

Introduction to this Special Issue: Urban Analytics and Mobility (Part 1)

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Mobility in Urban environments is a problem of global scale. According to the latest INRIX Global Traffic Scorecard [1], drivers in the United States wasted \$305 billion in 2017 alone. This number is derived from more than 11 billion liters of wasted fuel per year, and 6.9 billion of man-hours stuck in traffic per year [2]. In addition, the INRIX study shows that this problem is global. Measured per-capita, people in Russia and Thailand spend even more time in traffic, while Brazil, South Africa, the UK, and Germany are only slightly behind the US.

The SIGSPATIAL community has always been working diligently on providing new ideas, algorithms and solutions to alleviate this problem, shown by many publications on traffic prediction, travel time optimization, route planning and related topics.¹ At the same time, this research field is changing rapidly. As discussed by Bryan Mistele, Founder & CEO of INRIX, in his keynote at SIGSPATIAL 2017,² “the mega-trends of Autonomous, Connected, Electric and Shared vehicles (the ‘ACES’) are transforming transportation”.

Following this discussion, this special issue of the SIGSPATIAL Special Newsletter contains three articles which present visions, challenges, and solutions to improve transportation issues in urban environments.

- In the first article, Li and Shahabi give a brief overview of machine learning methods for short-term traffic forecasting and discuss future directions,
- in the second article, Li, Kim, Xu and Zhou present an introduction to time-dependent route scheduling, thus using speed profiles of a network for improved routing,
- in the third article, Zang, Chen and Trajcevski discuss the challenge of employing high definition maps in urban context, in order to improve self-localization of vehicles for more efficient navigation.

I would like to thank the authors for their contributions, and I hope the readers will enjoy reading this issue and find it useful in their research work.

References

- [1] G. Cookson. Inrix global traffic scorecard (2017). INRIX Research, February, (published February 2018).
- [2] D. Schrank, B. Eisele, T. Lomax, and J. Bak. Urban Mobility Scorecard. *The Texas A&M Transportation Institute and INRIX, 2015.*

¹For example, see the SIGSPATIAL 2017 Program: <https://sigspatial2017.sigspatial.org/program/>

²<https://sigspatial2017.sigspatial.org/keynotes/#bryan>