PANDARASAMY ARJUNAN | CURRICULUM VITAE

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RESEARCH INTERESTS

Urban informatics, Smart environments, Cyber-physical systems, Edge computing, Data science and Machine learning.

EDUCATION

Indraprastha Institute of Information Technology (IIIT) Delhi — **New Delhi, India**
PhD in Computer Science and Engineering — *July 2010 – April 2018*
Thesis title: Middleware systems and analytics for energy management in buildings.

Madurai Kamaraj University — **Madurai, India**
Master of Computer Applications — *Aug. 2004 – May 2007*

Manonmaniam Sundaranar University — **Tirunelveli, India**
Bachelor of Science in Computer Science — *July 2001 – May 2004*

EXPERIENCE

Berkeley Education Alliance for Research in Singapore Limited — **Singapore**
Postdoctoral Scholar — *June 2018 – Present*
Advisor: Prof. Kameshwar Poolla, University of California, Berkeley

Indraprastha Institute of Information Technology (IIIT) Delhi — **New Delhi, India**
PhD Scholar — *July 2010 – April 2018*

SenSing Private Limited — **Singapore**
Consultant (Data Science) — *Dec 2017 – May 2018*

DataGlen Technologies Private Limited — **Bangalore, India**
Data Scientist — *June 2016 – May 2017*

IBM India Research Laboratory — **Bangalore, India**
Research Intern — *July 2014 – Oct. 2014*

University of California, Los Angeles — **Los Angeles, USA**
Visiting Graduate Researcher (Advisor: Prof. Mani B. Srivastava) — *Mar 2013 – Nov. 2013*

IBM Global Business Services — **Bangalore, India**
Associate System Engineer — *Jan. 2010 – July 2010*

HCL Technologies — **Cheanni, India**
Software Engineer — *July 2007 – Dec. 2009*

HONORS AND AWARDS

- **IBM PhD Fellowship** for two consecutive years (July 2012 – June 2014).
- Certificate of *Honourable Mention*, Poster session, COMSNETS 2012.

PUBLICATIONS

Journals

[J1] Pandarasamy Arjunan, Kameshwar Poolla, and Clayton Miller. Energystar++: Towards more accurate and explanatory building energy benchmarking. *Applied Energy*, 276:115413, 2020.

[J2] Clayton Miller, Pandarasamy Arjunan, Anjukan Kathirgamanathan, Chun Fu, Jonathan Roth, June Young Park, Chris Balbach, Krishnan Gowri, Zoltan Nagy, Anthony D Fontanini, et al. The ashrae great energy predictor iii competition: Overview and results. *Science and Technology for the Built Environment*, pages 1–21, 2020.

[J3] Clayton Miller, Anjukan Kathirgamanathan, Bianca Picchetti, Pandarasamy Arjunan, June Young Park, Zoltan Nagy, Paul Raftery, Brodie W Hobson, Zixiao Shi, and Forrest Meggers. The building data genome project 2: Hourly energy meter data from the ashrae great energy predictor iii competition. *arXiv preprint arXiv:2006.02273*, 2020.

[J4] June Young Park, Xiya Yang, Clayton Miller, Pandarasamy Arjunan, and Zoltan Nagy. Apples or oranges? identification of fundamental load shape profiles for benchmarking buildings using a large and diverse dataset. *Applied energy*, 236:1280–1295, 2019.

[J5] Matias Quintana, Pandarasamy Arjunan, and Clayton Miller. Islands of misfit buildings: Detecting uncharacteristic electricity use behavior using load shape clustering. In *BUILDING SIMULATION*. Springer, 2020.

[J6] Nivetha Vadamalraj, Kishor Zingre, Subathra Seshadhri, Pandarasamy Arjunan, and Seshadhri Srinivasan. Hybrid ventilation system and soft-sensors for maintaining indoor air quality and thermal comfort in buildings. *Atmosphere*, 11(1):110, 2020.

Conferences

[C1] Pandarasamy Arjunan, Nipun Batra, Haksoo Choi, Amarjeet Singh, Pushpendra Singh, and Mani B Srivastava. Sensoract: a privacy and security aware federated middleware for building management. In *Proceedings of the Fourth ACM Workshop on Embedded Sensing Systems for Energy-Efficiency in Buildings*, pages 80–87, 2012.

[C2] Pandarasamy Arjunan, Harshad D Khadilkar, Tanuja Ganu, Zainul M Charbiwala, Amarjeet Singh, and Pushpendra Singh. Multi-user energy consumption monitoring and anomaly detection with partial context information. In *Proceedings of the 2nd ACM International Conference on Embedded Systems for Energy-Efficient Built Environments*, pages 35–44, 2015.

[C3] Pandarasamy Arjunan, Manaswi Saha, Haksoo Choi, Manoj Gulati, Amarjeet Singh, Pushpendra Singh, and Mani B Srivastava. Sensoract: a decentralized and scriptable middleware for smart energy buildings. In *2015 IEEE 12th Intl Conf on Ubiquitous Intelligence and Computing and 2015 IEEE 12th Intl Conf on Autonomic and Trusted Computing and 2015 IEEE 15th Intl Conf on Scalable Computing and Communications and Its Associated Workshops (UIC-ATC-ScalCom)*, pages 11–19. IEEE, 2015.

[C4] Pandarasamy Arjunan, Mani Srivastava, Amarjeet Singh, and Pushpendra Singh. Openban: An open building analytics middleware for smart buildings. In *proceedings of the 12th EAI International Conference on Mobile and Ubiquitous Systems: Computing, Networking and Services on 12th EAI International Conference on Mobile and Ubiquitous Systems: Computing, Networking and Services*, pages 70–79, 2015.

[C5] Nipun Batra, Pandarasamy Arjunan, Amarjeet Singh, and Pushpendra Singh. Experiences with occupancy based building management systems. In *2013 IEEE Eighth International Conference on Intelligent Sensors, Sensor Networks and Information Processing*, pages 153–158. IEEE, 2013.

[C6] Haroon Rashid, Pandarasamy Arjunan, Pushpendra Singh, and Amarjeet Singh. Collect, compare, and score: a generic data-driven anomaly detection method for buildings. In *Proceedings of the Seventh International Conference on Future Energy Systems Poster Sessions*, pages 1–2, 2016.

Workshop/Poster/Demo Presentations

[W1] Pandarasamy Arjunan. Occupant-centric federated cyber-physical system for building management.

[W2] Pandarasamy Arjunan. Fine-grained resource (electricity) management in buildings. In *2012 Fourth International Conference on Communication Systems and Networks (COMSNETS 2012)*, pages 1–2. IEEE, 2012.

[W3] Pandarasamy Arjunan, Manaswi Saha, Manoj Gulati, Nipun Batra, Amarjeet Singh, and Pushpendra Singh. Sensoract: Design and implementation of fine-grained sensing and control sharing in buildings. In *the poster track of 10th USENIX Symposium on Networked Systems Design and Implementation (NSDI'13)*, 2013.

[W4] Abhishek Bhardwaj, Pandarasamy Arjunan, Amarjeet Singh, Vinayak Naik, and Pushpendra Singh. Melos: a low-cost and low-energy generic sensing attachment for mobile phones. In *Proceedings of the 5th ACM workshop on Networked systems for developing regions*, pages 27–32, 2011.

INVITED TALKS

- *Outlier detection in big time series*, International E-Conference on Recent Developments in Science, Engineering and Information Technology, Madurai Kamaraj University, India. *Sep. 2020*
- *Introduction to Reproducible Research*, Department of Computer Science and Engineering, Manonmaniam Sundaranar University, Tirunelveli, India. *Mar.2020*
- *BEEM: Towards more accurate and explanatory building energy benchmarking for Singapore*, BEARS Symposium, Singapore. *Aug. 2019*
- *Data-driven Load Profiling and Benchmarking for Commercial Buildings*, BUDS Lab Workshop, National University of Singapore, Singapore. *Jul 2018*
- *SensorAct: A Privacy and Security Aware Federated Middleware for Building Management*, Synergy Lab, University of California, San Diego, USA. *Mar. 2013*
- *MELOS: A Low-Cost and Low-Energy Generic Sensing Attachment for Mobile Phones*, IGIT, GGSIP University, Delhi, India. *Jun. 2011*

SERVICES

Program Committee member: ACM BuildSys 2020.

Poster and Demo Co-chair: ACM BuildSys 2018.

Reviewer: ACM Transactions on Cyber-Physical Systems, ACM BuildSys 2012-13, ACM eEnergy 2013-14 and 2020, ICDCIT 2013, and CONECCT 2013.

Web chair: ACM BuildSys 2014-16, ACM eEnergy 2015, ACM SenSys 2016.

TEACHING AND MENTORING

- Probability and Statistics
- System Management
- Mobile Computing
- Computer Networks

GRADUATE COURSES

- Advanced Algorithms
- Embedded Systems
- Adhoc Wireless Networks
- Fundamentals of Computer Security
- Advanced Research Methods
- Machine Learning (Coursera)
- Middleware Systems
- Mobile Computing
- Mobile and Wireless Network Security
- Technical Writing