.

C9. Lee S[1], Zabinsky ZB, **Liu S**. "Impact of vaccination and relaxation of non-pharmaceutical interventions on controlling COVID-19 using agent-based simulation." 43rd SMDM Annual Meeting, virtual, 2021. Lee S is a ***Lee B. Lusted Prize Finalist***.

C10. Sun X[1], **Liu S,** Bulger E, Vavilala M, Mock C, Maine R. "Unsupervised clustering analysis of trauma centers using orthopedic care features." 43rd SMDM Annual Meeting, virtual, 2021.

C11. Lee S[1], Zabinsky ZB, **Liu S**. "Optimizing COVID-19 vaccine prioritization policies with non-pharmaceutical interventions using agent-based simulation." The Models of Infectious Disease Agent Study (MIDAS) Network Annual Meeting, virtual, May 2021.

C12. Maine R, Sun X[1], Bulger E, Vavilala M, Mock C, **Liu S**. "Cluster analysis of hospitals by features of orthopedic trauma and non-trauma care in a mature, inclusive trauma system." The American Association for the surgery of trauma (AAST) conference, 2021.

C13. Siriruchatanon M[1], **Liu S**, Duarte H. "Cost-effectiveness analysis of pediatric ART policy options in the presence of pretreatment NNRTI drug resistance in Kenya." 42nd Society for Medical Decision Making (SMDM) Annual Meeting, virtual, 2020. Siriruchatanon M is a ***Lee B. Lusted Prize Finalist***.

C14. Lee S[1], Zabinsky ZB, Kofsky S, **Liu S**. "Agent-based simulation study of reopening scenarios for COVID-19 in a large urban area." 42nd SMDM Annual Meeting, virtual, 2020. Lee S is a ***Lee B. Lusted Prize Finalist***.

C15. Sun X[1], **Liu S**. "A decision-analytic framework to evaluate the cost-effectiveness of adaptive monitoring technology: the case of chronic depression." 42nd SMDM Annual Meeting, virtual, 2020.

C16. Siriruchatanon M[1], **Liu S**, Duarte H. "Cost-effectiveness analysis of pre-ART drug resistance testing for HIV-infected children in Kenya." 41st SMDM Annual Meeting, Portland, OR, 2019.

C17. Siriruchatanon M[1], **Liu S**. "Personalized adaptive treatment selection for chronic depression." 41st SMDM Annual Meeting, Portland, OR, 2019.

C18. Lin Y[1], Huang S, **Liu S**. "Designing prognostic-based depression monitoring strategies in cost-effective ways." 40th SMDM Annual Meeting, Montreal, Quebec, Canada, 2018.

C19. Ho T[1], **Liu S**, Zabinsky ZB. "Dynamic resource allocation algorithm for population disease management." 40th SMDM Annual Meeting, Montreal, Quebec, Canada, 2018.

C20. Gong J[1], Simon GE, **Liu S**. "Machine learning discovery of longitudinal patterns of depression and suicidal ideation." 40th SMDM Annual Meeting, Montreal, Quebec, Canada, 2018. Gong J is a ***Lee B. Lusted Prize Finalist***.

C21. Gong J[1] and **Liu S**. "Partially observable collaborative model for optimizing personalized treatment selection." 40th SMDM Annual Meeting, Montreal, Quebec, Canada, 2018.

C22. Lin Y[1], **Liu S**, Huang S. "Selective sensing of a heterogeneous population of units with dynamic health." *IISE Annual Conference & Expo 2017*, Pittsburg, PA, 2017. ***Quality Control and Reliability Best Student Paper Competition finalist.***

C23. Cipriano LE, **Liu S**, Shahzada KS, Goldhaber-Fiebert JD. "Patient prioritization in disease-specific-treatment budgets: the case of chronic hepatitis c treatment." 38th SMDM Annual Meeting, Vancouver, BC, Canada, 2016.

C24. Lin Y[1], Huang S, **Liu S**. "Adaptive monitoring of depression patient population: a selective sensing approach." 38th SMDM Annual Meeting, Vancouver, BC, Canada, 2016. Lin Y is the ***winner of the Lee B. Lusted student prize*** for outstanding presentations of research in quantitative methods and theoretical developments.

C25. Lin Y[1], Huang S, **Liu S**. "A longitudinal pattern based prognostic model for depression monitoring via rule-based method." 38th SMDM Annual Meeting, Vancouver, BC, Canada, 2016. Lin Y is a ***Lee B. Lusted Prize Finalist***.

C26. Huang J[1], **Liu S**. "Analyzing population progression dynamics of depression from electronic health record using a family of Markov models." 38th SMDM Annual Meeting, Vancouver, BC, Canada, 2016.

C27. Sheng W[1], **Liu S**. "Depression management using electronic health record: personalized progression prediction and monitoring." 38th SMDM Annual Meeting, Vancouver, BC, Canada, 2016.

C28. Feller-Kopman DJ, **Liu S**, Garner AM, Decamp M, Pietzsch JB. "Cost-effectiveness of the Percepta bronchial genomic classifier for the diagnostic evaluation of lung cancer: an analytical framework based on the AEGIS studies." American Thoracic Society International Conference, San Francisco, California, 2016.

C29. Gregersen K[1], Johnson P, Spector J, **Liu S**, Veenstra D. "Whole body vibration exposures: using low back and neck claims to assess the cost and health effects of different bus driver seats." Proceedings of the Eighth International Scientific Conference on Prevention of Work-Related Musculoskeletal Disorders, PREMUS: Toronto, CA, 2016.

C30. Lin Y[1], Huang S, **Liu S**. "Analysis of depression trajectory patterns using collaborative learning." 37th SMDM Annual Meeting, St. Louis, Missouri, 2015.

C31. Noblett KL, Dmochowski RR, Vasavada SP, Garner AM, **Liu S**, Pietzsch JB. "Cost profile of rechargeable vs. non-rechargeable neuromodulation devices in the treatment of overactive bladder syndrome." North American Neuromodulation Society (NANS) annual meeting, Las Vegas, Nevada, 2015.

C32. Feeley BT, **Liu S**, Garner AM, Zhang AL, Pietzsch JB. "The cost-effectiveness of meniscal repair versus partial meniscectomy: a model-based projection of clinical outcomes and costs in the United States healthcare system." International Society for Pharmacoeconomics and Outcomes Research (ISPOR) 20th Annual International Meeting, Philadelphia, Pennsylvania, 2015.

C33. **Liu S**, Watcha D, Holodniy H, Goldhaber-Fiebert JD. "Cost-effectiveness of hepatitis C treatment delivery in U.S. incarcerated populations."
   a. 36th SMDM Annual Meeting, Miami, Florida, 2014.
   b. SMDM 15th Biennial European Meeting, Antwerp, Belgium, 2014.

C34. Pietzsch JB, **Liu S**, Kezirian EJ, Strollo PJ. "Long-term cost-effectiveness of upper airway stimulation for the treatment of obstructive sleep apnea - a model-based projection based on the STAR trial." 28th Annual Meeting of the Associated Professional Sleep Societies, Minneapolis, Minnesota, 2014.

C35. Cipriano LC, **Liu S**, Goldhaber-Fiebert J. "Optimal information collection policies in a Markov decision process framework." 35th SMDM Annual Meeting, Baltimore, Maryland, 2013.

C36. **Liu S**, Brandeau M, Goldhaber-Fiebert J. "Optimizing patient treatment decisions in an era of rapid technological advances." 35th SMDM Annual Meeting, Baltimore, Maryland, 2013. Liu S is a ***Lee B. Lusted Prize Finalist***.

C37. **Liu S**, Cipriano LE, Goldhaber-Fiebert JD. "Combining regression analyses and Markov models to infer age-specific mortality rates by hepatitis C infection and risk factor status." 34th SMDM Annual Meeting, Phoenix, Arizona, 2012.

C38. **Liu S**, Cipriano LE, Holodniy M, Goldhaber-Fiebert JD. "Cost-effectiveness of risk-factor guided and universal screening for chronic hepatitis C." 33rd SMDM Annual Meeting, Chicago, Illinois, 2011. Liu S is a ***Lee B. Lusted Prize Finalist***.

C39. **Liu S**, Cipriano LE, Goldhaber-Fiebert JD. "With more effective therapies, should we screen for chronic hepatitis C in the US?" 33rd SMDM Annual Meeting, Chicago, Illinois, 2011.

C40. **Liu S**, Schwarzinger M, Carrat F, Goldhaber-Fiebert JD. "Cost-effective alternatives to liver biopsy in the management of chronic hepatitis C." 32nd SMDM Annual Meeting, Toronto, Canada, 2010.

**Refereed Book Chapter**

**Liu S**, "Chapter 6. Modeling chronic hepatitis C during rapid therapeutic advance: cost-effective screening, monitoring and treatment strategies." *Decision Analytics and Optimization in Disease Prevention and Treatment*. Editors: Shengfan Zhang and Nan Kong. Wiley Series in Operations Research and Management Science. ISBN: 978-1-118-96012-7, Mar 2018.

**Liu S** and Huang S, "How AI can help Depression Treatment: Designing Patient-Specific Adaptive Interventions." *Artificial Intelligence for Healthcare: Interdisciplinary Partnerships for Analytics-driven Improvements in a Post-COVID World*. Editors: Sze-Chuan Suen, David Scheinker, and Eva Enns. Cambridge University Press. ISBN-13: 9781108836739, May 2022.

**Technical Reports**

1. Casas F, Armitage J, Yuan J, Nondin C, **Liu S**, Mokdad A. Targeting Key Factors to Realizing Improved Global Vaccination Coverage. UW Population Health Initiative. Feb

2023.

2. Lee S[1], Zabinsky ZB, Kofsky SM, **Liu S**. COVID-19 pandemic response simulation: impact of non-pharmaceutical interventions on ending lockdowns. Published on Medrxiv, May 4 2020. https://www.medrxiv.org/content/10.1101/2020.04.28.20080838v1

3. Oxygen as a utility: an innovative model for increasing access to oxygen in low-and middle-income countries. <u>PATH</u>, 2019. (Contributed technical content in the report)

4. Goldhaber-Fiebert JD, Cipriano LE, **Liu S**. How best to offer treatment to all eligible patients with chronic hepatitis C viral infections in the VA health system within the next 3 years. <u>Veterans Affairs.</u> 2015.

5. **Liu S**. Chronic hepatitis C care: review of treatment advances, quality of life, and cost. Report, health economics resource center, <u>Veterans Affairs Palo Alto Health Care System</u>, Menlo Park, CA. 2011.

6. Goldhaber-Fiebert JD, **Liu S**, Owens D, and Barnett P. Preliminary VHA analysis: budget impact and health impact of chronic genotype 1 HCV treatment over 5 years and 10 years. White paper, <u>Veterans Health Administration</u>. 2011.

7. **Liu S**. HCFCs phase-out impact on climate change, assessment of possible scenarios in China's room air conditioning sector. Report, <u>United Nations Industrial Development Organization</u>, Beijing, China. 2008.

8. **Liu S** and Fuchs E. Envisioning the future of optoelectronic interconnects: production economics of InP and Si platforms for 100G Ethernet LAN transceivers. White paper, <u>MIT Microphotonics Consortium</u>. 2007.

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## OTHER SCHOLARLY ACTIVITY

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**Invited lectures and seminars.**

1. Presenter at the Northwestern University's Center for Engineering and Health seminar series, *Data Analytic Models and Insights in Adaptive Treatment of Chronic Depression*, May 8, 2023.

2. Presenter at the Seattle Children's Hospital Data Science League Meeting on data analytic models and insights in adaptive treatment of chronic depression, June 30, 2022.

3. Panelist in the IISE Annual Conference COVID-19 panel, virtual, May 25, 2021.

4. University of Arkansas Honors College, Vaccine course, invited lecturer. May 19, 2021.

5. Panelist in the SMDM COVID-19 Symposium, virtual, Apr 28, 2021.

6. Presenter at the Washington Department of Health COVID-19 Modeling Meeting, *Optimizing Societal Reopening Plans and Vaccine Distribution Strategies*, virtual, Dec 2, 2020.

7. Panelist in the COVID-19 Symposium at Hopkins: Navigating the pandemic when effective vaccines are in the policy toolbox, Sponsored by Johns Hopkins University (JHU), *Optimizing societal reopening plans and vaccine distribution strategies under COVID-19 using simulation optimization tools*, virtual, Nov 20, 2020.

8. Panelist in the Keynote Symposium on COVID-19 Decision Modeling, 42nd SMDM Annual Meeting, virtual, Oct 6, 2020.

9. Presenter at the UW Department of Statistics seminar, *Optimizing Healthcare Interventions and Incentives: Models and Insights for Depression and Influenza*, Feb 14 2020.

10. Presenter at the UW Department of Psychiatry and Behavioral Sciences, Population Health Division seminar, *Prognostic-Based Depression Monitoring: Model and Insight*, Apr 3 2019.

11. Presenter at the University of British Columbia, Sauder School of Business, *Optimizing Dynamic Resource Allocation: Models and Insights for Chronic Disease Care*, Mar 21 2018.

12. Presenter at the UW School of Public Health, Program in Health Economics and Outcomes Methodology seminar, *Optimizing Dynamic Decision-Making: Models and Insights for Chronic Disease Care*, Feb 21 2018.

13. Presenter at the University of Southern California, Department of Industrial & Systems Engineering, Epstein Seminar Series, *Operations Research in Medical Decision Making: Models and Insights for Depression Care Management*, Sept 12 2017.
14. NSF-IMA Industrial Mathematics Workshop, University of Minnesota, July 24-26 2017.
15. Presenter at the UW Radiation Oncology department seminar, *Operations Research in Medical Decision Making: Insights for Chronic Disease Management*, Jan 29 2016.
16. UW Department of Global Health and USAID, guest lecture in Intensive Course on Implementation Science for Family planning and Reproductive Health, *Operations Research: Contributions from Industrial Engineering*, Aug 8 2014, Aug 6 2015, and Sept 14 2016.
17. Presenter at the HCV Project ECHO Western States meeting*, Healthcare Modeling and Decision Making: Models and Insights for Chronic Hepatitis C*, Nov 17 2014.
18. Presenter at the Harborview Injury Prevention & Research Center seminar, *Healthcare Modeling and Decision Making: Models and Insights for Chronic Hepatitis C,* Mar 25 2015.
19. UW Fundamentals of Implementation Science in Global Health (GH541), invited lecturer, *Simulation and Optimization in Healthcare Modeling*, May 22 2015, May 20 2016, May 19 2017, Aug 30 2018, Apr 23 2020, Apr 27 2021, Apr 26 2022, May 2 2023, Aug 17 2023.

**Presentations given at conferences (presenters in bold)**
P1. **Lee S**[1], Liu S, Zabinsky Z. "Advancing simulation methodology for identifying optimal healthcare policy during COVID-19 pandemic." Institute for Disease Modeling (IDM) Annual Symposium, Seattle, May 2023.
P2. Liu S, Cao KN, Garner AM, Weber SA, Punjabi NM, **Pietzsch JB**. "Cost-Effectiveness of Neuromuscular Electrical Stimulation for the Treatment of Mild Obstructive Sleep Apnea: An Exploratory Analysis." ISPOR Europe, Vienna, Austria. Nov 2022.
P3. **Sun X**, Liu S, Mock C, Vavilala M, Bulger E, Maine R. "Unsupervised clustering analysis using non-surgical care and surgical care features for trauma/non-trauma centers." INFORMS Annual Conference, Indianapolis, Indiana. Oct 2022.
P4. **Lee S**, Liu S, Zabinsky ZB. "Optimal vaccination campaigns under opinion and physical networks." INFORMS Annual Conference, Indianapolis, Indiana. Oct 2022.
P5. **Wang Y**, Wagner A, Petal R, Liu S. "Queueing-location-allocation model for HIV viral load testing in Kenya." INFORMS Annual Conference, Indianapolis, Indiana. Oct 2022.
P6. **Lee S**[1], Liu S**,** Zabinsky ZB. "Optimal vaccination campaigns under disease transmission and opinion propagation," 44th SMDM Annual Meeting, Seattle, 2022.
P7. **Sun X**[1], Liu S, Mock C, Vavilala M, Bulger E, Maine R. "Trauma/non-trauma centers unsupervised clustering analysis using non-surgical and surgical care features," 44th SMDM Annual Meeting, Seattle, 2022.
P8. **Wang Y**[1], Wagner A, Patel R, Kingwara L, Liu S. "Optimizing HIV viral load testing systems in Kenya based on queuing and optimization model," 44th SMDM Annual Meeting, Seattle, 2022.
P9. **Lee S**, Zabinsky ZB, Liu S. "Impact of vaccination and relaxation of non-pharmaceutical interventions on controlling COVID-19 using agent-based simulation." 43rd SMDM Annual Meeting, virtual, 2021. Lee S is a ***Lee B. Lusted Prize Finalist***.
P10. **Sun X**, Liu S, Bulger E, Vavilala M, Mock C, Maine R. "Unsupervised clustering analysis of trauma centers using orthopedic care features." 43rd SMDM Annual Meeting, virtual, 2021.
P11. **Siriruchatanon M**, Liu S. "Patient preference solicitation using inverse reinforcement learning." INFORMS Annual Conference, Anaheim, California. 2021.
P12. **Lee S**, Zabinsky ZB, Liu S. "Using agent-based simulation to optimize vaccination schedules and non-pharmaceutical interventions to control COVID-19 outbreaks." INFORMS Annual Conference, Anaheim, California. 2021.

P13. Maine R**, Sun X**, Liu S. "Unsupervised clustering analysis using orthopedic care features for hospital in an inclusive trauma system." INFORMS Annual Conference, Anaheim, California. 2021.

P14. **Liu S**. Heath Application Society COVID-19 Research Networking Session, "COVID-19 research – epidemiological models" moderator. INFORMS Healthcare Conference, virtual, July 2021.

P15. **Zabinsky ZB**, Palmer AZ, Liu S. "Optimal control of COVID-19 via non-pharmaceutical interventions and vaccination." INFORMS Healthcare Conference, virtual, July 2021.

P16. **Lee S**, Zabinsky ZB, Liu S. "Using agent-based simulation to analyze how to achieve herd immunity to SARS-CoV-2 with vaccination and non-pharmaceutical interventions." INFORMS Healthcare Conference, virtual, July 2021.

P17. **Sun X**, Liu S. "Cost-effectiveness analysis of remote monitoring technology for chronic depression patients." INFORMS Healthcare Conference, virtual, July 2021.

P18. **Siriruchatanon M**, Liu S. "Personalized treatment selection in chronic depression via model-based and model-free approaches." INFORMS Healthcare Conference, virtual, July 2021.

P19. **Lee S**, Zabinsky ZB, Liu S. "Optimizing COVID-19 vaccine prioritization policies with non-pharmaceutical interventions using agent-based simulation." MIDAS 2021 Network Modeling, Models of Infectious Disease Agent Study (MIDAS), virtual conference May 2021.

P20. **Greene C**, Zabinsky ZB, Lee S, Liu S. "A simple SIR model to prioritize limited COVID-19 vaccines to subpopulations with health and exposure risks." IISE Annual Conference & Expo 2021, May 2021.

P21. **Lee S**, Zabinsky ZB, Kofsky S, Liu S. "Impact of Public Health Interventions on Measles Outbreak in a Low Vaccination Area." INFORMS Annual Conference, virtual, 2020.

P22. **Lee S**, Zabinsky ZB, Kofsky S, Liu S. "Agent-based Simulation of COVID-19 Society Reopening Plans in an Urban Setting." INFORMS Annual Conference, virtual, 2020.

P23. **Sun X**, Liu S. "Cost-effectiveness analysis of adaptive monitoring technology: a case study on chronic depression treatment." INFORMS Annual Conference, virtual, 2020.

P24. **Siriruchatanon M**, Liu S, Duarte H. "Cost-effectiveness analysis of dolutegravir treatment for HIV-infected children in Kenya." INFORMS Annual Conference, virtual, 2020.

P25. **Siriruchatanon M**, Liu S. "Reinforcement learning models for personalized treatment selection in chronic depression." INFORMS Annual Conference, virtual, 2020.

P26. **Siriruchatanon M**, Liu S, Duarte H. "Cost-effectiveness analysis of pediatric ART policy options in the presence of pretreatment NNRTI drug resistance in Kenya." 42nd Society for Medical Decision Making (SMDM) Annual Meeting, virtual, 2020. Siriruchatanon M is a *Lee B. Lusted Prize Finalist*.

P27. **Lee S**, Zabinsky ZB, Kofsky S, Liu S. "Agent-based simulation study of reopening scenarios for COVID-19 in a large urban area." 42nd SMDM Annual Meeting, virtual, 2020. Lee S is a *Lee B. Lusted Prize Finalist*.

P28. **Sun X**, Liu S. "A decision-analytic framework to evaluate the cost-effectiveness of adaptive monitoring technology: the case of chronic depression." 42nd SMDM Annual Meeting, virtual, 2020.

P29. **Wagner AD**, Gimbel S, Asbjornsdottir KH, Cherutich P, Coutinho J, Crocker J, Cruz E, Cuembelo F, Cumbe V, Eastment M, Einberg J, Floriano F, Gaitho D, Guthrie BL, John-Stewart G, Kral AH, Lambdin BH, Liu S, Maina M, Manaca N, Matsuzaki M, Mattox L, Mburu N, McClelland RS, Micek MA, Mocumbi AO, Muanido A, Nduati R, Njuguna IN, Oluoch G, Oyiengo L, Ronen K, Soi C, Wagenaar BH, Wanje G, Wenger LD, Sherr K. "Cascade analysis: an adaptable implementation strategy across HIV and non-HIV platforms."12th Conference on the Science of Dissemination & Implementation in Health, Arlington, Virginia. December 2019.

P30. **Siriruchatanon M**, Liu S, Duarte H. "Cost-effectiveness analysis of pre-treatment drug resistance (PDR) testing for HIV+ children in Africa." INFORMS Annual Conference, Seattle, Washington. October 2019.

P31. **Siriruchatanon M**, Liu S. "Personalized treatment for chronic depression with individual treatment effect estimation." INFORMS Annual Conference, Seattle, Washington. October 2019.

P32. Gong J, **Liu S**. "Robust partially observable Markov Decision Process with uncertain parameters." INFORMS Annual Conference, Seattle, Washington. October 2019.

P33. **Siriruchatanon M**, Liu S, Duarte H. "Cost-effectiveness analysis of pre-ART drug resistance testing for HIV-infected children in Kenya." 41st SMDM Annual Meeting, Portland, OR, 2019.

P34. **Siriruchatanon M**, Liu S. "Personalized adaptive treatment selection for chronic depression." 41st SMDM Annual Meeting, Portland, OR, 2019.

P35. Ho T, **Liu S**, Zabinsky ZB. "Branch-and-bound algorithm for dynamic resource allocation in population disease management." INFORMS Healthcare Conference, Boston, Massachusetts. July 2019.

P36. Ho T, Zabinsky ZB, Fishman PA, **Liu S**. "Incentive mechanism for the prevention of seasonal influenza outbreak." INFORMS Healthcare Conference, Boston, Massachusetts. July 2019.

P37. Siriruchatanon M, **Liu S**. "A conceptual decision support tool for personalized treatment selection in chronic depression." INFORMS Healthcare Conference, Boston, Massachusetts. July 2019.

P38. Gong J, **Liu S**. "Optimizing personalized treatment selection for partially observable chronic conditions." INFORMS Healthcare Conference, Boston, Massachusetts. July 2019.

P39. **Gong J**, Liu S. "Robust personalized treatment selection for partially observable chronic conditions." INFORMS Annual Conference, Phoenix, Arizona. November 2018.

P40. **Gong J**, Liu S. "Partially observable collaborative model for optimizing personalized treatment selection." INFORMS Annual Conference, Phoenix, Arizona. November 2018.

P41. **Siriruchatanon M**, Liu S. "Personalized treatment monitoring and switching policies for chronic depression." INFORMS Annual Conference, Phoenix, Arizona. November 2018.

P42. **Ho T**, Zabinsky ZB, Fishman PA, Liu S. "Prevention of seasonal influenza outbreak via healthcare insurance." INFORMS Annual Conference, Phoenix, Arizona. November 2018.

P43. Lin Y, Huang S, **Liu S**. "Designing prognostic-based depression monitoring strategies in cost-effective ways." 40th SMDM Annual Meeting, Montreal, Quebec, Canada, 2018.

P44. Ho T, **Liu S**, Zabinsky ZB. "Dynamic resource allocation algorithm for population disease management." 40th SMDM Annual Meeting, Montreal, Quebec, Canada, 2018.

P45. **Gong J**, Simon GE, Liu S. "Machine learning discovery of longitudinal patterns of depression and suicidal ideation." 40th SMDM Annual Meeting, Montreal, Quebec, Canada, 2018. Gong J is a **Lee B. Lusted Prize Finalist**.

P46. **Gong J** and Liu S. "Partially observable collaborative model for optimizing personalized treatment selection." 40th SMDM Annual Meeting, Montreal, Quebec, Canada, 2018.

P47. **Ho T**, Liu S, Zabinsky ZB. "Branch-and-bound approach for dynamic resource allocation in population disease management." INFORMS International Conference, Taipei, Taiwan. June 2018.

P48. **Liu S**. "Pattern recognition, learning, and optimal intervention: models and insights for depression care management." IISE annual conference, Orlando, Florida. May 2018.

P49. **Gong J**, Simon GE, Liu S. "Machine learning discovery of longitudinal patterns of depression and suicidal ideation." INFORMS Annual Conference, Houston, Texas. November 2017.

P50. **Gong J**, Liu S. "Adaptive strategies for personalized treatment selection of depression in a heterogeneous population." INFORMS Annual Conference, Houston, Texas. November 2017.

P51. **Lin Y**, Huang S, Liu S. "Cost-effectiveness analysis for prognostic-based depression monitoring." INFORMS Annual Conference, Houston, Texas. November 2017.

P52. **Lin Y**, Huang S, Liu S. "Personalizing depression treatment follow-up via rule-based method." INFORMS Annual Conference, Houston, Texas. November 2017.

P53. **Ho T**, Liu S**,** Zabinsky ZB. "Using a branch-and-bound scheme with multi-fidelity models to optimize hepatitis C screening and treatment policies under a budget constraint." INFORMS Annual Conference, Houston, Texas. November 2017.

P54. **Liu S**, Huang S, Lin Y, Yang X, Huang J, Shang W. "Depression care management: personalized assessment to cost-effective population interventions." INFORMS Annual Conference, Nashville, Tennessee. November 2016.

P55. **Gong J**, Liu S. **"**A POMDP model for personalized depression monitoring.*"* INFORMS Annual Conference, Nashville, Tennessee. November 2016.

P56. **Lin Y**, Liu S, Huang S. "Adaptive monitoring of depression patient population: a data driven approach." INFORMS Annual Conference, Nashville, Tennessee. November 2016.

P57. **Lin Y**, Huang S, Liu S. "Patient-specific depression monitoring by selective sensing." INFORMS Annual Conference, Nashville, Tennessee. November 2016.

P58. **Cipriano LE**, Liu S, Shahzada KS, Goldhaber-Fiebert JD. "Patient prioritization in disease-specific-treatment budgets: the case of chronic hepatitis c treatment." 38th SMDM Annual Meeting, Vancouver, BC, Canada, 2016.

P59. **Lin Y**, Huang S, Liu S. "Adaptive monitoring of depression patient population: a selective sensing approach." 38th SMDM Annual Meeting, Vancouver, BC, Canada, 2016. **Winner of the Lee B. Lusted student prize.**

P60. **Lin Y**, Huang S, Liu S. "A longitudinal pattern based prognostic model for depression monitoring via rule-based method." 38th SMDM Annual Meeting, Vancouver, BC, Canada, 2016. **Lee B. Lusted Prize Finalist**.

P61. Huang J, **Liu S**. "Analyzing population progression dynamics of depression from electronic health record using a family of Markov models." 38th SMDM Annual Meeting, Vancouver, BC, Canada, 2016.

P62. Sheng W, **Liu S**. "Depression management using electronic health record: personalized progression prediction and monitoring." 38th SMDM Annual Meeting, Vancouver, BC, Canada, 2016.

P63. Lin Y, **Liu S**, Huang S. "Adaptive monitoring with selective sensing in depression treatment population." INFORMS International Conference, Hawaii, 2016.

P64. **Huang H**, Li Y, Zabinsky ZB, Liu S. "Optimal screening and treatment allocation strategy for hepatitis C by simulation optimization." INFORMS International Conference, Hawaii, 2016.

P65. **D.J. Feller-Kopman**, S. Liu, A.M. Garner, M. Decamp, J.B. Pietzsch. "Cost-effectiveness of the Percepta bronchial genomic classifier for the diagnostic evaluation of lung cancer: an analytical framework based on the AEGIS studies." American Thoracic Society International Conference, San Francisco, California, 2016.

P66. **Gregersen K**, Spector J, Liu S, Veenstra D, Johnson P. "Whole body vibration exposures: using low back and neck claims to assess the cost and health effects of different bus driver seats." 8th International Scientific Conference on Prevention of Work-Related Musculoskeletal Disorders, PREMUS: Toronto, CA, 2016.

P67. Lin Y, Huang S, **Liu S**. "Analysis of depression trajectory patterns using collaborative learning." 37th SMDM Annual Meeting, St. Louis, Missouri, 2015.

P68. **Li Y**, Zabinsky ZB, Huang H, Liu S. "Optimizing hepatitis C screening and treatment allocation strategy." INFORMS Annual Meeting, Philadelphia, Pennsylvania, 2015.

P69. **Lin Y**, Liu S, Huang S. "Large-scale personalized health surveillance by selective sensing." INFORMS Annual Meeting, Philadelphia, Pennsylvania, 2015.

P70. **Lin Y**, Huang S, Liu S. "Analysis of electronic health record based depression trajectory and monitoring." INFORMS Annual Meeting, Philadelphia, Pennsylvania, 2015.

P71. Noblett KL, Dmochowski RR, Vasavada SP, Garner AM, Liu S, **Pietzsch JB**. "Cost profile of rechargeable vs. non-rechargeable neuromodulation devices in the treatment of overactive bladder syndrome." North American Neuromodulation Society (NANS) Annual Meeting, Las Vegas, Nevada, 2015.

P72. Lin Y, **Liu S**, Huang S. "Large-scale personalized health surveillance by selective sensing." INFORMS Healthcare Conference, Nashville, Tennessee, 2015.

P73. Lin Y, Huang S, **Liu S**. "Development and analysis of electronic health record based depression trajectory and monitoring." INFORMS Healthcare Conference, Nashville, Tennessee, 2015.

P74. Feeley BT, Liu S, Garner AM, Zhang AL, **Pietzsch JB**. "The cost-effectiveness of meniscal repair versus partial meniscectomy: a model-based projection of clinical outcomes and costs in the United States Healthcare System." ISPOR 20th Annual International Meeting, Philadelphia, Pennsylvania, 2015.

P75. **Liu S**, Watcha D, Holodniy H, Goldhaber-Fiebert JD. "Cost-effectiveness of hepatitis C treatment delivery in U.S. incarcerated populations."
   a. Health Systems Optimization Workshop, Chicago, Illinois, 2014.
   b. 36th SMDM Annual Meeting, Miami, Florida, 2014.
   c. INFORMS Annual Meeting, San Francisco, California, 2014.
   d. SMDM 15th Biennial European Meeting, Antwerp, Belgium, 2014. (Presenter: **Goldhaber-Fiebert**)

P76. **Pietzsch JB**, Liu S, Kezirian EJ, Strollo PJ. "Long-term cost-effectiveness of upper airway stimulation for the treatment of obstructive sleep apnea - a model-based projection based on the STAR trial." 28th Annual Meeting of the Associated Professional Sleep Societies, Minneapolis, Minnesota, 2014.

P77. **Cipriano LC**, Liu S, **Goldhaber-Fiebert J**. "optimal information collection policies in a Markov decision process framework."
   a. Production and Operations Management Society (POMS) 25th Annual Conference, Atlanta, Georgia, 2014. (Presenter: Cipriano)
   b. 35th SMDM Annual Meeting, Baltimore, Maryland, 2013. (Presenter: Goldhaber-Fiebert)

P78. **Liu S**, Brandeau M, Goldhaber-Fiebert J. "Optimizing patient treatment decisions in an era of rapid technological advances."
   a. INFORMS Annual Meeting, Minneapolis, Minnesota, 2013.
   b. 35th SMDM Annual Meeting, Baltimore, Maryland, 2013.

P79. **Liu S**, Cipriano LE, Holodniy M, Goldhaber-Fiebert JD. "Cost-effectiveness of risk-factor guided and universal screening for chronic hepatitis C."
   a. INFORMS Annual Meeting, Phoenix, Arizona, 2012.
   b. INFORMS International Meeting, Beijing, China, 2012.
   c. INFORMS Annual Meeting, Charlotte, North Carolina, 2011.
   d. 33rd SMDM Annual Meeting, Chicago, Illinois, 2011.

P80. **Liu S**, Cipriano LE, Goldhaber-Fiebert JD. "Combining regression analyses and Markov models to infer age-specific mortality rates by hepatitis C infection and risk factor status."
   a. International Conference on Smart Health (ICSH), Beijing, China, 2014
   b. 34th SMDM Annual Meeting, Phoenix, Arizona, 2012.

P81. **Liu S**, Cipriano LE, Goldhaber-Fiebert JD. "With more effective therapies, should we screen for chronic hepatitis C in the US?" 33rd SMDM Annual Meeting, Chicago, Illinois, 2011.

P82. **Liu S**, Schwarzinger M, Carrat F, Goldhaber-Fiebert JD. "Cost-effective alternatives to liver biopsy in the management of chronic hepatitis C."
    a. INFORMS Annual Meeting, Austin, Texas, 2010.
    b. 32nd SMDM Annual Meeting, Toronto, Canada, 2010.

P83. **Liu S**. "Envisioning the future of optoelectronic interconnects." Plenary session speaker. Communication Technology Roadmap Spring Meeting, Road to High Volume Photonics. MIT, Cambridge, MA, 2007.

**Professional society memberships**
1. Institute for Operation Research and the Management Sciences (INFORMS), membership 2011-present.
2. Society for Medical Decision Making (SMDM), membership 2011-2019.
3. Institute of Industrial and Systems Engineers (IISE), membership 2016-2017.
4. Tau Beta Pi Engineering Honor Society, 2003-present.

**Invited Reviewer**
National Science Foundation CMMI Grant Panel Reviewer, March 2020 and March 2022

Journals:
Operations Research, European Journal of Operational Research, Medical Decision Making, IIE Transactions on Healthcare Systems Engineering, The International Journal of Management Science, Hepatology, Annals of Internal Medicine, Applied Health Economics and Health Policy, PharmacoEconomics, Journal of Public Health Policy, PLoS ONE, Public Health Reports, The Engineering Economist, Health Care Management Science, IEEE Transactions on Automation Science and Engineering, Annals of Operations Research, IIE Transactions, Simulation, INFORMS Journal on Computing, Decision Analysis, Production & Operations Management, Scientific Reports, PLOS Medicine, JAMIA, Journal of Affective Disorders, Value in Health.

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## GRADUATE STUDENTS

**Chaired Doctoral Degrees**
1. Ying Lin, Co-chair with Shuai Huang, Thesis title *Large-Scale Personalized Health Surveillance by Collaborative Learning and Selective Sensing*, Summer 2017. Employer: Assistant Professor of Industrial Engineering at the University of Houston.

2. Jue Gong, Chair, Thesis title *Optimizing Personalized Treatment Selection for Partially Observable Chronic Conditions*, Spring 2019.

3. TingYu Ho, Co-chair with Zelda B. Zabinsky, Thesis title *Optimizing Healthcare Policies through Healthcare Delivery and Insurance Design*, Spring 2019.

4. Mutita Siriruchatanon, Thesis title *Decision-Analytic Models for Treatment Optimization in the Presence of Patient Heterogeneity*, Summer 2021.

**Current Doctoral Students**
1. Xiaonan Sun, Chair, candidacy, 2023
2. Serin Lee, Co-chair with Zelda B. Zabinsky, candidacy, 2022
3. Yinsheng Wang, Chair (expected), passed qualifying exam, 2023
4. Michelle Song, Chair (expected), passed qualifying exam, 2022

**Chaired Masters Degrees**

1. Jiaqi Huang, Chair, Thesis title *Modeling Depression Progression Dynamics from Electronic Health Record*, Spring 2016.
2. Xuelu Yang, Chair, Thesis title *Cost-Effectiveness Analysis of Adaptive Monitoring Strategies for Depression Treatment*, Spring 2016.
3. Weiwei Sheng, Chair, Thesis title *Depression Management Using Electronic Health Record: Individual Progression Prediction*, Spring 2016.
4. Yuankun Li, Chair, Thesis title *Optimizing Hepatitis C Birth-Cohort Screening and Treatment Allocation Strategy*, Summer 2015.

**Doctoral Supervisory Committee Member:** Jun Song, Chelsea Greene, Xi Zhu (Civil), Hao-Hsiang Wu, Fangfang Wang, Mahshid Salemi Parizi, Ali Ajdari, Jing Yan, Tolu Abe, Xiao Cao

**Doctoral Supervisory Committee Graduate School Representative:** Yohan Min (CBE), Yiming Zhang (Foster, OM), Xiasen Wang (Civil), Wisal Hassan (Global Health), Samantha Dolan (Global Health), Kevin Lybarger (EE), Yuankun Li (Foster, OM), Anne Njoroge (Global Health), Shahryar Doosti (Foster, OM), Mohammad Ebrahim Arbabian (Foster, OM), Ting Qiu (EE), Danying Hu (EE), Louis Gong (ME)

**Postdoctoral Mentoring Committee Member:** Anjuli Wagner (Epidemiology, NSF fellowship)

**NIH K01 Award Co-Mentor:** Douglas Barthold (Pharmacy)

**Master Thesis Committee Member**: Kat Gregersen (EOH), Archana Nandakumar

**Graduate Independent Studies Advisor:** Michelle Song, Dorrit Ding, Zahra Ghatrani, Sevnaz Nourollahi, Wei Guo

**Undergraduate Research Advisor:** Michael Springer, Owen Brodie, Rui Wei, Qian Chu, Elfira Wahono, Mengzhen Yuan

RESEARCH ACTIVITIES

**Funded Research**

| Funding Agency | Title | Your role with other PI's and co-PI's | Total Amount | Dates (start - finish) |
|---|---|---|---|---|
| National Institute of Allergy and Infectious Diseases | *University of Washington/Fred Hutch Center for AIDS Research* | Co-Investigator (PI: Connie L. Celum, UW Medicine) | $17,908,687 | 6/2023 – 5/2028 |
| The American Association for the Surgery of Trauma (AAST) | *Developing Metrics to Assess Disparities in Access to Trauma Care in Washington State* | Co-Investigator (PI: Rebecca Maine, UW Medicine) | $50,000 | 7/2022 – 6/2023 |

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|---|---|---|---|---|
| Merck/UW Population Health Initiative | *Targeting key factors to realizing improved global vaccination coverage* | Co-PI (PI: Ali Mokdad, UW) | $457,605 | 6/2021 – 12/2022 |
| NIH R21 | *Using systems science to optimize the impact of point-of-care viral load testing for pediatric HIV management* | Co-Investigator (PI: Rena Patel, UW) | $421,007 | 4/2020 – 7/2023 |
| SMDM CDMI Initiative | *Optimizing Societal Reopening Plans and Vaccine Distribution Strategies under COVID-19 using Simulation Optimization Modelling Tools* | PI (co-investigator: Zelda Zabinsky, Shi Chen, Judith Wasserheit, Jennifer Ross, UW) | $32,745 | 7/2020 – 12/2020 |
| NSF CMMI 1935403 supplemental support | *Improving Covid-19 Pandemic Response by Integrating Queuing Theory with Infectious Disease Models* | PI (PI on parent grant, Zelda Zabinsky, UW; NCSU PI, Yunan Liu) | $83,886 | 8/2020 – 1/2021 |
| UW Population Health Initiative | *Ensuring equal access to trauma care in Washington State through system modeling* | Investigator (Lead-Investigator, Rebecca Maine, UW) | $50,000 | 5/2020 – 4/2021 |
| NSF CMMI 1935403 | *Optimizing Vaccination Incentives to Prevent Disease Outbreaks* | Co-PI (PI, Zelda Zabinsky, UW) | $419,477 | 1/2020 – 12/2023 |
| NSF CMMI 1824623 | *An Integrated Decision Framework for Depression and Suicide Ideation Monitoring* | PI (co-PI, Shuai Huang, UW) | $463,229 | 9/2018 – 7/2023 |
| NIOSH (U19 – Oregon Health and Science University) | *Engineering and Behavioral Controls for Truck Drivers' Sleep, Safety, and Health* | Co-Investigator (PI: Peter Johnson, UW) | $380,159 | 2016 – 2021 |
| NSF CMMI 1536407 | *Decision Model for Patient-Specific Motion Management in Radiation Therapy Planning* | Co-PI (PI: Wanpracha Chaovalitwongse, UW) | $184,758 | 9/2015 – 6/2018 |
| UW Royalty Research Fund | *Development and Analysis of Electronic Health Record Based Depression Screening and Monitoring Strategies* | PI (co-PI, Shuai Huang, UW) | $39,997 | 6/2015 – 6/2016 |
| US Department | *Cost-effective Uses of New Hepatitis C* | UW PI/IPA | $30,881 | 6/2014 – 9/2015 |

| of Veteran Affairs (IIR 12-059) | *Treatments and their VA Budgetary Impact* | (PI: Douglas Owens, Stanford University) | | |
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TEACHING

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**Undergraduate**
IND E 310 Linear and Network Programming
IND E 311 Stochastic Models and Decision Analysis
IND E 250 Fundamentals of Engineering Economy

**Graduate**
IND E 519 Healthcare Modeling and Decision Making
HSMGMT 532 Quantitative Methods for Health Systems Design and Analysis

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SERVICE

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**Department**
- Graduate Program Coordinator, 2021-2022
- Graduate Admission Committee, 2014-2016, 2019-2020, 2021-2022 (Chair), 2022-2023
- Annual peer-teaching evaluator, 2020, 2021, 2023
- MISE Admission Committee, 2016-2017; program co-director, 2023-2024
- Undergraduate Admission/Scholarship/Curriculum Committee, 2016-2020
- Departmental seminar organizer, Spring 2016
- Departmental Seminar Committee, 2017-2019
- Engineering Discovery Day, 2014, 2015
- Undergraduate Advising Committee, 2013-2014
- Senior design capstone project competition judge, 2014-2016, 2023

**College**
- College Council member, 2023-2024
- Faculty Council, 2023-2024
- College of Engineering Council on Education Policy, 2015-2019
- COE Faculty Committee for Admissions and Enrollment, 2018-2019
- The Washington STate Academic RedShirt (STARS) program faculty mentor, 2016, 2019

**University**
- Faculty Senator, 2016-2018
- UW Royalty Research Fund reviewer, 2015, 2016
- UW Center for AIDS Research (CFAR) Public Health and Implementation Science Core Advisory Group member, 2016-present
- UW Math Academy presenter, summer 2018

**Professional society**
- INFORMS Healthcare 2023, cluster chair, Medical Decision Making
- INFORMS Anaheim 2021, organizing committee member; chair for contributed sessions planning committee
- INFORMS Healthcare 2021, cluster co-chair for emerging topics, COVID-19 epidemiology
- INFORMS Seattle 2019, organizing committee member; co-chair for interactive session

- INFORMS Health Application Society (HAS) officer, secretary (elected position), 2022-2024
- INFORMS annual meeting session chairs: Phoenix 2023, Indianapolis 2022, Healthcare 2021, Virtual 2020, Healthcare Boston 2019, Phoenix 2018, Houston 2017, International Hawaii 2016, Philadelphia 2015, Healthcare Nashville 2015, San Francisco 2014, Minneapolis 2013, International Beijing 2012
- INFORMS Health Application Society (HAS) Student Paper Contest judge 2017, 2019
- INFORMS Section on Public Programs, Services and Needs (SPPSN) Best Paper Award judge 2014
- SMDM annual conference abstract reviewer, 2011-2019
- SMDM annual meetings, invited judge, Lee B. Lusted student research prize competition, 2018, 2020
- MIDAS member and network annual meeting 2021, abstract reviewer
- IHME Global Burden of Disease (GBD) Collaborator Network member, 2021
- INFORMS HAS Pierskalla Award Committee, judge, 2023

**Editorial Board**
- Healthcare Management Science, editorial board member, 2019-2023
- Healthcare Management Science, associate editor, 2020-2023