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Dept. of Civil Engg.
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Skills
Java, R
QGIS, LaTeX
NLogit, MATSim
TransCAD, TRANSYT

Research interests
Agent-based-simulation,
Traffic flow modeling,
Transport externalities,
Emission modeling,
Evacuation, Road Safety,
Bicycle modeling,

OS Preference
MacOS ★★★★★
Linux ★★★★☆
Windows ★★★★☆

Amit Agarwal

Assistant Professor, IIT Roorkee, India

Past experience

Aug 2018 – Dec 2018, Research Scientist, Robert Bosch, Singapore
At Bosch, I was working on smart-city projects as well as setting up the infrastructure and training team members for multi-agent transport simulation framework.

March 2017 – Aug 2018, Research Associate, TU Berlin, Germany
At TU Berlin, I was involved in the development of various modules for MATSim. I have done extensive work related to scenario generation, calibration and validation of mixed traffic scenarios. Various policies have investigated in the direction of sustainable transportation.

June 2012 – Apr 2013, Dy. Manager, ICT, New Delhi, India
ICT is an international transportation consultancy. I have helped, designed, tested to develop an application (RADaR) for recording and analysing road accident data effectively. I have done road safety audit for 400km, planned and supervised several traffic surveys for several DPR and other projects.

Jan 2010 – May 2010, Lecturer, SBCET, Jaipur, India
SBCET is a private engineering college in Jaipur. I have delivered lectures in traffic engineering and soil mechanics and performed several academic tasks.

July 2009 – Dec 2009, Trader,Futures First, Jaipur, India
Futures First deals in the international financial markets and trades in interest rates, currencies, commodities and derivatives. I have traded short term interest rate futures (Sterling) in LIFFE, UK.

Education

2013 – 2017, distinction
PhD in Traffic and Transportation Engineering
Technische Universität Berlin, Germany
Thesis title - Mitigating Negative Transport Externalities in Industrialized and Industrializing Countries

2010 – 2012, GPA 9.47/10
Master of Technology in Transportation Engineering
Indian Institute of Technology Delhi, India
Research project at Technische Universität Berlin, Germany
Thesis title - Agent Based Simulation of the travel demand for Patna City, India

2005 – 2009, GPA 8.47/10
Bachelor of Technology in Civil Engineering
Malaviya National Institute of Technology Jaipur, India
Thesis title - Use of Copper Slag in Bituminous Pavement

Languages
Hindi ★★★★★
English ★★★★★
German ★★★☆☆

Scientific societies
TRG, ITEA, IRC, IE(India), WCTR

Personal details
DOB: June 07, 1985
Civil status: Married
Nationality: Indian
Gender: Male

Internship

May 2008 - July 2008, Airport Authority of India, Jaipur, India
8 weeks internship at international airport Jaipur, India. I learned construction techniques of Apron and Taxiways, and conducted several tests on pavements.

May 2007 - June 2007, RIDCOR Jaipur, India
4 weeks internship at RIDCOR, Jaipur, India. I got an opportunity to see the batching plant and laying of different layers of asphalt pavements.

Awards and nominations

Best student paper award at CTRG 2017
Best paper award at ABMTRANS 2015
DAAD PhD Scholarship for period 2013-2017
NBCC award of excellence 2012
Nomination for INAE Students Projects Award 2012
DAAD IIT Master Sandwich Scholarship 2011-2012

References

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Publications

Journal articles

Agarwal, A. and I. Kaddoura (2019). "On-road air pollution exposure to cyclists in an agent-based simulation framework". In: *Periodica Polytechnica Transportation Engineering*. DOI: 10.3311/PPtr.12661.

Agarwal, A., D. Ziemke, and K. Nagel (2019a). "Bicycle superhighway: an environmentally sustainable policy for urban transport". In: *Transportation Research Part A: Policy and Practice*. DOI: 10.1016/j.tra.2019.06.015.

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Agarwal, A. and B. Kickhöfer (2018). "The correlation of externalities in marginal cost pricing: lessons learned from a real-world case study". In: *Transportation* 45.3, pp. 849–873. DOI: 10.1007/s11116-016-9753-z.

Kickhöfer, B., A. Agarwal, and K. Nagel (2018). "Mind the price gap: how optimal emission pricing relates to the EU CO_2 reduction targets". In: *International Journal of Sustainable Transportation* 13.5, pp. 378–391. DOI: 10.1080/15568318.2018.1472321.

Agarwal, A., G. Lämmel, and K. Nagel (2017). "Incorporating within link dynamics in an agent-based computationally faster and scalable queue model". In: *Transportmetrica A: Transport Science* 14.5-6, pp. 520–541. DOI: 10.1080/23249935.2017.1364802.

Agarwal, A. and G. Lämmel (2016). "Modeling seepage behavior of smaller vehicles in mixed traffic conditions using an agent based simulation". In: *Transp. in Dev. Econ.* 2.2, pp. 1–12. DOI: 10.1007/s40890-016-0014-9.

Lakshay, A. Agarwal, and N. B. Bolia (2016). "Route guidance map for emergency evacuation". In: *Journal of Risk Analysis and Crisis Response* 6.3, pp. 135–144. DOI: 10.2991/jrarc.2016.6.3.3.

Agarwal, A. and B. Kickhöfer (2015). "Agent-based simultaneous optimization of congestion and air pollution: A real-world case study". In: *Procedia Computer Science* 52.C, pp. 914–919. ISSN: 1877-0509. DOI: 10.1016/j.procs.2015.05.165.

Agarwal, A. and G. Lämmel (2015b). "Seepage of smaller vehicles under heterogeneous traffic conditions". In: *Procedia Computer Science* 52.C, pp. 890–895. ISSN: 1877-0509. DOI: 10.1016/j.procs.2015.05.147.

Agarwal, A., M. Zilske, K. Rao, and K. Nagel (2015). "An elegant and computationally efficient approach for heterogeneous traffic modelling using agent based simulation". In: *Procedia Computer Science* 52.C, pp. 962–967. ISSN: 1877-0509. DOI: 10.1016/j.procs.2015.05.173.

Conference proceedings

Prajapati, A. K., A. Gora, A. Agarwal, and I. Ghosh (2020). “Use of computer vision to automatize traffic data collection under mixed traffic condition”. In: *2nd ASCE India Conference on Challenges of Resilient and Sustainable Infrastructure Development in Emerging Economies*.

Thombre, A., I. Ghosh, and A. Agarwal (2020). “Examinig road safety compliance among motorised two wheelers in Delhi - A cross-sectional study”. In: *2nd ASCE India Conference on Challenges of Resilient and Sustainable Infrastructure Development in Emerging Economies*.

Ziemke, D., I. Kadoura, and A. Agarwal (2019). “Entwicklung eines regionalen, agentenbasierten Verkehrssimulationsmodells zur Analyse zukünftiger Verkehrsszenarien für die Region Ruhr”. In: *10. Wissenschaftsforum Mobilität : Mobility in Times of Change - Past - Present - Future*. Ed. by P. H. DOI: 10.1007/978-3-658-26107-8_29.

Agarwal, A. and A. Dhamaniya (2018). “Impact of dynamic passenger car units in an agent-based simulation framework”. In: *Conference on Recent Advances in Traffic Engineering (RATE), India*.

Agarwal, A. and I. Kaddoura (2018). “On-road air pollution exposure to cyclists in an agent-based simulation framework”. In: *NECTAR Cluster 7 Workshop: Social and Health Issues in Transportation*. see vspwp 17-22 at http://www.vsp.tu-berlin.de/publications/vspwp/. Utrecht.

Agarwal, A., G. Flötteröd, and K. Nagel (2017). “Calibration of behavioural parameters using optimization technique in an agent-based transport simulation”. In: *hEART 2017 – 6th Symposium of the European Association for Research in Transportation*.

Agarwal, A., D. Ziemke, and K. Nagel (2017). “Calibration of heterogeneous traffic scenario in an agent-based simulation framework”. In: *4th Conference of the Transportation Research Group of India (CTRG)*. 17-13. URL http://www.vsp.tu-berlin.de/publications.

Kaddoura, I., A. Agarwal, and B. Kickhöfer (2017a). “Simulation-based optimization of congestion costs, noise damages and air pollution costs: the impact of route and mode choice”. In: *ITEA Annual Conference and School on Transportation Economics*. URL http://www.vsp.tu-berlin.de/publications.

Agarwal, A., G. Lämmel, and K. Nagel (2016). “Modelling of Backward Travelling Holes in Mixed Traffic Conditions”. In: *Traffic and Granular Flow ’15*. Ed. by V. L. Knoop and W. Daamen. Delft, NL: Springer International Publishing. Chap. 53, pp. 419–426. ISBN: 978-3-319-33482-0. DOI: 10.1007/978-3-319-33482-0_53.

Agarwal, A., B. Kickhöfer, and K. Nagel (2015). “The internalization of congestion and air pollution externalities: evaluating behavioral impacts”. In: *14th Conference on Travel Behaviour Research (IATBR)*. Also VSP WP 15-11, see http://www.vsp.tu-berlin.de/publications. Windsor, England. URL: www.iatbr.org.

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Kickhöfer, B. and A. Agarwal (2015). “Is marginal emission cost pricing enough to comply with the EU CO2 reduction targets?” In: *hEART 2015 – 4th Symposium of the European Association for Research in Transportation*. Also see VSP WP 15-16 http://www.vsp.tu-berlin.de/publications.

Agarwal, A., M. Zilske, K. Rao, and K. Nagel (2013). “Person-based dynamic traffic assignment for mixed traffic conditions”. In: *Conference on Agent-Based Modeling in Transportation Planning and Operations*. Also VSP WP 12-11, see http://www.vsp.tu-berlin.de/publications. Blacksburg, Virginia, USA.

Working papers

Suman, H. K., A. Agarwal, and N. B. Bolia (2020). *Public transport operations after lockdown: how to make it happen?* Working Paper. URL http://faculty.iitr.ac.in/~amitfce/publications.html. Indian Institute of Technology Roorkee.

Vardhan, H., I. Rai, N. Kathait, and A. Agarawl (2020). *Crowd-sourced web survey for household travel diaries*. working paper. URL http://faculty.iitr.ac.in/~amitfce/publications.html. Indian Institute of Technology Roorkee.

Kaddoura, I., A. Agarwal, and B. Kickhöfer (2017b). *Simulation-based optimization of congestion, noise and air pollution costs: the impact of transport users' choice dimensions*. VSP Working Paper. TU Berlin, Transport Systems Planning and Transport Telematics.

Agarwal, A. and B. Kickhöfer (2014). *A combined marginal social cost approach for automobile emissions and congestion*. VSP Working Paper 14-18. URL http://www.vsp.tu-berlin.de/publications. TU Berlin, Transport Systems Planning and Transport Telematics. DOI: 10.14279/depositonce-5764.

Others

Agarwal, A. (2017). "Mitigating negative transport externalities in industrialized and industrializing countries". PhD thesis. Berlin: TU Berlin. DOI: 10.14279/depositonce-5825.

Agarwal, A. (2016). "Patna". In: *The Multi-Agent Transport Simulation MATSim*. Ed. by A. Horni, K. Nagel, and K. W. Axhausen. Ubiquity, London. Chap. 77. DOI: 10.5334/baw. URL: http://matsim.org/the-book.

Agarwal, A. (2012). "Agent based simulation of the travel demand for Patna City, India". MA thesis. India: Indian Institute of Technology, Delhi.