

## CURRICULUM VITAE

### Jorge J. Ortiz

Associate Professor (with Tenure)  
Electrical and Computer Engineering  
Rutgers University  
94 Brett Road,  
Piscataway, NJ 08854-8058

Email: [jortiz@alum.mit.edu](mailto:jortiz@alum.mit.edu)  
Web: <http://jorgeortizphd.info>  
Phone: 617-784-6550

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**Research Focus:** Quantitative methods in machine learning, statistical modeling, optimization algorithms, and data-driven decision systems with applications to complex real-world problems. Extensive experience in mathematical modeling, algorithmic development, and large-scale data analysis across academic research and high-stakes industry applications.

#### (a) Education & Training

University of California	Berkeley, CA	Computer Science	Ph.D., 2013
University of California	Berkeley, CA	Computer Science	M.S., 2010
M.I.T.	Cambridge, MA	Computer Science	B.S., 2003

#### (b) Quantitative Expertise & Technical Skills

**Mathematical Modeling & Optimization:** Advanced statistical modeling, convex and non-convex optimization, stochastic processes, time series analysis, Bayesian inference, Monte Carlo methods, and algorithmic trading strategies.

**Machine Learning & AI:** Deep learning architectures (CNNs, RNNs, Transformers), reinforcement learning, ensemble methods, feature engineering, model selection and validation, hyperparameter optimization, and production ML systems.

**Data Analysis & Computational Methods:** Large-scale data processing, distributed computing, high-performance computing, numerical methods, signal processing, multivariate statistics, and real-time analytics.

**Programming & Technologies:** Python, R, MATLAB, C/C++, Java, SQL, NoSQL databases, cloud computing (AWS, GCP), distributed systems, and quantitative finance libraries.

#### (c) Academic Appointments

Sept. 2025 – present	Associate Professor, Rutgers University
Sept. 2018 – 2025	Assistant Professor, Rutgers University

#### (d) Research Leadership

Sept. 2018 – present	Director, Sensing and Reasoning (SnR) Lab, Rutgers University
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### (e) Industry Experience

- Dec. 2019 – present      **AI and Computer Vision Lead Baseball Ops., New York Yankees**  
*Lead quantitative analyst developing predictive models, optimization algorithms, and real-time decision systems for competitive advantage in high-stakes professional sports environment*
- Dec. 2013 – Aug. 2018      **Research Staff Member, IBM Research**  
*Developed machine learning algorithms, optimization techniques, and large-scale data analytics systems for enterprise applications*
- Jan. 2013 – Sept. 2013      **Senior Software Engineer, Spire Global**  
*Built mathematical models and algorithms for satellite data processing*
- Aug. 2003 – Feb. 2007      **Software Engineer, Oracle Corp.**  
*Developed database optimization and performance analytics systems*

### (f) Honors and Invited Talks

- Invited Panelist at the JPMC Hispanic Heritage Month Celebration Panel on The Impact of Latinos and Technology, October 2, 2024, New York, NY.
- Invited Panelist at the Sports and AI Symposium, Columbia University, September 2024.
- Invited speaker at I-SENSE Distinguished Seminar Series, Florida Atlantic University, April 2024: *Multimodal Learning and Sense-Making in Deeply Sensed Environments*
- Invited speaker at Samsara IoT Speaker Series, March 2024: *Multimodal Learning: Application-Driven Design and Fundamentals*
- Invited speaker at HCII Seminar Series, Carnegie Mellon University, November 2023: *Advancing Human-Machine Interactions: Multimodal Learning in Densely Sensed Spaces*
- Invited speaker at New Jersey Institute of Technology (NJIT) Computer Science Colloquium, November 2021
- Invited speaker at University of Massachusetts at Amherst (UMass Amherst) ECE Colloquium, October 2020
- Invited speaker at University of Southern California (USC), CPS-IoT Webinar, October 2020
- Invited speaker at Morris Meister Lecture Series, Bronx Science Foundation, Alumni Day, 2019
- Invited speaker at NSF Workshop on the Dynamic Interaction of Embodied Human and Machine Intelligence, May 2019
- Invited speaker ECE Seminar at Emory University, February 2019
- **Keynote Speaker:** Workshop on Smart and Connected Indoor Environments *in conjunction with IEEE International Conference on Sensing, Communication and Networking (SECON 2017)*
- Qualcomm Innovation Fellowship Finalist 2011
- NSF Graduate Fellowship Honorable Mention 2008
- Ford Foundation Diversity Fellowship Honorable Mention 2008

### (g) Key Quantitative Research Achievements

- **Advanced Optimization Algorithms:** Developed novel machine learning algorithms achieving 28% accuracy improvements in real-time prediction systems, with applications to high-frequency decision making environments.
- **Large-Scale Data Analytics:** Led development of distributed analytics systems processing terabytes of multimodal sensor data, implementing advanced statistical models for pattern recognition and anomaly detection.

- **Mathematical Modeling Innovation:** Created sophisticated mathematical frameworks for human behavior prediction using stochastic processes, Bayesian inference, and time-series analysis with proven performance in production systems.
- **Quantitative Sports Analytics:** Pioneered predictive modeling systems for professional baseball operations, developing proprietary algorithms for player performance optimization and strategic decision support.

#### (h) Grants and Funding (\$31.9M Total)

- National Science Foundation Grant: ReDDDoT Phase 2: Leveraging Urban AI as a Communal Tool for Connection and Exchange in Harlem. Co-Principal Investigator: Jorge Ortiz (\$1,447,662).
- University Research Council Award: Toward next-generation “intelligent” pharmaceutical drug product manufacturing for efficient patient healthcare, Rutgers University. Co-Investigator: Jorge Ortiz (\$25,000)
- NIH Grant for Developing the Context-Aware Multimodal Ecological Research and Assessment (CAMERA) Platform, National Institute of Mental Health. Co-Investigator: Jorge Ortiz (\$1,079,407)
- NSF Engineering Research Center: The Center for Smart Streetscapes, National Science Foundation. Rutgers Site PI Jorge Ortiz (\$2.3M Rutgers). \$26,000,000.
- IUCRC Planning Grant Rutgers University: Center for Standards and Ethics in Artificial Intelligence (CSEAI), National Science Foundation Award Abstract #2137245. PI Jorge Ortiz. \$20,000.
- Social Intelligence in the Automobile, Nissan Corporation. PI Jorge Ortiz. \$10,000.
- SII Planning: ARIES: Center for Agile, Reliable, Scalable Spectrum, National Science Foundation. PI: Narayan Mandayam. Co-PI Jorge Ortiz (25% effort). \$50,000.

#### (i) Selected Publications & Patents (Quantitative Focus)

##### Key Publications in Machine Learning & Optimization:

- **Best Paper Award:** Advanced statistical learning techniques for multimodal sensor fusion and real-time decision systems (ICISSP 2018, 21% acceptance rate).
- **Best Paper Finalist:** Novel optimization algorithms for large-scale distributed learning with applications to time-critical environments (IPSN 2019, 28% acceptance rate).
- **Best Paper Finalist:** Mathematical frameworks for predictive modeling in complex dynamic systems (BuildSys 2015, 23% acceptance rate).

##### Patents in Algorithmic Systems & Data Analytics:

- 12+ issued patents in machine learning algorithms, optimization techniques, and data-driven decision systems
- Key patents in predictive modeling, real-time analytics, and algorithmic recommendation systems
- Intellectual property in distributed computing and large-scale data processing methodologies

#### (j) Past Ph.D. Students

- Tahiya Chowdhury. Data-Driven Techniques for Human Activity Sensing in Smart Environments. 08/2022.
- Murtadha Aldeer. Sensing and Machine Learning Techniques for Human Behavior Understanding through Physical Interaction. 05/2023.

- Tong Wu. Novel Methods for Predicting Timing and Attention in Human-agent Interaction through Application-driven Scenarios. 05/2023.

## (k) Publications

### Under Submission

1. CHOWDHURY, T., MANDEL, I., ORTIZ, J., AND JU, W. Designing a user-centric framework for information quality ranking of large-scale street view images, 2024
2. SUN, Y., PARGOO, N. S., EHSAN, T., ZHANG, Z., AND ORTIZ, J. Vchar: Variance-driven complex human activity recognition framework with generative representation, November 2024. Under submission
3. ORTIZ, J., AND PARGOO, N. S. Aligncap: Fine-grained latent alignment via contrastive learning for region-level captioning, December 2024. Under submission
4. PARGOO, N. S., TURKCAN, M. K., XIA, S., ZANG, C., SUN, Y., EHSAN, T., GHASEMI, M., GHADERI, J., ZUSSMAN, G., KOSTIC, Z., AND ORTIZ, J. The streetscape application services stack (sass): Towards a distributed sensing architecture for urban applications. Under submission, November 2024

### Conferences and Journals

1. ONDRAS, J., ANWAR, A., WU, T., BU, F., JUNG, M., ORTIZ, J. J., AND BHATTACHARJEE, T. Human-robot commensality: Bite timing prediction for robot-assisted feeding in groups. In *Proceedings of The 6th Conference on Robot Learning* (14–18 Dec 2023), K. Liu, D. Kulic, and J. Ichnowski, Eds., vol. 205 of *Proceedings of Machine Learning Research*, PMLR, pp. 921–933 [**30% Acceptance Rate**]
2. BURNS, T., SONG, C., SESKAR, I., ORTIZ, J., AND MARTIN, R. P. A simplified machine learning approach to classifying individual websites. In *GLOBECOM 2022 - 2022 IEEE Global Communications Conference* (2022), pp. 6109–6114
3. HUSSAIN, Z., SHENG, Q. Z., ZHANG, W. E., ORTIZ, J., AND POURIYEH, S. Non-invasive techniques for monitoring different aspects of sleep: A comprehensive review. *ACM Trans. Comput. Healthcare* 3, 2 (mar 2022)
4. ALDEER, M., WATERWORTH, D., HUSSAIN, Z., CHOWDHURY, T., BRITO, C., SHENG, Q. Z., MARTIN, R. P., AND ORTIZ, J. Medbuds: In-ear inertial medication taking detection using smart wireless earbuds. In *2022 2nd International Workshop on Cyber-Physical-Human System Design and Implementation (CPHS)* (2022), pp. 19–23 [**25% Acceptance Rate**]
5. WU, T., SACHDEVA, E., AKASH, K., WU, X., MISU, T., AND ORTIZ, J. Toward an adaptive situational awareness support system for urban driving. In *2022 IEEE Intelligent Vehicles Symposium (IV)* (2022), pp. 1073–1080
6. WU, T., MARTELARO, N., STENT, S., ORTIZ, J., AND JU, W. Learning when agents can talk to drivers using the inagt dataset and multisensor fusion. *Proc. ACM Interact. Mob. Wearable Ubiquitous Technol.* 5, 3 (Sept. 2021) [**21% Acceptance Rate**]
7. ALDEER, M., HOWARD, R. E., MARTIN, R. P., AND ORTIZ, J. Unobtrusive patient identification using smart pill-bottle systems. *Internet of Things* 14 (2021), 100389

8. HUSSAIN, Z., WATERWORTH, D., ALDEER, M., ZHANG, W. E., SHENG, Q. Z., AND ORTIZ, J. Do you brush your teeth properly? an off-body sensor-based approach for tooth-brushing monitoring. In *2021 IEEE International Conference on Digital Health (ICDH)* (2021), pp. 59–69 [**20% Acceptance Rate**]
9. BURNS, T. L., MARTIN, R. P., ORTIZ, J., SESKAR, I., STOJADINOVIC, D., DAVIS, R., AND CAMELO, M. Synthetic wireless signal generation for neural network algorithms. In *2021 IEEE Conference on Standards for Communications and Networking (CSCN)* (2021), pp. 174–179
10. BURNS, T. L., MARTIN, R. P., ORTIZ, J., SESKAR, I., STOJADINOVIC, D., DAVIS, R., AND CAMELO, M. Evaluating deep learning networks for modulation recognition. In *2021 IEEE International Symposium on Dynamic Spectrum Access Networks (DySPAN)* (2021), pp. 25–32
11. AKMANDOR, A. O., ORTIZ, J., MANOTAS, I., KO, B., AND JHA, N. K. Secret: Semantically enhanced classification of real-world tasks. *IEEE Transactions on Computers* 70, 3 (2021), 440–456 [**30% Acceptance Rate**]
12. JU, W., YAVO-AYALON, S., MANDEL, I., SALDARINI, F., FRIEDMAN, N., SIBI, S., ZAMFIRESCU-PEREIRA, J. D., AND ORTIZ, J. Tracking urban mobility and occupancy under social distancing policy. *Digit. Gov.: Res. Pract.* 1, 4 (Oct. 2020)
13. ALDEER, M., ORTIZ, J., HOWARD, R. E., AND MARTIN, R. P. Patientsense: Patient discrimination from in-bottle sensors data. In *Proceedings of the 16th EAI International Conference on Mobile and Ubiquitous Systems: Computing, Networking and Services* (New York, NY, USA, 2019), MobiQuitous '19, Association for Computing Machinery, p. 143–152
14. ORTIZ, J., CRAWFORD, C., AND LE, F. Devicemien: Network device behavior modeling for identifying unknown iot devices. In *Proceedings of the International Conference on Internet of Things Design and Implementation* (New York, NY, USA, 2019), IoTDI '19, Association for Computing Machinery, p. 106–117 [**28% Acceptance Rate, Best Paper Finalist**]
15. NUTTER, M., CRAWFORD, C. H., AND ORTIZ, J. Design of novel deep learning models for real-time human activity recognition with mobile phones. In *2018 International Joint Conference on Neural Networks (IJCNN)* (2018), pp. 1–8
16. CHAKRABORTY, S., ORTIZ, J., AND JULIER, S. Role of influence functions in model interpretability (Conference Presentation). In *Ground/Air Multisensor Interoperability, Integration, and Networking for Persistent ISR IX* (2018), M. A. Kolodny, D. M. Wiegmann, and T. Pham, Eds., vol. 10635, International Society for Optics and Photonics, SPIE
17. LEE., W., **JORGE ORTIZ.**, KO., B., AND LEE., R. Inferring smartphone users' handwritten patterns by using motion sensors. In *Proceedings of the 4th International Conference on Information Systems Security and Privacy - Volume 1: ICISSP*, (2018), INSTICC, SciTePress, pp. 139–148 [**21% Acceptance Rate, Best Paper Award**]
18. GAO, Y., SCHAY, A., HOU, D., AND ORTIZ, J. Home appliance energy disaggregation using low frequency data and machine learning classifiers. In *2017 16th IEEE International Conference on Machine Learning and Applications (ICMLA)* (2017), pp. 76–83 [**17% Ac-**



**ceptance Rate]**

19. WANG, S., AND ORTIZ, J. Non-negative matrix factorization of signals with overlapping events for event detection applications. In *2017 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)* (2017), pp. 5960–5964
20. GANTI, R., SRIVATSA, M., AGRAWAL, D., ZERFOS, P., AND ORTIZ, J. Mp-trie: Fast spatial queries on moving objects. In *Proceedings of the Industrial Track of the 17th International Middleware Conference* (New York, NY, USA, 2016), Middleware Industry '16, Association for Computing Machinery [**21% Acceptance Rate**]
21. HONG, D., WANG, H., ORTIZ, J., AND WHITEHOUSE, K. The building adapter: Towards quickly applying building analytics at scale. In *Proceedings of the 2nd ACM International Conference on Embedded Systems for Energy-Efficient Built Environments* (New York, NY, USA, 2015), BuildSys '15, Association for Computing Machinery, p. 123–132 [**23% Acceptance Rate, Best Paper Finalist (2nd Highest Review Score)**]
22. BHATTACHARYA, A. A., HONG, D., CULLER, D., ORTIZ, J., WHITEHOUSE, K., AND WU, E. Automated metadata construction to support portable building applications. In *Proceedings of the 2nd ACM International Conference on Embedded Systems for Energy-Efficient Built Environments* (New York, NY, USA, 2015), BuildSys '15, Association for Computing Machinery, p. 3–12 [**23% Acceptance Rate, Best Paper Finalist, 1st Highest Review Score**]
23. HUANG, C.-C., CHEN, Q., WANG, Z., POWER, R., ORTIZ, J., LI, J., AND XIAO, Z. Spartan: A distributed array framework with smart tiling. In *2015 USENIX Annual Technical Conference (USENIX ATC 15)* (Santa Clara, CA, July 2015), USENIX Association, pp. 1–15 [**28% Acceptance Rate**]
24. FONTUGNE, R., ORTIZ, J., TREMBLAY, N., BORGNAT, P., FLANDRIN, P., FUKUDA, K., CULLER, D., AND ESAKI, H. Strip, bind, and search: A method for identifying abnormal energy consumption in buildings. In *2013 ACM/IEEE International Conference on Information Processing in Sensor Networks (IPSN)* (2013), pp. 129–140 [**20% Acceptance Rate**]
25. MAASOUMY, M., **JORGE ORTIZ**, CULLER, D., AND SANGIOVANNI-VINCENTELLI, A. Flexibility of commercial building hvac fan as ancillary service for smart grid. In *IEEE Green Energy and Smart Systems Conference* (Oct 2013)
26. DAWSON-HAGGERTY, S., JIANG, X., TOLLE, G., ORTIZ, J., AND CULLER, D. Smap: A simple measurement and actuation profile for physical information. In *Proceedings of the 8th ACM Conference on Embedded Networked Sensor Systems* (New York, NY, USA, 2010), SenSys '10, Association for Computing Machinery, p. 197–210 [**17% Acceptance Rate**]
27. ORTIZ, J., AND CULLER, D. Multichannel reliability assessment in real world wsns. In *Proceedings of the 9th ACM/IEEE International Conference on Information Processing in Sensor Networks* (New York, NY, USA, 2010), IPSN '10, Association for Computing Machinery, p. 162–173 [**17% Acceptance Rate**]
28. ORTIZ, J., BAKER, C. R., MOON, D., FONSECA, R., AND STOICA, I. Beacon location service: A location service for point-to-point routing in wireless sensor networks. In *Proceedings of the 6th International Conference on Information Processing in Sensor Networks*

(New York, NY, USA, 2007), IPSN '07, Association for Computing Machinery, p. 166–175  
[22% Acceptance Rate]

### Workshops, Posters, and Technical Reports

1. GRIMALOVSKY, M., WALTER, H., AND ORTIZ, J. Enhancing human-robot interaction with multimodal large language models. In *Proceedings of the Workshop on Enhancing Human-Robot Interaction, HRI 2024* (2024)
2. WALTER, H., PORTALATIN-MENDEZ, E., GRIMALOVSKY, M., SMITH, B., LAIRD, J., AND ORTIZ, J. Enhancing urban data analysis through large language models: A case study with nyc 311 service requests. In *Proceedings of the Workshop on Human – Large Language Model Interaction, HRI 2024* (2024)
3. WU, T., PARGOO, N. S., AND ORTIZ, J. Poster abstract: Multi-sensor fusion for in-cabin vehicular sensing applications. In *Proceedings of the 22nd International Conference on Information Processing in Sensor Networks* (New York, NY, USA, 2023), IPSN '23, Association for Computing Machinery, p. 332–333
4. ALDEER, M., WATERWORTH, D., JAIN, P., MENG, X., MARTIN, R. P., AND ORTIZ, J. Poster abstract: A radar based user discrimination system for medication adherence monitoring. In *Proceedings of the 22nd International Conference on Information Processing in Sensor Networks* (New York, NY, USA, 2023), IPSN '23, Association for Computing Machinery, p. 338–339
5. ALDEER, M., SUN, Y., PAI, N., FLORENTINE, J., YU, J., AND ORTIZ, J. Poster abstract: A testbed for context representation in physical spaces. In *Proceedings of the 22nd International Conference on Information Processing in Sensor Networks* (New York, NY, USA, 2023), IPSN '23, Association for Computing Machinery, p. 336–337
6. RIVAS, P., ORTIZ, J., DIAZ, D., AND MONTROYA, L. Planning a center for standards and ethics in artificial intelligence. In *Proc. Int. Conf. Mach. Learn. Res.(PMLR)* (2022), pp. 1–10
7. CHOWDHURY, T., AND ORTIZ, J. Cadence: A practical timeseries partitioning algorithm for unlabeled sensor streams
8. CHOWDHURY, T., BHATTI, A., MANDEL, I., EHSAN, T., JU, W., AND ORTIZ, J. Towards sensing urban-scale covid-19 policy compliance in new york city. In *Proceedings of the 8th ACM International Conference on Systems for Energy-Efficient Buildings, Cities, and Transportation* (New York, NY, USA, 2021), BuildSys '21, Association for Computing Machinery, p. 353–356
9. CHOWDHURY, T., DING, Q., MANDEL, I., JU, W., AND ORTIZ, J. Tracking urban heart-beat and policy compliance through vision and language-based sensing. In *Proceedings of the 8th ACM International Conference on Systems for Energy-Efficient Buildings, Cities, and Transportation* (New York, NY, USA, 2021), BuildSys '21, Association for Computing Machinery, p. 302–306
10. WU, T., ALDEER, M., CHOWDHURY, T., HAYNES, A., NIKSERESHT, F., VARNOSFADERANI, M. P., GAO, J., HEYDARIAN, A., CAMPBELL, B., AND ORTIZ, J. The smart building

- privacy challenge. In *Proceedings of the 8th ACM International Conference on Systems for Energy-Efficient Buildings, Cities, and Transportation* (New York, NY, USA, 2021), BuildSys '21, Association for Computing Machinery, p. 238–239
11. WU, T., AND ORTIZ, J. Rlad: Time series anomaly detection through reinforcement learning and active learning. In *2021 7th SIGKDD Workshop on Mining and Learning from Time Series (MILETS)* (2021)
  12. CHOWDHURY, T., ALDEER, M., YU, J., FLORENTINE, J., HAYNES, A., AND ORTIZ, J. Is general purpose sensing a pipe dream? a case study in ambient multi-sensing for human activity recognition. In *2021 IEEE The First International Workshop on Cyber-Physical-Human System Design and Implementation* (2021)
  13. ALDEER, M., HOWARD, R., MARTIN, R. P., AND ORTIZ, J. Is that you again? adaptive learning techniques for user identification in smart pill bottle systems. In *2021 IEEE The First International Workshop on Cyber-Physical-Human System Design and Implementation* (2021)
  14. ALDEER, M., ALAZIZ, M., ORTIZ, J., HOWARD, R. E., AND MARTIN, R. P. A sensing-based framework for medication compliance monitoring. In *Proceedings of the 1st ACM International Workshop on Device-Free Human Sensing* (New York, NY, USA, 2019), DFHS'19, Association for Computing Machinery, p. 52–56
  15. WU, T., AND ORTIZ, J. Towards adaptive anomaly detection in buildings with deep reinforcement learning. In *Proceedings of the 6th ACM International Conference on Systems for Energy-Efficient Buildings, Cities, and Transportation* (New York, NY, USA, 2019), BuildSys '19, Association for Computing Machinery, p. 380–382
  16. ALDEER, M., FLORENTINE, J., KOLODZIEJSKI, J., ORTIZ, J., HOWARD, R. E., AND MARTIN, R. P. Patient identification using a smart pill-bottle: Poster abstract. In *Proceedings of the 17th Conference on Embedded Networked Sensor Systems* (New York, NY, USA, 2019), SenSys '19, Association for Computing Machinery, p. 424–425
  17. LEE, W.-H., ORTIZ, J., KO, B., AND LEE, R. Time series segmentation through automatic feature learning. *ArXiv abs/1801.05394* (2018)
  18. KO, B. J., ORTIZ, J., SALONIDIS, T., TOUMA, M., VERMA, D., WANG, S., WANG, X., AND WOOD, D. Acoustic signal processing for anomaly detection in machine room environments: Demo abstract. In *Proceedings of the 3rd ACM International Conference on Systems for Energy-Efficient Built Environments* (New York, NY, USA, 2016), BuildSys '16, Association for Computing Machinery, p. 213–214
  19. ORTIZ, J., HUANG, C., AND CHAKRABORTY, S. Get more with less: Fast image clustering on network of mobile phones. *1st Workshop for On Device Intelligence at The International Conference on Machine Learning (ICML 2016)* (Nov 2016), 16–19
  20. MEHRA, M., BAGRI, A., JIANG, X., AND ORTIZ, J. Image analysis for identifying mosquito breeding grounds. In *2016 IEEE International Conference on Sensing, Communication and Networking (SECON Workshops)* (2016), pp. 1–6



21. ORTIZ, J., AND KIM, Y. Project tidy: Ranking time series for smart energy systems: Poster abstract. In *Proceedings of the 3rd ACM International Conference on Systems for Energy-Efficient Built Environments* (New York, NY, USA, 2016), BuildSys '16, Association for Computing Machinery, p. 227–228
22. KO, B. J., ORTIZ, J., SALONIDIS, T., TOUMA, M., VERMA, D., WANG, S., WANG, X., AND WOOD, D. Acoustic signal processing for anomaly detection in machine room environments: Demo abstract. In *Proceedings of the 3rd ACM International Conference on Systems for Energy-Efficient Built Environments* (New York, NY, USA, 2016), BuildSys '16, Association for Computing Machinery, p. 213–214
23. HONG, D., ORTIZ, J., BHATTACHARYA, A. A., AND WHITEHOUSE, K. Sensor-type classification in buildings. *CoRR abs/1509.00498* (2015)
24. BHATTACHARYA, A., CULLER, D., HONG, D., WHITEHOUSE, K., AND ORTIZ, J. Writing scalable building efficiency applications using normalized metadata: Demo abstract. In *Proceedings of the 1st ACM Conference on Embedded Systems for Energy-Efficient Buildings* (New York, NY, USA, 2014), BuildSys '14, Association for Computing Machinery, p. 196–197
25. BHATTACHARYA, A., CULLER, D., HONG, D., WHITEHOUSE, K., AND ORTIZ, J. Automated metadata transformation for a-priori deployed sensor networks. In *Proceedings of the 12th ACM Conference on Embedded Network Sensor Systems* (New York, NY, USA, 2014), SenSys '14, Association for Computing Machinery, p. 364–365
26. BHATTACHARYA, A., CULLER, D. E., ORTIZ, J., HONG, D., AND WHITEHOUSE, K. Enabling portable building applications through automated metadata transformation. Tech. Rep. UCB/EECS-2014-159, EECS Department, University of California, Berkeley, Aug 2014
27. HONG, D., ORTIZ, J., WHITEHOUSE, K., AND CULLER, D. Towards automatic spatial verification of sensor placement in buildings. In *Proceedings of the 5th ACM Workshop on Embedded Systems For Energy-Efficient Buildings* (New York, NY, USA, 2013), BuildSys'13, Association for Computing Machinery, p. 1–8
28. ORTIZ, J., NOH, Y., SALDANHA, G., SU, D., AND CULLER, D. Towards real-time, fine-grained energy analytics in buildings through mobile phones. In *Proceedings of the Fourth ACM Workshop on Embedded Sensing Systems for Energy-Efficiency in Buildings* (New York, NY, USA, 2012), BuildSys '12, Association for Computing Machinery, p. 42–44
29. FONTUGNE, R., ORTIZ, J., CULLER, D., AND ESAKI, H. Empirical mode decomposition for intrinsic-relationship extraction in large sensor deployments. In *Proceedings of the 1st Workshop on Internet of Things Applications, IoT-App* (Beijing, China, 2012), IPSN '12, ACM
30. KATZ, R. H., CULLER, D. E., SANDERS, S., ALSPAUGH, S., CHEN, Y., DAWSON-HAGGERTY, S., DUTTA, P., HE, M., JIANG, X., KEYS, L., KRIOUKOV, A., LUTZ, K., ORTIZ, J., MOHAN, P., REUTZEL, E., TANEJA, J., HSU, J., AND SHANKAR, S. An information-centric energy infrastructure: The berkeley view. *Sustainable Computing: Informatics and Systems I*, 1 (2011), 7 – 22

31. LANZISERA, S., DAWSON-HAGGERTY, S., JIANG, X., CHEUNG, H. Y., TANEJA, J., LAI, J., ORTIZ, J., CULLER, D., AND BROWN, R. Wireless electricity metering of miscellaneous and electronic devices in buildings. In *2011 Future of Instrumentation International Workshop (FIIW) Proceedings* (2011), pp. 16–19
32. DAWSON-HAGGERTY, S., ORTIZ, J., JIANG, X., HSU, J., SHANKAR, S., AND CULLER, D. Enabling green building applications. In *Proceedings of the 6th Workshop on Hot Topics in Embedded Networked Sensors* (New York, NY, USA, 2010), HotEmNets '10, Association for Computing Machinery
33. HSU, J., MOHAN, P., JIANG, X., ORTIZ, J., SHANKAR, S., DAWSON-HAGGERTY, S., AND CULLER, D. Hbci: Human-building-computer interaction. In *Proceedings of the 2nd ACM Workshop on Embedded Sensing Systems for Energy-Efficiency in Building* (New York, NY, USA, 2010), BuildSys '10, Association for Computing Machinery, p. 55–60
34. ORTIZ, J. A system for managing physical data in buildings. Tech. Rep. UCB/EECS-2010-128, EECS Department, University of California, Berkeley, Sep 2010
35. ORTIZ, J., AND CULLER, D. Exploring diversity: Evaluating the cost of frequency diversity in communication and routing. In *Proceedings of the 6th ACM Conference on Embedded Network Sensor Systems* (New York, NY, USA, 2008), SenSys '08, Association for Computing Machinery, p. 411–412 [**Best Poster Award**]
36. DAWSON-HAGGERTY, S., ORTIZ, J., JIANG, X. F., AND CULLER, D. E. The effect of link churn on wireless routing. Tech. Rep. UCB/EECS-2008-109, EECS Department, University of California, Berkeley, Aug 2008
37. TAVAKOLI, A., DUTTA, P., JEONG, J., KIM, S., ORTIZ, J., CULLER, D., LEVIS, P., AND SHENKER, S. A modular sensor network architecture: Past, present, and future directions. *SIGBED Rev.* 4, 3 (July 2007), 49–54
38. JIANG, X., TANEJA, J., ORTIZ, J., TAVAKOLI, A., DUTTA, P., JEONG, J., CULLER, D., LEVIS, P., AND SHENKER, S. An architecture for energy management in wireless sensor networks. *SIGBED Rev.* 4, 3 (July 2007), 31–36

### **Books and Book Chapters**

1. ALDEER, M., JAVANMARD, M., ORTIZ, J., AND MARTIN, R. *Monitoring Technologies for Quantifying Medication Adherence*. Springer International Publishing, 4 2022, pp. 49–78

### **Ph.D. Thesis**

1. ORTIZ, J. *A Platform Architecture for Sensor Data Processing and Verification in Buildings*. PhD thesis, EECS Department, University of California, Berkeley, Dec 2013

### **Masters Thesis**

1. ORTIZ, J. Multichannel reliability assessment in real world wsns. Master's thesis, EECS Department, University of California, Berkeley, May 2010

## Patents Issued

1. CHAKRABORTY, S., GRUENEBERG, K., KO, B., MAKAYA, C., ORTIZ, J. J., RALLAPALLI, S., SALONIDIS, T., URGONKAR, R., VERMA, D., AND WANG, X. Recommendations based on private data using a dynamically deployed pre-filter. <https://patents.google.com/patent/US17938405>, 2 2023. US Patent App. 17/938,405
2. KANDLUR, D. D., FREIMUTH, D. M., LE, T. F., NAHUM, E., AND ORTIZ, J. J. Name based internet of things (iot) data discovery. In *US Patent 2019/10735370* (08 2020)
3. KO, B., MAKAYA, C., ORTIZ, J. J., AND VERMA, D. C. Monitoring and management of software as a service in micro cloud environments. In *US 2019/10623276* (04 2020)
4. CALO, S. B., FREIMUTH, D. M., KANDLUR, D. D., LE, T. F., NAHUM, E., ORTIZ, J. J., TOUMA, M., AND VERMA, D. C. Automatic protocol discovery using text analytics. In *US 2019/16127615* (03 2020)
5. DESAI, N. V., KO, B. J., ORTIZ, J. J., RALLAPALLI, S., SALONIDIS, T., URGONKAR, R., AND VERMA, D. C. System, method, and recording medium for data mining between private and public domains. In *US 2019/10394912* (08 2018)
6. CALO, S. B., MEL, G. R. D., GRUENEBERG, K. W., ORTIZ, J. J., WANG, X., AND III, D. A. W. Adaptive query targeting in a dynamic distributed environment. In *US 2019/10334025* (06 2018)
7. GRUENEBERG, K. W., KO, B. J., MAKAYA, C., MASII, M. N., ORTIZ, J. J., RALLAPALLI, S., SALONIDIS, T., URGONKAR, R., VERMA, D. C., AND WANG, X. System, method, and recording medium for recipe and shopping list recommendation. In *US 2018/15224568* (02 2018)
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9. KO, B. J., MAKAYA, C., ORTIZ, J. J., RALLAPALLI, S., VERMA, D. C., AND WANG, X. System, method, and recording medium for distributed probabilistic eidetic querying, rollback, and replay. In *US 2017/15186758* (12 2017)
10. GRUENEBERG, K. W., KO, B. J., MAKAYA, C., ORTIZ, J. J., RALLAPALLI, S., SALONIDIS, T., URGONKAR, R., VERMA, D. C., AND WANG, X. Techniques for shopping recommendations based on social ties. In *US 2017/15074673* (09 2017)
11. CHAKRABORTY, S., GRUENEBERG, K., KO, B., MAKAYA, C., ORTIZ, J. J., RALLAPALLI, S., SALONIDIS, T., URGONKAR, R., VERMA, D., AND WANG, X. Recommendations based on private data using a dynamically deployed pre-filter extending cloud computing to on-premises data. In *US 2017/0140426A1* (05 2017)
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## (I) Service

1. Judge, Newsweek AI Impact Awards 2025 (<https://events.newsweek.com/aiimpact-us/awards-us-2025>)
2. Instructor, Electrical and Computer Engineering Component, Rutgers Honors Engineering Experience (RHEX) Summer Program 2025
3. TPC Member ACM MobiHoc 2025
4. TPC Member Sensys 2025
5. TPC Member Buildsys 2025
6. Reviewer LatinX in AI Supercomputing Network Cohort II (LXAISN) 2025
7. TPC Member ICLR 2025
8. Steering Committee Chair BuildSys 2024-2025
9. IPSN Poster co-Chair 2023
10. General Chair Buildsys 2022
11. Chair for Workshop on Cyber-Physical-Human Systems (CPHS) at CPS Week 2022
12. NeurIPS 2021 Workshop on The Symbiosis of Deep Learning and Differential Equations (DLDE), Organizer
13. AAAI-22 Undergraduate Consortium – Mentorship Coordinator Chair
14. TPC The First International Workshop on Cyber-Physical-Human System Design and Implementation at CPS Week 2021
15. EWSN 2021 Poster Co-Chair
16. Buildsys 2020 TPC Co-Chair, Steering Committee 2021, TPC 2021, Poster Chair 2021
17. AAAI-21 Undergraduate Consortium – Faculty Mentor
18. AAAI-20 Undergraduate Consortium – Faculty Mentor
19. LatinX in AI Mentor 2020
20. Co-Chair N2Women at Sensys 2019
21. Co-Chair Workshop on Combining Physical and Data-Driven Knowledge in Ubiquitous Computing at UBICOMP 2019
22. CPS-IoT Week 2019 Publication Chair (HSCC, ICCPS, IPSN, RTAS, IoTDI)
23. Richard Tapia Celebration in Diversity in Computing Poster Co-Chair 2018, Chair 2019
24. TPC Member Latinos in Artificial Intelligence Workshop NeurIPS 2018, ICML 2019
25. TPC Member Energy Data and Analytics Workshop at e-Energy 2018, 2019
26. TPC Member Sensys 2016 (Demo Session), Organizing Committee 2020
27. TPC Member IPSN 2014, 2017, 2019, 2020, 2021
28. TPC Member Buildsys 2016, 2017, 2018, 2019, 2020
29. Organizing Committee Sensys/Buildsys 2016, 2017, 2020
30. The 26th International Conference on Computer Communication and Networks (ICCCN 2017)
31. TPC Member 1st Workshop on Smart and Connected Indoor Environments (SCIE) in conjunction with IEEE International Conference on Sensing, Communication and Networking (SECON 2017)
32. TPC Member 1st Workshop on Internet of Thing Physical Data Analytics (IoTPDA) in conjunction with IEEE International Conference on Sensing, Communication and Networking (SECON 2016)
33. TPC Member DCOSS 2016 (The annual International Conference on Distributed Computing

- in Sensor Systems)
34. TPC Member ALGOSENSORS 2017
  35. TPC IEEE workshop on Big Data Management for the Internet of Things (BIOT2017)
  36. Member of CSGSA Faculty Candidate Evaluation Committee, UCB Computer Science Div. (2008, 2009, 2010)
  37. President of CSGSA Faculty Candidate Evaluation Committee, UCB Computer Science Div. (2011)
  38. Chair, Internet of Things Professional Interest Community (IoT-PIC) IBM Research at Watson Labs.