Urban computing is a process of acquisition, integration, and analysis of big and heterogeneous data generated by a diversity of sources in urban spaces, such as sensors, devices, vehicles, buildings, and human, to tackle the major issues that cities face, e.g., air pollution, increased energy consumption, and traffic congestion. Urban computing connects unobtrusive and ubiquitous sensing technologies, advanced data management and analytics models, and novel visualization methods, to create win-win-win solutions that improve urban environment, human life quality, and city operation systems. Urban computing also helps us understand the nature of urban phenomena and even predict the future of cities. Urban computing is an interdisciplinary field fusing the computing science with traditional fields, like transportation, civil engineering, economy, ecology, and sociology, in the context of urban spaces.

This special issue is comprised of nine interesting papers concerning three aspects of cities:

- The first three papers, consisting of “Detecting and Analyzing Urban Regions with High Impact of Weather Change on Transport”, “Significant Linear Hotspot Discovery”, and “Optimal Pick up Point Selection for Effective Ride Sharing”, study the locations and the structure between locations in a city, using a diversity of data. The understanding of urban structure helps better planning a city’s infrastructures, such as road networks and public transportation systems.


- The last three papers: “Activity-Based Human Mobility Patterns Inferred from Mobile Phone Data: A Case Study of Singapore”, “Modeling Urban Activity by Mining Geotagged Social Data”, and “Visual Analysis of Multiple Route Choices based on GPS trajectories”, explore human mobility patterns in cities, based on mobile phone data or GPS trajectories.

![Guest Editors](https://www.microsoft.com/en-us/research/people/yuzheng/)

Yu Zheng is a senior research manager in Urban Computing Group, Microsoft Research, passionate about using big data and AI technology to tackle urban challenges. His research interests include big data analytics, spatio-temporal data mining, machine learning, and artificial intelligence. He currently serves as the editor-in-chief of the ACM Transactions on Intelligent Systems and Technology and a member of Editorial Advisory Board of IEEE Spectrum. He is also an editorial board member of the IEEE Transactions on Big Data and the founding secretary of SIGKDD China Chapter. Zheng has served as chair on more than 10 prestigious IEEE/ACM international conferences, e.g., as the program co-chair of ICDE 2014 (Industrial Track) and CIKM 2017 (Industrial Track). In 2013, he was named one of the Top Innovators under 35 by MIT Technology Review (TR35) and featured by Time Magazine for his research on urban computing. In 2014, he was honored ACM Distinguished scientist. He is also a chair professor with Shanghai Jiao Tong University, an adjunct professor with Hong Kong University of Science and Technology, and Hong Kong Polytechnic University. More details at https://www.microsoft.com/en-us/research/people/yuzheng/.

![Cecilia Mascolo](https://www.cl.cam.ac.uk/users/cm542)

Cecilia Mascolo received the PhD degree from the University of Bologna. She is full professor of Mobile Systems in the Computer Laboratory, University of Cambridge, U.K. She is also a fellow of Jesus College Cambridge and a Faculty fellow at the Alan Turing Institute for Data Science in London. Prior to joining Cambridge in 2008, she was a faculty member in the Department of Computer Science at University College London. Her research interests are in human mobility modelling, mobile and sensor systems and networking and spatio-temporal data analysis. She has published in a number of top tier conferences and journals in the area and her investigator experience spans projects funded by Research Councils and industry. She has received numerous best paper awards and in 2016 was listed in “10 Women in Networking /Communications You Should Know”. She has served as organizing and programme committee member of mobile, sensor systems, networking, data science conferences and workshops. She has delivered a number of keynote talks at conferences and workshops in the area of mobility, data science, pervasive computing and systems. She sits on the editorial boards of the IEEE Pervasive Computing, the IEEE Transactions on Mobile Computing, the ACM Transactions on Sensor Networks, and the ACM Transactions on Interactive, Mobile, Wearable and Ubiquitous Technologies. More details at www.cl.cam.ac.uk/users/cm542.
Claudio T. Silva is a professor of computer science and engineering and data science at New York University. His research interests include visualization, visual analytics, reproducibility and provenance, geometric computing, data science/big data, sports analytics, urban computing and computer graphics. He has held positions in academia and industry, including at AT&T, IBM, Lawrence Livermore National Labs, Sandia National Labs, and the University of Utah. Claudio has advised 15 PhD and 8 MS students, and mentored 6 post-doctoral associates. He has published more than 220 journal and conference papers, is an inventor of 12 US patents, and authored 12 papers that have received “Best Paper Awards” (including honorable mentions). He has more than 13,000 citations according to Google Scholar. He is a fellow of the IEEE, and was received the 2014 IEEE Visualization Technical Achievement Award “in recognition of seminal advances in geometric computing for visualization and for contributions to the development of the VisTrails data exploration system.” Claudio’s research has been funded by US National Science Foundation, DOE, NIH, NASA, DOD, AT&T, IBM, ExxonMobil, McGraw-Hill Education, MLBAM, Moore Foundation, Sloan Foundation, LLNL, Sandia, Los Alamos, State of Utah, University of Utah, Center for Urban Science and Progress, and New York University.