About Bern Grush (LinkedIn, 2020)

Co-founder and Chief Innovation Officer at Harmonize Mobility Inc.

Research, write, speak, consult and innovate in the evolving world of ground transportation and its digitalization. This includes preparing our cities' transit thinking, planning, and systems for automated vehicles, as well as preparing our sidewalks and curbs for automated drop-offs and pickups (both passenger and goods), road-user charging, and parking pricing. To this work I bring 45 years of passion and experience as a Systems Design Engineer with specializations in Machine Vision, Geographic Information Systems and Human Factors Psychology.

Current projects with HMi:

1. Maintaining and teaching an immersive, continuing-education course and workshop for transit, transportation, and urban planners: *Planning for Autonomous Vehicles: Contexts, Challenges and Opportunities*.

2. Leading an International Standards Organization (ISO) project to create a Draft Technical Standard: *Sidewalk and Kerb Behaviour for Automated Vehicles: Arriving, Stopping, Parking, Waiting, and Loading – Part 1*. This Standards work recognizes that increasing degrees of automation and related innovations will bring new challenges and opportunities to our sidewalks and curbs. Creating this as an International Standard has implications for business associations, congestion management, curb and parking pricing, developers, enforcement, livability, planning, safety, as well as vehicle and device manufacturers.

3. Providing innovation and design leadership for a transit governance platform [1] that integrates existing and new mobility transit systems with commercial for-hire fleets to address the coming public-private collaboration enabled by automation of small-to-mid format public-service vehicles.

4. Authoring a new book: *The 50% City: Preparing for fifty percent of your city's passenger and goods movement in driverless vehicles*. This is a sequel to the 2018 book, *The End of Driving*.

Speaking frequently at transportation conferences since 2003 -- most recently regarding urban and transit readiness for vehicle automation and in the past regarding TDM (transportation demand management) via road- and parking-pricing. I also speak in general, public settings from my series of public lectures called "*Adult Conversations About Autonomous Vehicles*" [2] which focus on debunking the hype and naïve assumptions surrounding the deployment of automated vehicles. This series is adapted for a general audience from my continuing-education course.

Book: *The End of Driving: Transportation systems and public policy planning for autonomous vehicles* [3] (Elsevier, 2018) which addresses AV & TNC planning for transit, mobility, social equity, and the Software-Defined Transit platform, HMS, for transit-TNC collaboration.

Recent and Past:

Report: [2017] *Ontario Must Prepare for Vehicle Automation – Part 2: How Skilled Governance Can Influence its Outcome.* [4]

Report: [2016] *Ontario Must Prepare for Vehicle Automation: Automated vehicles can influence urban form, congestion and infrastructure delivery.* [5] Maclean's magazine described this report as "…fascinating and carefully argued…" Related to this, I was named 2017 *Toronto Star* Wheels' "Newsmaker of the Year," and I have been described in 2016 by Gridlock Sam Schwartz as the top, current independent thinker on autonomous vehicle social deployment.

Articles and papers: several hundred articles, papers and blogs regarding transportation demand management including road- and parking-pricing and insurance including its technologies and policies. I am known for my thoughtful balance between commercial innovation and pubic governance.

Blogs: endofdriving.org and grushhour.com

Advisor: Founder and VP Innovation at PayBySky (Applied Telemetrics, Inc.). Innovation and markets related to autonomous digital parking credentials and HOT lane use.

Recent: Founder Skymeter Corp. An author on the topic of GNSS road-pricing. ISO/CEN standards for GNSS road use metering, including Charging Performance ISO 17444). Specialize in advising governments re acceptance programming for wide-area tolling (RUC, VMT Charging, TDP Charging, MBUF fees).

Past: Software system design in GIS and document image management; GPS applications for stationary receivers; Real-time systems; Financial systems; evidentiary documentation systems.

Specialties: Charging Performance for location-based automotive use, Satellite-based parking pricing, Pay-as-you-drive insurance, Road-pricing, Cordon Pricing, GPS, GIS.

Education: Human Factors Psychology and Systems Design Engineering from the Universities of Toronto and Waterloo, respectively. MaSc.

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[1] https://transweb.sjsu.edu/sites/default/files/1903-Niles-Robotaxis.pdf

[2] https://whiff-of-grape.ca/bern-grush-an-adult-conversation-about-autonomous-vehicles-conflicting-narratives-about-the-autonomous-vehicle-future/

[3] https://www.elsevier.com/books/the-end-of-driving/niles/978-0-12-815451-9

[4] http://rccao.com/research/files/RCCAO_Vehicle-Automation_Part-2_OCT2017_WEB.pdf

[5] http://rccao.com/research/files/RCCAO_Vehicle-Automation_OCT2016_WEB.pdf