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Professional Position

- **University of California, Berkeley**, 2022 - *present*
  Chancellor's Associate Professor, School of Information and Goldman School of Public Policy
  Faculty Co-Director, Center for Effective Global Action
  Co-Director, Global Policy Lab

Education

- **University of California, Berkeley**
  Ph.D., School of Information, 2012
  M.A., Economics, 2010

- **Wesleyan University**, Middletown, CT
  B.A., Computer Science, 2003 (high honors)
  B.A., Physics, 2003 (high honors)

Affiliations

- Affiliate, Bureau for Research and Economic Analysis of Development (BREAD)
- Affiliate, Jameel Poverty Action Lab (J-PAL)
- Research Affiliate, Center for Economic Policy Research (London, England)
- Research Fellow, Institute for the Study of Labor (IZA, Germany)
- Senior Fellow and Faculty Council Member, Berkeley Institute for Data Science (U.C. Berkeley)
- Faculty Affiliate, Opportunity Lab (U.C. Berkeley)

Past Positions

2019-2021	*Associate Professor*, University of California, Berkeley
2016-2019	*Assistant Professor*, University of California, Berkeley
2013-2016	*Assistant Professor*, University of Washington, Information School
	Adjunct Assistant Professor, University of Washington, Computer Science and Engineering
	Founder and co-Director, University of Washington, Data Science and Analytics Laboratory
2012	*Post-Doctoral Fellow*, Yale University, Department of Economics
2005-2006	*Founding Engineer*, Eight Days, Inc.
2003-2004	*Fellow*, Thomas J. Watson Foundation
2002	*Intern*, Microsoft Research
2001	*Research Associate*, Harvard Institutes of Medicine

Honors and Awards

2021	*Innovation Fellow*, Schmidt Futures
2020	*Faculty Early Career Award (CAREER)*, National Science Foundation
2019	*Chancellor's Award for Research in the Public Interest*, U.C. Berkeley
2019	*Best Article in Economic Sociology (Honorable Mention)*, American Sociological Association
2019	*Machine Learning Research Award*, Amazon
2018	*Hellman Fellowship*, Hellman Foundation
2017	*Okawa Prize*, Okawa Foundation
2017	*Wireless Innovation Prize (Finalist)*, Vodafone Foundation
2015	*Millennium Grand Challenge Award*, Bill and Melinda Gates Foundation
2014	*Faculty Research Award*, Google
2013	*Early Career Faculty Award*, Intel
2013	*Community Award*, USENIX Networked Systems Design and Implementation
2012	*O.S. Braunstein Prize (Best Student Paper)*, Pacific Telecommunications Council
2007-2011	*Berkeley Fellowship*, University of California at Berkeley
2003-2004	*Watson Fellowship*, Thomas J. Watson Foundation
2003	*Phi Beta Kappa*, Wesleyan University
2003	*Senior Prize in Computer Science*, Wesleyan University
2000	*Johnston Prize in Physics*, Wesleyan University

Publications

Journal Articles

- Blumenstock, J.E., Chi, G., and Tan, X. (2025). Migration and the Value of Social Networks. *Review of Economic Studies* 92(1):97-128. doi: 10.1093/restud/rdad113

- Björkegren, D., Blumenstock, J.E., and Knight, S. (2025, accepted). Learning What Policies Value. *Review of Economic Studies*. arXiv: 2206.00727

- Dillon, B., Aker, J.C., and Blumenstock, J.E. (2025, accepted). Yellow Pages: Information, Connections and Firm Performance. *The Economic Journal*.

- Aiken, E., Bellue, S., Karlan, D., Udry, C., and Blumenstock, J.E. (2025). Estimating Impact with Surveys versus Digital Traces: Evidence from Randomized Cash Transfers in Togo. *Journal of Development Economics*, 175:103477doi: 10.1016/j.jdeveco.2025.103477

- Barriga-Cabanillas, O., Blumenstock, J.E., Putman, D., and Lybbert, T (2025). Probing the Limits of Mobile Phone Metadata for Poverty Prediction and Impact Evaluation. *Journal of Development Economics*, 174:103462 doi: 10.1016/j.jdeveco.2025.103462

- Björkegren, D., Blumenstock, J.E., Folajimi-Senjobi, O., Mauro, J., and Nair, S. (2025). Welfare Impacts of Digital Credit: A Randomized Evaluation in Nigeria. *Economic Development and Cultural Change*. doi: 10.1086/735169

- Kohli, N., Aiken, E., and Blumenstock, J.E. (2024). Privacy Guarantees for Personal Mobility Data in Humanitarian Response. *Nature Scientific Reports* 14:28565. doi: 10.1038/s41598-024-79561-2

- Blumenstock, J.E., Callen, M., Ghani, T., and Gonzalez, R. (2024). Violence and Financial Decisions: Experimental Evidence from Mobile Money in Afghanistan. *Review of Economics and Statistics* 106(2): 352-369. doi: 10.1162/rest_a_01147

- Aiken, E.A., Bedoya, G., Blumenstock, J.E., and Coville, A. (2023). Program Targeting with Machine Learning and Mobile Phone Data: Evidence from an Anti-Poverty Intervention in Afghanistan. *Journal of Development Economics* 161:103016 doi: 10.1016/j.jdeveco.2022.103016

- Aiken, E., Bellue, S., Karlan, D., Udry, C., and Blumenstock, J.E. (2022). Machine Learning and Mobile Phone Data Can Improve the Targeting of Humanitarian Assistance. *Nature* 603, 864-870 (cover article). doi: 10.1038/s41586-022-04484-9

- Chi, G., Fang, H., Chatterjee, S., and Blumenstock, J.E. (2022). Microestimates of Wealth and Poverty for All Low- and Middle-Income Countries. *Proceedings of the National Academy of Sciences.* 119 (2): e2113658119. doi: 10.1073/pnas.2113658119

- Smythe, I., and Blumenstock, J.E. (2022). Geographic Micro-Targeting of Social Assistance with High-Resolution Poverty Maps. *Proceedings of the National Academy of Sciences.* 119 (32): e2120025119.doi: 10.1073/pnas.2120025119

- Tai, X.H., Mehra, S., and Blumenstock, J.E. (2022). Mobile Phone Data Reveal the Effects of Violence on Internal Displacement. *Nature Human Behavior* 6, 624-634. doi: 10.1038/s41562-022-01336-4

- Ilin, C., Annan-Phan, S., Tai, X.H., Mehra, S., Hsiang, S., and Blumenstock, J.E. (2021). Public Mobility Data Enables COVID-19 Forecasting and Management at Local and Global Scales. *Nature Scientific Reports* 11(1), 1-11. doi: 10.1038/s41598-021-92892-8

- Blumenstock, J.E. (2020). Machine learning can help get COVID-19 aid to those who need it most. *Nature*, 581(7807). doi: 10.1038/d41586-020-01393-7

- Chi, G., Chi, G., Lin, F., Blumenstock, J.E. (2020). A General Approach to Detecting Migration Events in Digital Trace Data. *PLoS ONE*, 15(10), 1-17. doi: 10.1371/journal.pone.0239408

- Hilbert, M., Barnett, G., Blumenstock, J.E., Contractor, N., Diesner, J., Frey, S., Gonzalez-Bailon, S., Lamberson, P.J., Pan, J., Peng, T.Q., Shen, C., Smaldino, P., and Van Atteveldt, W. (2019). Computational Communication Science: A Methodological Catalyzer for a Maturing Discipline. *International Journal of Communication*, 13(2019), 1-23.

- Blumenstock, J.E., Ghani, T., and Callen, M. (2018). Why Do Defaults Affect Behavior? Experimental Evidence from Afghanistan. *American Economic Review*, 108(10), 2868-2901. doi: 10.1257/aer.20171676

- Park, P., Blumenstock, J.E., and Macy, M. (2018). The strength of long-range ties in population-scale social networks. *Science*, 362(6421), 1410-1413. doi: 10.1126/science.aau9735

- Blumenstock, J.E. (2018). Don't forget people in the use of big data for development. *Nature*, 561(7722), 170-172. doi: 10.1038/d41586-018-06215-5

- Blumenstock, J.E. (2018). Estimating Economic Characteristics with Phone Data. *American Economic Review: Papers and Proceedings*, 108, 72-76. doi: 10.1257/pandp.20181033

- Steele, J.E., Sundsoy, C., Pezzulo, C., Alegana, V., Bird, T., Blumenstock, J.E., Bjelland, J., Engo-Monsen, K., de Montjoye, Y.A., Iqbal, A., Hadiuzzaman, K., Wetter, E., Tatem, A.J., and Bengtsson, L. (2017). Mapping poverty using mobile phone and satellite data. *Journal of the Royal Society Interface*, 14(127), 1-10. doi: 10.1098/rsif.2016.0690

- Blumenstock, J.E. (2016). Fighting Poverty with Data. *Science*, 353(6301), 753-754. doi: 10.1126/science.aah5217

- Blumenstock, J.E., Eagle, N., and Fafchamps, M. (2016). Airtime Transfers and Mobile Communications: Evidence in the Aftermath of Natural Disasters. *Journal of Development Economics*, 120, 157-181. doi: 10.1016/j.jdeveco.2016.01.003

- Blumenstock, J.E., Cadamuro, G., and R. On (2015). Predicting Poverty and Wealth from Mobile Phone Metadata. *Science*, 350(6264), 1073-1076. doi: 10.1126/science.aac4420

- Blumenstock, J.E. and N. Eagle (2012). Divided We Call: Disparities in Access and Use of Mobile Phones in Rwanda. *Information Technology and International Development*, 8(2), pp. 1-16.

- Blumenstock, J.E. (2012). Inferring Patterns of Internal Migration from Mobile Phone Call Records. *Information Technology for Development*, 18(2), pp. 107-125. doi: 10.1080/02681102.2011.643209

- Gordon, G.J., R.V. Jensen, L.L. Hsiao, S.R. Gullans, J.E. Blumenstock, W.G. Richards, M.T. Jaklitsch, D.J. Sugarbaker, and R. Bueno (2003). Using Gene Expression Ratios to Predict Outcome Among Patients With Mesothelioma. *Journal of the National Cancer Institute*, 95(8), 598-605. doi: 10.1093/jnci/95.8.598

- Gordon, GJ, RV Jensen, LL Hsiao, SR Gullans, JE Blumenstock, S Ramaswamy, WG Richards, DJ Sugarbaker, and R Bueno (2002). Translation of Microarray Data Into Clinically Relevant Cancer Diagnostic Tests Using Gene Expression Ratios in Lung Cancer and Mesothelioma. *Cancer Research*, 62(17), 4963-4967.

- Fryer, RM, J Randall, T Yoshida, LL Hsiao, JE Blumenstock, KE Jensen, T Dimofte, RV Jensen, and SR Gullans (2002). Global Analysis of Gene Expression: Methods, Interpretation, and Pitfalls. *Experimental Nephrology*, 10(2), 64-74. doi: 10.1159/000049901

- Hsiao, LL, RV Jensen, T Yoshida, KE Clark, JE Blumenstock, and SR Gullans (2002). Correcting for Signal Errors in the Analysis of Microarray Data. *Biotechniques*, 32 (2), 330-337. doi: 10.2144/02322st06

Conference and Workshop Proceedings (Computer Science Publications)

- Kahn, Z., Meyebinesso, C., Aiken, E., Kohli, N., and Blumenstock, J.E. (2025). Expanding Perspectives on Data Privacy: Insights from Rural Togo" *To appear, ACM Conference on Computer-Supported Cooperative Work and Social Computing (CSCW 2025)*. arXiv: 2409.17578

- Aiken E., Rolf, E, and Blumenstock, J.E. (2023). Fairness and Representation in Satellite-Based Poverty Maps. *32nd International Joint Conference on Artificial Intelligence (IJCAI 2023)*, Cape Town, South Africa. arXiv: 2305.01783

- Soman, S., Aiken E., Rolf, E, and Blumenstock, J.E. (2023). Can Strategic Data Collection Improve the Performance of Poverty Prediction Models? *International Conference on Learning Representations (ICLR 2023) Workshop on Practical Machine Learning for Developing Countries*, Kigali, Rwanda. **Best Paper Award**.

- Amaya, S.R., Björkegren, D., Blumenstock, J.E., and Nair, S. (2023). Credit Scores That Prioritize Customer Welfare: Theory and Evidence from Nigeria *International Conference on Learning Representations (ICLR 2023) Workshop on Practical Machine Learning for Developing Countries*, Kigali, Rwanda.

- Shah, A., Nair, S., Bohnel, T., and Blumenstock, J.E. (2023). Sand Mining Watch: Leveraging Earth Observation Foundation Models to Inform Sustainable Development. *NeurIPS 2023 Workshop On Tackling Climate Change with Machine Learning*

- Ohlenberg, T., Aiken, E., and Blumenstock, J.E. (2023). Moving Targets: When Does A Poverty Prediction Model Need To Be Updated? *The ACM Conference on Computing Systems and Sustainable Societies (COMPASS '23)*, Cape Town, and *The ACM Conference on Equity and Access in Algorithms, Mechanisms, and Optimization (EAAMO '23)*

- Aiken, E., Thakur, V., and Blumenstock, J.E. (2022). Phone Sharing and Cash Transfers in Togo: Quantitative Evidence from Mobile Phone Data. *The ACM Conference on Computing Systems and Sustainable Societies (COMPASS '22)*, Seattle, WA. **Best Paper Award**. doi: 10.1145/3530190.3534796

- Warren, R., Aiken, E., and Blumenstock, J.E. (2022). Home location detection from mobile phone data: Evidence from Togo. *The ACM Conference on Computing Systems and Sustainable Societies (COMPASS '22)*, Seattle, WA. doi: 10.1145/3530190.3534830

- Rolf, E., Simchowitz, M., Dean, S., Liu, L., Björkegren, D., Hardt, M., and Blumenstock, J.E. (2020). Balancing Competing Objectives for Welfare-Aware Machine Learning with Imperfect Data. *The Thirty-seventh International Conference on Machine Learning (ICML '20)*. Also awarded **Best Paper Award** at NeurIPS '19, Workshop on AI for Social Good. arXiv: 2003.06740

- Aiken, E., Bedoya, G., Coville, A., Blumenstock, J.E. (2020). Targeting Development Aid with Machine Learning and Mobile Phone Data: Evidence from an Anti-Poverty Intervention in Afghanistan. *ACM SIGCAS Computing and Sustainable Societies (COMPASS '20)*, Guayaquil, Ecuador. doi: 10.1145/3378393.3402274

- Keleher, N., Barela, M.C., Blumenstock, J.E., Festin, C., Podolsky, M., Rezaee, A., Troland, E., Heimerl, K. (2020). Connecting Isolated Communities: Quantitative Evidence on the Adoption of Community Cellular Networks in the Philippines. *The 11th IEEE/ACM International Conference on Information and Communication Technologies and Development (ICTD '20)*, Guayaquil, Ecuador. doi: 10.1145/3392561.3394645

- Björkegren, D., Blumenstock, J.E., and Knight, S. (2019). (Machine) Learning what Policies Value. *The Thirty-third Annual Conference on Neural Information Processing Systems (NeurIPS '19), Workshop on Machine Learning for the Developing World*, Toronto, CA.

- Khan, M.R. and Blumenstock, J.E. (2019). Multi-GCN: Graph Convolutional Networks for Multi-View Networks, with Applications to Global Poverty. *The Thirty-Third AAAI Conference on Artificial Intelligence (AAAI '19)*, Honolulu, HI. arXiv: 1901.11213

- Cadamuro, G., Vinayak, R.K., Shapiro, J.N., Blumenstock, J.E., and Kakade, S. (2019). The Illusion of Change: Correcting for Bias when Inferring Changes in Sparse, Societal-Scale Data. *The 30th Annual Web Conference 2019 (WWW '19)*, San Francisco, CA. doi: 10.1145/3308558.3313722

- Chi, G., State, B., Blumenstock, J.E., and Adamic, L. (2019). Who ties the world together? Evidence from a Large Online Social Network. *The 8th International Conference on Complex Networks and their Applications (COMPLEX NETWORKS '19)*. Lisbon, Portugal. doi: 10.1007/978-3-030-36683-4_37

- Aulck, L., Nambi, D., Velagapudo, N., Blumenstock, J.E., West, J. (2019). Mining University Registrar Records to Predict First-Year Undergraduate Attrition. *The 12th International Conference on Educational Data Mining (EDM '19)*, Montreal, Canada.

- Weld, G., Perrier, T., Aker, J., Blumenstock, J.E., Dillon, B., Kamazi, A., Kokushubira, E., Webster, J., and Anderson, R. (2018). eKichabi: Information Access through Basic Mobile Phones in Rural Tanzania. *The 2018 ACM Conference on Human Factors in Computing Systems (CHI '18)*, Montreal, Canada. doi: 10.1145/3173574.3173707

- Khan, M.R. and Blumenstock, J.E. (2017). Determinants of Mobile Money Adoption in Pakistan. *The Thirty-first Annual Conference on Neural Information Processing Systems (NeurIPS '17), Workshop on Machine Learning for the Developing World*, Long Beach, CA. arXiv: 1712.01081

- Blumenstock, J.E., Maldeniya, D., and Lokanathan, S. (2017). Understanding the Impact of Urban Infrastructure: New Insights from Population-Scale Data. *The 9th IEEE/ACM International Conference on Information and Communication Technologies and Development (ICTD '17)*, Lahore, Pakistan. doi: 10.1145/3136560.3136575

- Head, A., Manguin, M., Tran, N., and Blumenstock, J.E. (2017). Can Human Development be Measured with Satellite Imagery? *The 9th IEEE/ACM International Conference on Information and Communication Technologies and Development (ICTD '17)*, Lahore, Pakistan. doi: 10.1145/3136560.3136576

- Shah, K., Martinez, P., Blumenstock, J.E., Dionisio, J., and Heimerl, K. (2017). An Investigation of Phone Upgrades in Remote Community Cellular Networks. *The 9th IEEE/ACM Int'l Conference on Information and Communication Technologies and Development (ICTD '17)*, Lahore, Pakistan. doi: 10.1145/3136560.3136569

- Khan, M.R. and Blumenstock, J.E. (2016). Predictors without Borders: Behavioral Modeling of Product Adoption in Three Developing Countries. *The 22nd ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD '16)*, San Francisco, CA. doi: 10.1145/2939672.2939710

- Aulck, L, Blumenstock, J.E., and West, J (2016). Predicting Student Dropout in Higher Education. *The 33rd International Conference on Machine Learning (ICML '16), Workshop on Machine Learning in Social Good Applications*, New York, NY. arXiv: 1606.06364

- Khan, M.R. and Blumenstock J.E. (2016). Machine Learning Across Cultures: Modeling the Adoption of Financial Services for the Poor. *The 33rd International Conference on Machine Learning (ICML '16), Workshop on Machine Learning in Social Good Applications*, New York, NY. arXiv: 1606.05105

- Blumenstock, J.E., Keleher, N., and Reisinger, J (2016). The Premise of Local Information: Building Reliable Economic Indicators from a Decentralized Network of Contributors. *The 8th IEEE/ACM International Conference on Information and Communication Technologies and Development, Notes Track (ICTD '16)*, Ann Arbor, MI. doi: 10.1145/2909609.2909646

- Khan, M.R., Reed, P., and Blumenstock, J.E. (2016). Observing gender dynamics and disparities with mobile phone metadata. *The 8th IEEE/ACM International Conference on Information and Communication Technologies and Development, Notes Track (ICTD '16)*, Ann Arbor, MI. doi: 10.1145/2909609.2909632

- Blumenstock, J.E. & Keleher, N. (2015). The Price Is Right? Statistical evaluation of a crowd-sourced market information system in Liberia. *The 5th Annual ACM Symposium on Computing for Development (DEV '15)*, London, U.K. (23% Acceptance). Best paper nominee (top 3 papers). doi: 10.1145/2830629.2830647

- Blumenstock, J.E., Callen, M., Ghani, T., and Koepke, L. (2015). Promises and Pitfalls of Mobile Money in Afghanistan: Evidence from a Randomized Control Trial. *The 7th IEEE/ACM International Conference on Information and Communication Technologies and Development (ICTD '15)*, Singapore. doi: 10.1145/2737856.2738031

- Khan, M.R., Manoj, J., Singh, A., and Blumenstock, J.E. (2015). Behavioral Modeling for Churn Prediction: Early Indicators and Accurate Predictors of Customer Defection and Loyalty. *2015 IEEE International Congress on Big Data (Big Data '15)*, New York, NY. doi: 10.1109/BigData-Congress.2015.107

- Blumenstock J.E. (2014). Calling for Better Measurement: Estimating an Individual's Wealth and Well-Being from Mobile Phone Transaction Records. *The 20th ACM Conference on Knowledge Discovery and Mining (KDD '14), Workshop on Data Science for Social Good*, New York, NY.

- Young, W.M., Blumenstock, J.E., Fox, E.B., and McCormick, T.M. (2014). Detecting and classifying anomalous behavior in spatiotemporal network data. *The 20th ACM Conference on Knowledge Discovery and Mining (KDD '14), Workshop on Data Science for Social Good*, New York, NY.

- Blumenstock, J.E., Chokkalingham, R., Gaikwad, V., and Kondepudi, S. (2014). Probabilistic Inference of Unknown Locations: Exploiting Collective Behavior when Individual Data is Scarce. *The 5th ACM Symposium on Computing for Development (DEV '14)*, San Jose, CA. doi: 10.1145/2674377.2674387

- Kelley, I. & Blumenstock, J.E. (2014). Computational Challenges in the Analysis of Large, Sparse, Spatiotemporal Data. *The 6th ACM International Workshop on Data Intensive Distributed Computing (DIDC '14)*, Vancouver, Canada. doi: 10.1145/2608020.2608025

- Blumenstock, J.E. & Fratamico, F. (2013). Social and Spatial Ethnic Segregation: A Framework for Analyzing Segregation With Large-Scale Spatial Network Data. *The 4th Annual ACM Symposium on Computing for Development (DEV '13)*, Cape Town, South Africa. doi: 10.1145/2537052.2537061

- McCarthy, T, DeRenzi, B, Blumenstock, J.E., & Brunskill, E. (2013). Operationalizing Outlier Detection in Community Health Programs. *The 6th IEEE/ACM International Conference on Information and Communication Technologies and Development (ICTD '13)*, Cape Town, South Africa. doi: 10.1145/2517899.2517919

- Heimerl, K., Ali, K, Blumenstock, J.E., Gawalt, B., & Brewer, E. (2013). Expanding Rural Cellular Networks with Virtual Coverage. *the 10th USENIX Symposium on Networked Systems Design and Implementation (NSDI '13)*, Lombard, IL. **Community Award (for social impact)**.

- Blumenstock, J.E., Eagle, N., and Fafchamps, M. (2012). Risk and Reciprocity in Mobile Money. *Pacific Telecommunications Conference (PTC '12)*, Honolulu, HI. **Best Student Paper Award**.

- Mehrohtra, A., Mohan, M., Nguyen, A., & Blumenstock, J.E. (2012). The Role of Gender in Mobile Phone Use: Quantitative Evidence from Rwanda. *Proc. 5th IEEE/ACM International Conference on Information and Communication Technologies and Development (ICTD '12)*, Atlanta, GA. doi: 10.1145/2160673.2160710

- Blumenstock, J.E. & Eagle, N. (2011). Mobile Divides: Gender, Socioeconomic Status, and Mobile Phone Use in Rwanda. *Proceedings of the 4th IEEE/ACM International Conference on Information and Communication Technologies and Development (ICTD '10)*, London, UK (14.1% Acceptance). doi: 10.1145/2369220.2369225

- Blumenstock, J.E. (2011). Using Mobile Phone Data to Measure the Ties Between Nations. *Proceedings of the 2011 iConference*. ACM Press, pp. 195-202. doi: 10.1145/1940761.1940788

- Blumenstock, J.E., Shen, Y., & Eagle, N. (2010). A Method for Estimating the Relationship Between Phone Use and Wealth. *Proceedings of the QualMeetsQuant Workshop at ICTD '10*.

- Blumenstock, J.E., Gillick, D., & Eagle, N. (2010). Who's Calling? Demographics of Mobile Phone Use in Rwanda. *2010 AAAI Spring Symposium Series*. AAAI Publications, pp. 116-117.

- Blumenstock, J.E. (2008). Size Matters: Word Count as a Measure of Quality on Wikipedia. *Proceedings of the 17th International Conference on the World Wide Web (WWW '08)* (pp. 1095-1096). ACM Press. doi: 10.1145/1367497.1367673

- Gemmell, J, R Lueder, JE Blumenstock, E Solomon, and G Bell (2003). Telephone, Television and Radio in the Home of the Future. *Internet and Multimedia Systems and Applications*, 2003, 263-268.

Book Chapters and Other Publications

- Björkegren, D., and Blumenstock, J.E. (2023). Technology for Development. *Finance & Development Magazine*. December, 2023.

- Blumenstock, J.E., Callen, M., and Ghani, T. (2018). How Employers in Poor Countries Are Using Nudges to Help Employees Save Money. *Harvard Business Review*. June 15, 2018.

- Blumenstock, J.E. (2018). Design and Practice of Mobile Money. In: Maurer, B., Muharaj, S., & Small, I. *Money at the Margins Global Perspectives on Technology, Financial Inclusion and Desig*. pp. 354-371. Berghahn Books.

- Aker, J.C. and Blumenstock, J.E. (2014). The Economic Impacts of New Technologies in Africa. In: Monga, C. & Lin, J.Y. *The Oxford Handbook of Africa and Economics*. pp. 354-371. Oxford University Press.

Working Papers

- "How Do Firms Respond to Insecurity? Evidence from Afghan Corporate Phone Records" (with Tarek Ghani, Sylvan Herskowitz, Ethan B. Kapstein, Thomas Scherer, and Ott Toomet). *Conditionally Accepted, American Economic Journal: Economic Policy.* doi: 10.2139/ssrn.4477998

- "Manipulation-Robust Prediction" (with Dan Björkegren and Samsun Knight). *Revise and Resubmit, American Economic Review.* arXiv: 2004.03865

- "Strengthening Fragile States: Evidence from Mobile Salary Payments in Afghanistan" (with Michael Callen, Anastasiia Faikina, Stefano Fiorin, and Tarek Ghani). *Revise and Resubmit, Review of Economic Studies.* doi: 10.2139/ssrn.4477998

- "Satellite and Mobile Phone Data Reveal How Violence Affects Seasonal Migration in Afghanistan" (with Shikhar Mehra, Suraj Nair, and Xiao Hui Tai). *Revise and Resubmit, Nature Communications.*

- "Measuring Religion from Behavior: Climate Shocks and Religious Adherence in Afghanistan" (with Oeindrila Dube and Michael Callen). *NBER Working Paper.* doi: 10.3386/w30694

- "Moving Targets: The Role of Model and Data Recency in Proxy Means Test Accuracy" (with Emily Aiken and Tim Ohlenburg). *Working Paper.* Draft from NEUDC available here

- "Targeting at Scale: Trade-Offs in Algorithmic and Community-Based Approaches" (with Emily Aiken, Anik Ashraf, Ray Guteras, and Mushfiq Mobarak). *Working Paper.*

- "Enabling Humanitarian Applications with Targeted Differential Privacy" (with Nitin Kohli). *Working Paper* arXiv: 2408.13424

- "Digital Credit: A Snapshot of the Current Landscape" (with Eilin Francis and Jonathan Robinson). *BREAD Working Paper No. 516.*

- "Big Data Privacy in Emerging Market Fintech and Financial Services: A Research Agenda" (with Nitin Kohli). *CEGA Working Paper No. 231.* doi: 10.26085/C3WK53

- "The Impact of Mobile Phones: Experimental Evidence from the Random Assignment of New Cell Towers" (with Niall Keleher, Arman Rezaee, and Erin Troland). *Working Paper.*

- "The Impact of Digital Credit in Developing Economies: A Review of Recent Evidence" (with Jonathan Robinson and David Park). *CEGA Working Paper 192.* doi: 10.26085/C3S01S

- "A Society of Silent Separation: The Impact of Migration on Ethnic Segregation in Estonia" (with Ott Toomet). *Working Paper.*

Research Funding

- Google.org (2025). Research Gift. Budget: $250,000.
- Jameel Observatory (2025). Improved Early Warning of Food Insecurity. Budget: £70,000
- Center for Economic and Policy Research (2024). Structural Transformation and Economic Growth. Budget: $130,000.
- USAID Development Innovation Ventures (2024). Social Protection for Poverty Transitions in Malawi (GiveDirectly subaward). Budget: $260,000.
- Patrick McGovern Foundation (2024). Data Science Capacity and Innovation in Togo. Budget: $500,000.
- French Development Agency (2024). Cultivating Data Science Capacity in Africa. Budget: $537,000.

- Mozilla Foundation (2023). Mozilla Technology Fund. Budget: $50,000.
- Rockefeller Foundation (2022). Digital Public Goods for Targeting Poverty. Budget: $100,000.
- Eric and Wendy Schmidt Foundation (2021). Schmidt Futures Innovation Fellow. Budget: $500,000.
- Bill and Melinda Gates Foundation (2021). Digital Credit and Data Privacy. Budget: $2,300,000.
- Data.org Inclusive Growth and Recovery Challenge (2021). Using data science to target cash transfers for COVID-19 relief. Budget: $1,380,000.
- Google.org (2021). Research Gift. Budget: $150,000.
- Abdul Latif Jameel Poverty Action Lab (2021). Mass digitization of government transfers in Togo. Budget: $150,000.
- National Science Foundation (2020). CAREER (Faculty Early Career Award): Welfare-Centric Machine Learning. Budget: $451,000.
- Ripple Foundation (2020). Fintech and Financial Inclusion Initiative (with Paul Gertler). Budget: $1,000,000.
- Innovations for Poverty Action (2020). Welfare Scoring for Digital Credit (with Dan Bjorkegren). Budget: $145,000.
- C3.ai Digital Transformation Institutes (2020). Housing Precarity, Eviction, and Inequality in the Wake of COVID-19 (with Karen Chapple and Matthew Desmond). Budget: $375,000.
- Center for Information Technology Research in the Interest of Society (2020). Privacy Guarantees for the use of Personal Location Data in COVID models. Budget: $50,000.
- Social Science Research Council (2020). Covid-19 Social Impact Scenarios: Bridging the Knowledge Gap between Technical System Outputs and Policymaking.
- Abdul Latif Jameel Poverty Action Lab (2020). Using mobile phone and satellite data to target Togo's emergency cash transfer program (with Dean Karlan and Chris Udry). Budget: $25,000.
- Defense Advanced Research Projects Agency (2019), Brandeis Program. Privacy-Preserving Prediction (with Moritz Hardt). Budget: $365,000.
- Amazon Machine Learning Research Award (2019). AWS Credit: $20,000.
- Google Cloud Compute Award (2019). GCP Credit: $10,000.
- Facebook (2019). Research gift: $55,000.
- Hellman Foundation (2018). Faculty Research Award. Budget: $60,000.
- Philippines Commission on Higher Education (2018). Scalable Community Access Networks. Budget: $400,000.
- Bill and Melinda Gates Foundation (2017). Digital Credit Observatory (with Jon Robinson). Budget: $4,060,000.
- USAID/NETHOPE (2017): Community Cellular Networks. Budget: $100,000.
- Okawa Foundation (2017). Okawa Research Grant. Budget: $10,000.
- Facebook (2017). Research gift: $100,000.
- Office of Naval Research (2017). Spectral Models of Security (with Sham Kakade and Jacob Shapiro). Budget: $1,195,000.
- National Science Foundation (2017). Algorithms in the Field (with Sham Kakade). Budget: $600,000.
- Laura and John Arnold Foundation (2016). Afghanistan Mobile Salary Payments (with Michael Callen and Tarek Ghani). Budget: $1,385,000.
- National Science Foundation (2016). Compact Models of Massive Social Graphs (with Tyler McCormick). Budget: $150,000.
- Bill & Melinda Gates Foundation (2016). Integrating Isolated Communities. Budget: $150,000.

- World Bank Group (2016). Conflict and Private Sector Development (with Tarek Ghani and Ethan Kapstein). Budget: $255,000.
- International Growth Centre (2016). Government Mobile Salary Payments in Afghanistan (with Michael Callen and Tarek Ghani). Budget: $60,000.
- Bill & Melinda Gates Foundation (2015). Millennium Grand Challenge Explorations: Measuring the Availability and Use of Digital Financial Services. Budget: $100,000.
- Development Innovation Labs (2015). Pilot Study: How Does First-Time Access to the Mobile Phone Network Affect Remote Communities in the Philippines? (with Eric Brewer and Kurtis Heimerl). Budget: $45,000.
- International Growth Centre (2015). High-Resolution Measures of Poverty and Vulnerability in Afghanistan (with Michael Callen). Budget: $62,000.
- Bill & Melinda Gates Foundation (2015). Mobile Data for Socioeconomic Indicators (with Linus Bengtsson, Caroline Buckee, Andy Tatem, and Erik Wetter). Budget: $754,794.
- UW Royalty Research Fund (2015). Migration and Networks: Theory and Evidence from Rwanda (with Xu Tan). Budget: $39,881.
- USAID Development Innovation Laboratory (2014). High-Resolution Development Indicators. Budget: $255,000.
- International Growth Centre (2014). Modelling Urban Growth and Agglomeration with Large-Scale Mobile Phone Data (with Saad Gulzar and Sriganesh Lokanathan). Budget: $60,000.
- UW Royalty Research Fund (2014). Segregation and "Silent Separation": Using Large-Scale Network Data to Model the Determinants of Ethnic Segregation. Budget: $39,657.
- IZA/DFID Growth and Labour Markets in Low Income Countries (2013). The Effect of Local Labor Demand Shocks on Internal Migration and Local Wages (with Dave Donaldson). Budget: $430,000.
- Google Faculty Research Award (2013). Shock Signals: Modeling the Response of Dynamic Spatial Networks to Severe, Unexpected Shocks. Budget: $40,390.
- Intel (2013). Early Career Faculty Honor Award. Award: $40,000.
- Costco (2013). Research Gift: $60,000.
- Innovations for Poverty Action (2013). Mobile Phone-Based Defined-Contribution Accounts in Afghanistan (with Michael Callen and Tarek Ghani). Budget: $150,000.
- Institute for Money, Technology, and Financial Inclusion (2012). Case Studies of Mobile and Other Monies in Afghanistan (with Jan Chipchase). Budget: $93,434.
- Center for Economic Policy Research (2012). Private Enterprise Development in Low Income Countries: Using Mobile Money to Pay Afghan Salaries (with Michael Callen and Tarek Ghani). Budget: $35,500.
- Consortium on Financial Systems and Poverty (2012). Mobile Salary Payments in Afghanistan (with Michael Callen and Tarek Ghani). Budget: $33,836.
- National Science Foundation (2011). Doctoral Dissertation Improvement Award: Risk Sharing Over the Rwandan Mobile Phone Network. Budget: $11,500.
- International Growth Centre (2010). Social Networks, Phone Money Transfers, and Rainfall Shocks (with Marcel Fafchamps and Nathan Eagle). Budget: $70,000.
- Institute for Money, Technology and Financial Inclusion (2010). Banking on the Phone: Using Novel Sources of Data to Understand the Impact of Mobile Banking in Rwanda. Budget: $16,500.
- Networks, Electronic Commerce, and Telecommunications Institute (2010). Summer Research Grant: Mobile Phone Response to Natural Disasters. Budget: $4,500.
- Bill and Melinda Gates Foundation (2009). Summer Research Grant: Information and Communication Technologies for Agriculture. Budget: $3,500.
- Intel Research (2009). Cultural Politics of Technology and Consumption: Mobile Phone Use in Rwanda.

Budget: $5,000.

- Thomas J. Watson Foundation (2004). Watson Fellowship: Outreach or Evangelism? Integrating Technology into Unexposed Communities: China, South Africa, Cape Verde, Argentina, Costa Rica. Budget: $22,000.

Invited Keynotes and Seminars

2024

- Peking University, United Nations Development Programme, World Bank (keynote), UCLA (*Marschak speaker*), Yale, MIT, Sciences-Po Paris, Université Paris 1 Panthéon-Sorbonne (Centre Economie Sorbonne), ENSAI Paris (Center for Research in Economics and Statistics), Carnegie Mellon University

2023

- Trinity College Dublin, Queen Mary University of London, Warwick University, Cornell University, New York University, Northwestern University, NOVA Lisbon, University of Copenhagen, University of Chicago (Summer Institute on Machine Learning in Economics), Bogazici University, Universidad de Alicante, KDD Workshop on Data science for Social Good (*Keynote speaker*), ICLR Workshop on Practical ML for Developing Countries (*Keynote speaker*), Universitat Autònoma de Barcelona, Mechanism Design for Social Good Colloquium, USAID Bureau for Humanitarian Assistance, White House Office of Science and Technology Policy

2022

- Harvard (Center for Research on Computation and Society Seminar), Harvard (Dept. of Statistics), University of Michigan (Computational Social Science Seminar), ETH Zurich, Paris School of Economics, Universitat Pompeu Fabra, Center for Monetary and Financial Studies (CEMFI Madrid), CUNEF Universidad, Oxford, European Bank for Reconstruction and Development, United Nations Office for the Coordination of Humanitarian Affairs.

2021

- NBER (Economics of AI Conference), University of Chicago (Summer Institute on Machine Learning in Economics), Boston University (Hariri Institute Distinguished Speaker Series), National Academies of Science (Board on Research Data and Information), Georgetown University (Global Human Development Seminar), Dartmouth (Computer Science Department), University of Michigan (Computational Social Science Seminar), Trinity College Dublin (TCD/CEPR Workshop in Development Economics), Central Bank of Bolivia Annual Meeting (*Keynote Speaker*), University of Munich (Digital Transformation and Innovation Seminar), Africa Evidence Summit, United Nations Food and Agriculture Organization, World Bank (World Development Report Speaker), U.C. Berkeley (Econometrics Seminar, Development Seminar), Leibniz Centre for European Economic Research (Algorithmic decision-making conference), African Union Commission (Digital Social Protection Symposium).

2020

- United Nations Statistics Division / OECD (*Keynote Speaker*, Conference on New Data Sources and Statistical Capacity), World Bank Conference on Data Integration and Data Fusion (*Keynote Speaker*), International Conference on Computational Social Science (*Keynote Speaker*), Bureau for Research and Economic Analysis of Development (Summer 2020 conference), Cornell University (Milstein Speaker Series), U.C. Berkeley (Distinguished Lectures in Data Science), MIT (Sloan Analytics Lab).

2019

- World Bank (*Keynote Speaker*, Human Development Forum), El Colegio de México (*Keynote Speaker*, Conference on Big Data in the Social Sciences), NBER (Economics of AI Conference), Microsoft Research New England (Economics Seminar), Brown University (Applied Micro Seminar), International Food Policy Research Institute (Applied Microeconomics Seminar), World Bank (Poverty and Equity Seminar), University of Zürich (Development/Trade Seminar), Instituto Tecnológico Autónomo de México (Department Seminar), Universidade NOVA de Lisboa (Development Seminar), University of San Francisco (Department Seminar)

2018

- London School of Economics (BREAD/CEPR/LSE/TCD Workshop in Development Economics), NeurIPS (*Keynote Speaker*, Workshop on ML for the Developing World), Paris School of Economics (Development Seminar), MIT (*Plenary Speaker*, Conference on Digital Experimentation), Stanford University (*Keynote Speaker*, ICWSM MPIDR Workshop), Google (Tech Talk), U.C. Berkeley (Oliver Williamson Seminar), AI for Economic Development Conference (*Keynote Speaker*), Paris School of Economics (Migration Seminar), University of Göttingen (Development Seminar), Development Economics Network (DENeB), U.C. Berkeley (Management of Organizations Seminar)

2017

- Stanford University (Development Seminar), University of Washington (Joint Seminar in Development Economics), World Bank (Global Poverty Seminar), Universitat Pompeu Fabra (Barcelona Summer Forum), Digital Credit Observatory (*Keynote Speaker*), Dartmouth University (Economics Departmental Seminar), Economic Demography Workshop (PAA), U.C. Berkeley (Development Economics Seminar), U.C. Berkeley (EECS Pro Seminar), U.C. Berkeley (BIDS Data Science Lecture)

2016

- Stanford University (CDDRL Seminar), 8th International Conference on Social Informatics (*Keynote Speaker*), Research and Policy on Big Data for the Global South (*Keynote Speaker*), U.C. Berkeley (Effective Altruism Conference), University of California Los Angeles (Institute for Pure and Applied Mathematics), Google (Financial Technology for Development), Wesleyan University (Digital and Computational Knowledge Seminar), Stanford University (AAAI Spring Symposium), Microsoft Research (Economics Seminar)

2015

- University of Chicago (Political Economy Seminar), Princeton University (Political Methodology Seminar), UC San Diego (Development Economics Seminar), National Academy of Sciences (Committee on National Statistics), University of Philippines (Computer Science Department Seminar), World Bank (Conference on Labor Markets in Low-Income Countries), UC Berkeley (CEGA R2), Yale University (Researcher Gathering on Financial Behavior), University of Washington (Institute for Health Metrics and Evaluation), University of Washington (Center for Statistics and the Social Sciences), UC Irvine (Information and Computer Science Department)

2014

- International Telecommunications Union (Mobile Data and Development); World Bank (Big Data for Development Symposium); University of Maryland, College Park (Information School Seminar); University of Washington (DUB seminar); LIRNEAsia Sri Lanka (Data and Development Forum); Stanford University (Freeman Spogli Institute for International Studies); University of California, Berkeley, CA (Electrical Engineering and Computer Science)

2013

- University of Washington (Economics Department Seminar); IZA Germany (World Bank Conference on Employment and Development); Microsoft Research (Faculty Summit); Massachusetts Institute of Technology (NetMob 2013); Microsoft Research New England (Economics Seminar); University of Washington (Departmental Colloquium, Computer Science & Engineering); University of Washington (Change Seminar); Massachusetts Institute of Technology (IPA/PEDL Workshop on Small and Medium Enterprise in Developing Regions)

2012

- U.C. Berkeley (USAID Workshop on Technology & Development); Asian Development Bank, Bangkok (Conference on Financial Inclusion); U.C. San Diego (Evaluating Mobile Innovations for Security and Accountability); Stanford University (Liberation Technologies Seminar); LSU (NSF Conference on Networks & Development); University of Michigan (Information School); Michigan State University (Dept. of Agricultural and Resource Economics); University of Washington (Information School); University of San Francisco (Economics Department Seminar); Pacific Technology Consortium; UT Austin (Lyndon B. Johnson School of Public Policy); University of Maryland (Information School); Michigan State University (Dept. Telecommunication, Information Studies & Media); Georgetown University (Dept. Communications, Culture & Technology)

Teaching

University of California, Berkeley

- INFO 288: Big Data and Development
- INFO 251: Applied Machine Learning
- INFO 290: Information and Communications Technology and Development

University of Washington

- INFX 574: Advanced Methods in Data Science
- INFX 573: Introduction to Data Science
- INFX 598: Big Data and Development
- INFO 371: Advanced Methods in Data Science (undergrad)

Kigali Institute of Science and Technology, Rwanda

- KIST: Survey and Research Design and Methods

Advising

Post-Doctoral Supervisor

- Nitin Kohli (U.C. Berkeley)
- Xiao Hui Tai (U.C. Davis)
- Cornelia Ilin (U.C. Berkeley)
- Jacqueline Mauro (Google)
- Shekhar Mittal (Amazon)
- Micky Fire (Ben-Gurion University)
- Ott Toomet (University of Washington)

Doctoral Committee Chair

- Robert On (Ph.D. 2018, Chan Zuckerberg Initiative)
- Muhammad Raza Khan (Ph.D. 2019, Microsoft Research)
- Niall Keleher (Ph.D. 2019, Stanford)
- Gabriel Cadamuro (Ph.D. 2020, Atlas AI)
- Guanghua Chi (Ph.D. 2021, Meta)
- Emily Aiken (Ph.D. 2024, University of California San Diego)
- Suraj Nair (2018-present)
- Simón Ramirez Amaya (2018-present)
- Satej Soman (2020-present)
- Zoe Kahn (2020-present)
- Susana Constenla-Villoslada (2022-present)
- Samuel Merritt Smith (2024-present)

Undergraduate Research Apprenticeship Program (Supervisor)

- Aarabhi Achanta, Cathryn Casatuta, Michael Chang, Daniel Cohen, Paige Dunn-Rankin, Lauren Fratamico, Sergey Goder, Aishwary Gunaseelan, Pauline Hidalgo, Varun Jadia, Musa Jalis, Minchao Lin, Andrew Linxie, Diana Louie, Conner Manuel, Anita Mehrotra, Viraj Mohan, Eshaan Moorjani, Ashley Nguyen, Vishal Sareddy, Tej Sathe, Adrian Serapio, Neda Shahiar, Jack (Ye) Shen, Yian Shen, Jai Singh, Viraj Thakur, Ana Tudor, Sushant Vema, Irene Widiaman, Jeffrey Wirjo, SioFong Wong, Amanda Wu, Edward Yam, Gautam Sai Yarramreddy, Katherine Yen.

Professional Service

Journals

- *Referee Service (Selected)*: American Economic Review; AER: Insights; American Economic Journal: Applied Economics; Communications of the ACM, EPJ Data Science; Econometrica; Journal of Development Economics; Journal of the European Economic Association; Nature; Nature Climate Change; Nature Communications; Nature Computational Science; Nature Human Behavior; Nature Scientific Reports; PLoS One; Proceedings of the National Academy of Sciences (reviewer and guest editor); Quarterly Journal of Economics; Review of Economics and Statistics; Review of Economic Studies; Science; Science Advances; World Bank Economic Review; World Development.

Conferences

- *Conference Chair*: Evaluating Mobile Innovations for Security and Accountability, San Diego, 2012.
- *Steering / Senior Program Committee:* ACM COMPASS (2021-2024); Measuring Development (2020-2024); ICTD 2019 (Ahmedabad, India), ICTD 2017 (Lahore, Pakistan), ICTD 2016 (Ann Arbor, MI), ICTD 2015 (Singapore, Singapore), ICTD 2013 (Cape Town, South Africa).
- *Program Committee:* NeurIPS workshop on Machine Learning for the Developing World (ML4D 2019); ACM Symposium on Computing for Development: DEV 2015 (London, UK), DEV 2014 (Palo Alto, CA); 77th ASIS&T Meeting, 2014 (Seattle, WA); ACM 22nd International World Wide Web Conference (WWW 2013), Rio de Janeiro, 2013; ACM 21st International Conference on Information and Knowledge Management (CIKM 2012), Maui, 2012; ICTD 2010, London, UK.
- *Referee Service and Peer Review*: AAAI Conference on Artificial Intelligence (AAAI); International Joint Conference on Artificial Intelligence (IJCAI); IEEE/ACM Conference on Information and Communication Technologies and Development (ICTD); Computing for Development (DEV); ACM Human

Factors in Computing Systems (CHI); ACM Computer-Supported Cooperative Work (CSCW); ACM International Conference on Information and Knowledge Management (CIKM); Hawaii Int'l Conference on System Sciences (HICSS);