Welcome to AHB45
Committee on Traffic Flow Theory and Characteristics

January 13, 2015
Self-Introductions Members/Friends

Please don’t forget to sign in!
Review and Approve Minutes

- **January 14, 2014**
- **August 13, 2014**
- Thanks to Sue Ahn and Danjue Chen for preparing the minutes!
Membership Update

Welcome Zhongren Wang and Soumya Dey (New State DOT Members)

Chair Robert Bertini rotates off committee effective 4/15/15

New chair Soyoung Ahn receives the gavel effective 4/15/15
Chair Report

- **TRB 2015 “Corridors to the Future: Transportation and Technology”**
- All are encouraged to participate—no real difference between Member and Friend
- Celebrated 50th Anniversary of Committee last year
- Producing 2 TR Circulars and 2 Journal Special Issues
- Always possible to update paper reviewer pool (526 members)
- Encourage State DOT and MPO involvement
- Subcommittees; Young Members; Products
- What’s Next for the Committee?
The TRB Technical Activities Council has selected the Committee on Traffic Flow Theory and Characteristics as a 2015 Blue Ribbon Committee in the area of Community Building and Mentoring - specifically we were cited as engaging diverse participants through innovative and inclusive outreach; and collaboration in research, education and training. Congratulations and thank you to all for your efforts! Special thanks to the team who prepared the nomination.
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TRB Report

- Refer to Critical Issues in Transportation report
- Provide input regarding new venue via survey after meeting
- Collaborate with other committees for cross-cutting issues
- Use MyTRB online tools ([www.MyTRB.org](http://www.MyTRB.org))
- Involve young professionals, state DOT employees, professionals from outside the US and non-traditional stakeholders
- Suggest a TRB Webinar for 2015 (March 1, 2015 deadline)
- Communications (website and social media)
- Research (RNS)
TRR Update

- ISI Impact Factor = 0.441 for 2012
- TRR ranks 25 out of 30 Transportation Science and Technology journals
- See other measures
- 643 articles published in 2012 (next two journals 393 and 164)
- High half lives
- We have posted lists of our committee TRR published papers:
## Discussion with Javy Awan
TRB Director of Publications

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<th>Issues with TRR process</th>
<th>Proposed solution</th>
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<td>▪ Slow process</td>
<td>▪ Provide TRR issue number in February for appropriate “in press” citations</td>
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<td>▪ Lack of time to make major revisions</td>
<td>▪ Online appearance of unedited articles in Feb/March</td>
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<td>▪ Impact factor diluted by large number of articles published in TRR</td>
<td>▪ Allow authors until January 15 to submit revised papers for TRR consideration</td>
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<td>▪ Consider splitting into different areas; e.g., Transportation Research Part X</td>
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WHAT ARE YMC’S ACCOMPLISHMENTS AND PLANNED ACTIVITIES?

- January 2015: TRB Annual Meeting (Washington, DC)
  - YMC-TAC business meeting and Group-level YMC meetings
  - YMC-sponsored technical sessions on career development, entrepreneurial skill-building, and emerging professional research and innovations.
  - YMC Reception with Young Professionals in Transportation—National
  - TRB’s Outstanding Young Member Award to be presented during the Deen Lecture
  - Expanded Freight Systems and Marine mentoring pilot program
  - TransportationCamp 2015, a technology-oriented “unconference”

- Interactive online community at http://ymc.groupsite.com
- Resources for New and Young Members at https://sites.google.com/site/youngmemberscouncil/
- And many more!

For more information, contact YMC Chair Alison Conway (aconway@ccny.cuny.edu), Vice Chair Bevan Kirley (kirley@hsr.unc.edu) or YMC’s TRB Liaison Bernardo Kleiner (bkleiner@nas.edu).
Transportation Systems Simulation Manual
  • December Webinar
  • Simulation Task Force Proposed
  • Next Steps
ATDM/DMA Testbed
Traffic Analysis Tools Volume III Revision
Trajectory Validation Engine Project
Predictive Engine Project
Transportation System Simulation Manual (TSSM)

- Inspired by HCM, HSM, AMM, TCQSM
- Discussion at 2011 Midyear Meeting
- Support from FHWA for initial project
- TRB Task Force on the Transportation System Simulation should be approved soon (~22 members) – looking for volunteers/diversity
- Webinar held December 16
- Mini Workshop held Sunday January 11
- Project web space: [http://sites.kittelson.com/TSSM](http://sites.kittelson.com/TSSM)
- Synthesis Proposal due February 13, 2015
- Future funding via NCHRP process – need state DOT stakeholders
### Subcommittees

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<td>10.</td>
<td>Crowd Flow Dynamics, Modeling, and Management</td>
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SimSub

SimSub Website:
http://sites.google.com/site/trbcommitteeahb45/
To join, send email to:
TRBCommitteeAHB45@gmail.com
Within few days you will get an invitation to join
"Friends of SimSub" which is a Google group through
which we post announcements and distribute emails
about SimSub activities.

2015 Sunday Simulation Workshop: Using Simulation for
Decision Support Systems: Past, Present and Future
SimSub

- Sunday Workshop
  - 2014 → TR Circular (Spring 2015)
  - 2015
  - 2016 Topic?
- Newsletters
- Task Groups and Chairs
- 2014 SimSub Webinars
  - Best Simulation Paper 2013 in July 2014
  - Other upcoming webinars
SimSub
1. Driver behavior in response to advanced strategies (both existing and emerging)

2. Collection of NGSIM-Type databases

3. TFT/Simulation Models that deal with variations in driver behaviors under different congestion levels/congestion types/instability in flows and develop models that produce vehicle trajectories that better reflect driver behaviors under different conditions (e.g., for emission/safety modeling)


5. Dealing with connected and autonomous vehicles
Research Problem Statements
Paper Review & Sessions

Special thanks to subcommittee members, authors and reviewers!

965 papers since 2009
Special Calls for Papers

- **Crowd Dynamics: Empirical Analyses, Modeling, Simulation and Management**
  - Organizers: Winnie Daamen, Serge Hoogendoorn, Majid Sarvi
  - 12 papers received
  - 1 podium session

- **Modeling and Traffic Management on Large-Scale Urban Networks**
  - Organizers: Vikash Gayah, Nikolas Geroliminis, Victor Knoop, Majid Sarvi
  - 35 papers received
  - 1 podium session

- **Special Calls for 2016 Due in May 2015**
  - Topics?
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Chair Letter

December 19, 2018

Dear Committee:

I am writing to update you on the ongoing work of the TRB Blue Ribbon Committee on Traffic Flow Theory and Applications (TRB C). The committee has been working on several projects aimed at improving traffic flow and understanding congestion. In this letter, I would like to provide you with an update on the latest developments.

1. **Traffic Flow Modeling**: We have been working on developing a new model that takes into account the behavior of drivers in real-time traffic scenarios. The model has shown promising results in simulations and is currently being tested in field studies.

2. **Building Community Engagement**: We have been actively engaging with stakeholders, including industry partners, academic institutions, and government agencies, to gather feedback and incorporate their insights into our work. This collaborative approach has been instrumental in shaping our research direction.

3. **Data Collection**: Our efforts to collect high-quality traffic data have been ongoing. We have established partnerships with several transportation agencies to ensure a robust data set for our research. This data will be used to calibrate and validate our models.

4. **Policy Implications**: Based on our research, we have identified several policy recommendations that could help mitigate congestion and improve traffic flow. These recommendations will be presented in our upcoming report.

5. **Funding**: We have secured additional funding from various sources to support our research and outreach activities. This funding will enable us to expand our work and reach a broader audience.

Looking ahead, we are excited about the potential for our research to make a significant impact on the field of traffic flow theory. We welcome any feedback or suggestions you may have on how we can further improve our work.

Thank you for your continued support.

Sincerely,

[Your Name]
Sessions

Lectern Sessions: We have six lectern sessions this year:
2. 350 Car Following and Microscopic Simulation: Monday January 12, 2015 1:30-3:15 PM Convention Center 101
3. 749 Traffic Flow Modeling and Analysis of Merging: Tuesday January 13 2015 7:30-9:30 PM Convention Center Salon A
4. 774 Crowd Dynamics: Empirical Analyses, Modeling, Simulation, and Management: Wednesday January 14, 2015 8:00-9:45 AM Convention Center Salon A
5. 812 Modeling and Traffic Management on Large-Scale Networks: Wednesday January 14, 2015 10:15 AM-12:00 Noon Convention Center Salon A
6. 834 Traffic Simulation and Network Considerations: Wednesday January 14, 2015 2:30-4:00 PM Convention Center Salon A

Poster Sessions: We are sponsoring two poster sessions—please attend and meet the authors:
2. 539 Traffic Flow Theory: Part 2 Tuesday January 13, 2015 8:30-10:15 AM Convention Center Hall E

Tribute to Matthew Karlaftis: Sunday January 11, 2015 5:00-6:30 PM Convention Center 144C. Join your TRB colleagues and friends in remembering Matt’s contributions.
Sunday Workshops: this year we are sponsoring or co-sponsoring three Sunday Workshops and one doctoral student workshop:

1. Workshop 134 Crowd and Pedestrian Modeling, Simulation, and Data: Sunday January 11, 2015 9:00 AM-12:00 PM Convention Center 102A. Help support our new subcommittee and research agenda with this engaging session.

2. Workshop 177 Using Simulation for Decision Support Systems: Past, Present, and Future: Sunday January 11, 2015 1:30-4:30 PM Convention Center 102A. Join us for the annual SimSub workshop and get there early since there will be a big crowd.


4. Doctoral Student Workshop 192 Transportation Modeling Sun Jan 11, 2015 1:30-5:00PM Convention Center 145A.
Empirical observations of congestion propagation and dynamic partitioning with probe data for large scale systems

Yuxuan Ji, EPFL; Jun Luo, Shenzhen Institutes of Advanced Technology; Nikolas Geroliminis, EPFL

This paper presents innovative computational methods to dynamically partition networks into homogeneous sub-regions. This work is supported by extensive data analysis based on 30 to 50 million GPS daily records corresponding to 20,000 taxis for the city of Shenzhen (China). The research shows that homogeneity conditions are not stable during the onset and the offset of congestion at a city scale. This is clearly illustrated with the results of the Macroscopic Fundamental Diagram (MFD) within the different sub-regions. The formation of congestion is modeled by investigating individual links and their connections between multiple dynamic clusters. Contributions from this paper are very significant because they open the door to the application of the MFD concept for designing efficient control strategies by only dynamically adapting the control perimeter. They also highlight that the key parameters (critical flow, critical density,…) of the MFD are remarkably stable when the congested region grows. Moreover, the paper provides the basis for a better understanding of the dynamics of congestion in dense urban areas.

The Traffic Flow Theory and Characteristics Committee peer-reviewed this paper, which was selected to receive the 2014 Greenshields Prize awarded by the committee, honoring the contributions of Bruce Greenshields to the field of traffic flow theory.
Greenshields Prize 2015

- Papers/presentations being reviewed this week
- Announcement at mid-year meeting in Kobe
Cunard Award for 2014

2014 Best 1st Young Author Paper in the area of Operations:

A Clustering Approach to Assess the Travel Time Reliability of Arterials

Paper 14-0390

Etienne Hans
University of Lyon, France

Co-authors:
Nicolas Chiabaut
Ludovic Leclercq
University of Lyon, France
TRB Wide Awards

D. Grant Mickle Award

- Established 1976
- Outstanding paper published in the field of operation, safety, and maintenance of transportation facilities.
- Honors fifth executive director, later 33rd Executive Committee Chair

Fred Burggraf Award

- Established 1966
- Stimulate and encourage young researchers
- Recognition of excellence in transportation research by researchers 35 years of age or younger whose papers have been published under the sponsorship of any Division A Standing Group
- Accompanied by a cash prize
- Honors TRB director from 1951-1964

As usual, we have provided one recommendation for each award in 2014 → no success. We will go on in 2015 !!!

For next year, please mention on the first page of your paper if you are eligible to this award.
Eligibility of Papers for Awards (2015)

2015 eligibility results

Only papers submitted to TRR are considered
Some insights

- Almost all papers submitted for publication in TRR have a young author as first author
- Only one paper seems eligible to the Burggraf award (hard to check in practice)
- On the contrary to last year, the Greenshields (data) requirement is not really restrictive. Following the conclusion of last year TFT meeting, we have decided not to award (this year) a second prize for theoretical papers. We keep this idea in mind for the coming years.

We are currently working on the 2015 award season! The 2015 greenshield prize will be announced during ISTTT21 in Kobe!
Mid-Year Meetings

- 2007 ISTTT London (in pub)
- 2008 Greenshields Symposium, Woods Hole
- 2009 ISTTT Hong Kong (lunch table)
- 2010 Does Traffic Data Support Traffic Models? Annecy, France
- 2011 ISTTT Berkeley (one hour w/SimSub)
- 2012 Joint Summer Meeting with HCQS Committee, June 19-22, Fort Lauderdale, Florida
- 2013 ISTTT, July 17-19, Noordwijk, the Netherlands
- 2014 Portland, Oregon, USA, Symposium Celebrating 50 Years of Traffic Flow Theory
- 2015 ISTTT Kobe
- 2016 Proposal for Australia - Decision
- 2017 ISTTT Chicago
- 2018 TBA Woods Hole or Irvine?
Welcome to Portland!
By the Numbers

- All presentations, posters, papers, and photos are posted on Symposium Website (http://tft.ceng.calpoly.edu/tft50/tft50.htm)
- 73 total registrants from 18 states and 7 countries
- 5 sponsors, financially balanced
- 1 committee meeting
- 1 FHWA workshop
- 1 OR/WA simulation roundtable meeting
- 1 welcome reception, 1 symposium dinner
- 1 bridge pedal
- 1 panel discussion
- 4 keynote addresses
- 49 abstracts submitted
- 27 papers presented
- 10 posters
- TR Circular in the works
- 2 Journal special issues
Organizing Committee

- Robert Bertini, Portland State University, Chair
- Ludovic Leclercq, IFSTTAR / ENTPE
- Nikolas Geroliminis, École Polytechnique Fédérale de Lausanne
- Haizhong Wang, Oregon State University
- Victor Knoop, Delft University of Technology
- Vikash Gayah, The Pennsylvania State University
- Yanfeng Ouyang, University of Illinois at Urbana Champaign
- Soyoung Ahn, University of Wisconsin
- Tegan Enloe, DKS Associates
- Miranda Wells, HDR
Sincere Appreciation

- DKS Associates
- Ariel Lewis, PSU CEE
- Renata Tirta, OTREC
- TriMet
- Josh Anderson, DEA
- FHWA
- OR/WA Simulation Roundtable
- Authors, Presenters, Moderators, Keynote Speakers
- All Participants
Special Journal Issues & TR Circular

Best papers will be published in:

- Transportmetrica B
- Journal of Intelligent Transportation Systems

All presented papers will appear in a special TR Circular (May 2015)

Special thanks to the journal editors for their support!
Thank you to our sponsors!

DAVID EVANS
AND ASSOCIATES INC.

PTV GROUP
the mind of movement

INRIX

TSS TRANSPORT SIMULATION SYSTEMS

Aimsun

U.S. Department of Transportation
Federal Highway Administration
Summer Meeting Discussion

- 2015 – Kobe
- 2015 – Other – Simulation Task Force?
- 2016 - Australia
Traffic Flow Theory and Characteristics Committee (AHB45)

2016 Summer Meeting - August 2016
Proposal for
Gold Coast, Queensland Australia
Surfers Paradise
Gold Coast
Why Australia

**Best timing:**
This is a convenient time for colleagues coming from northern hemisphere. In August, most of the participants (especially those coming from US, Europe and Asia) could combine the event with their summer vacation.

**Location:**
It is proposed to hold the symposium at Surfers Paradise, Gold Coast, in Queensland. This is an attractive and well known holiday resort in Australia.
Why Australia

Some of the attractions:
- Sea World
- Movie World
- Wet and Wild
- Dreamworld
Why Australia

Access:
The Gold Coast region is serviced by the Gold Coast International Airport, with frequent domestic services from Melbourne, Sydney, Adelaide, and International services from New Zealand, Japan and Asia. Brisbane's International Airport also provides smooth links with the United States and Europe.
Outreach and Diversity

- AHB45 newsletter well established and being further streamlined
- Common activities with the American Society of Civil Engineers (ASCE) are already being planned – i.e. TGF 2015/2017 Conference/Special Issue; aiming for further collaboration with IEEE
- Subcommittee identified three members from Industry (IBM & Volkswagen America and Google) as possible future members when possible – already have representation from state/districts Departments of Transportation (special session/workshop – TRB 2016)
- Continuous use of social media (Google, Facebook) to communicate with members and friends.
- Young Volunteering Team: Zhijie (Sasha) Dong, Justin P. Schorr, Sandeep Mutigonda → AHB45 News Outlet/Channel (2015-2016)
- Thanks to Jing Dong, Vikash Gayah, Meead Saberi, Ethan Xuan, Stephen Mattingly, and Monica Menendez
Newsletters

Launched July 2013 (25 issues threshold at ISTTT 21)
1 January 2015 issue
12 issues in 2014
5 issues in 2013
Archived at: http://tft.ceng.calpoly.edu/news.htm
Contact Prof. Samer Hamdar hamdar@gwu.edu
What do you want to see?
Additional Volunteers?
Ideas/Suggestions/Input

Welcome!
Join Our Committee Friends List!

Click here: https://groups.google.com/d/forum/tft_friends?hl=en

Our committee relies on an active and important group of friends who participate in our meetings and webinars, serve as paper reviewers and volunteers on projects including mid-year meetings, cooperation with other committees and other special products and projects. Our Friends list currently consists of about 650 members worldwide.

We are moving our email list from tft_friends@lists.pdx.edu to a Google group tft_friends@googlegroups.com. You will soon receive a notification email on being added to the new tft_friends group. The previous email list will no longer be active. To modify your membership settings, you can visit: https://groups.google.com/d/forum/tft_friends?hl=en

Click Here to Find Committee Friends (Google Doc)

- To join the group visit: https://groups.google.com/d/forum/tft_friends?hl=en
- To post to this group, send email to tft_friends@googlegroups.com
- To unsubscribe from this group, send email to tft_friends+unsubscribe@googlegroups.com
- For more options, visit https://groups.google.com/d/forum/tft_friends?hl=en
Committee Communications

- TFT Facebook Page: 498 “Likes” (up from 421 last year)
- www.facebook.com/AHB45
Facebook Update

Total Reach
The number of people who were served any activity from your Page including posts, posts by other people, Page like ads, mentions and checkins.

Total Page Likes as of Today: 497

Daily data is recorded in the Pacific time zone.

Start: 1/1/2014
End: 12/30/2014

BENCHMARK
Compare your average performance over time.
Total Page Likes
Webinars

- 5 Webinars in 2014, total of 128 participants
- List of 45 Archived Webinars since 2010: https://docs.google.com/spreadsheet/ccc?key=0AuX5B7unftMSEdDJQUTl1VGtxZ3lUREMyX0tRQIkJzOVE&usp=sharing
- Webinar Google Calendar: https://www.google.com/calendar/embed?src=fjpilf4qddonoo8r94isp3qsr4%40group.calendar.google.com&ctz=America/Chicago
- Vision for 2015
  - One webinar every other month
  - Greenshields Prize
  - Highly cited author
  - ISTTT
  - TRB
Website Updated (did anyone notice?)

- [http://tft.ceng.calpoly.edu/](http://tft.ceng.calpoly.edu/)
- Anyone can contribute items
- Revised 2001 Monograph
- 1964 and 1975 Monographs
- Greenshields Symposium 2008 TR Circular
- 2010 and 2014 Symposium Pages
- Greenshields Prize page
- Historic Papers
- Meeting Materials
Strategic Planning 2015-2018

- Led by Sue Ahn
- Thanks to Hani, Nate, Ludovic, Nikolas, Marguerite, Majid, Koohong, Costas and Winnie for review, input and comments
- Need to formally approve Triennial Strategic Plan today

Highlights
- Primary Activities
- Committee Membership and Management
- SimSub
- Traffic Flow Characteristics
- Research Problem Statements
- Communications and Outreach

Think “products”
- Engage non-traditional partners/participants who can’t travel
TFT Historic Papers

- 619 papers and 66 issues of HRR/TRR since 1963
- Some topics now covered by newer committees
- Predecessor committees:
  - Committee on Traffic Flow Theory (1963-1970)
  - Committee on Characteristics of Traffic Flow (1965-1970)
  - Committee on Speed Characteristics (1963-1965)
- Lists available via website on Google Docs
- Comments – have any papers influenced research and practice?
- Are any papers highly cited?
- Literature review or annotated bibliography?
TRR Google Scholar

TRR by TFTC Committee

TRB
traffic flow theory and characteristics
No verified email

Citation indices

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<td>M Papageorgiou, H Hadj-Salum, JM Biosseville</td>
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<td>Effect of adverse weather conditions on speed-flow-occupancy relationships</td>
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645 Papers
Thanks to Vikash Gayah
Special Report on TFT

Classic Papers Retreat Idea?
Subcommittee Crowd Flow Dynamics, Modelling, and Management AHB45 (2)

Activity Report
(Serge Hoogendoorn, Majid Sarvi, Winnie Daamen)
Subcommittee’s Aims and Objectives:

1. Brings together scientists and practitioners from different disciplines working on crowd flow theory, modeling, operations, and management.

2. Further theoretical development and understanding of crowd dynamics.

3. Focus on application perspectives in flows and crowd management and design of crowd/pedestrian facilities.
Subcommittee’s Activities in 2014:

1) TRB especial call for papers
   12 papers received
   → Lectern session on Wednesday 14\textsuperscript{th} (8AM-9:45AM), session 774

2) Subcommittee meeting on Tuesday 13\textsuperscript{th}

3) Sunday 11\textsuperscript{th} Workshop (2\textsuperscript{nd} workshop)

4) Actively working with other disciplines (PED2014, etc.)

5) Seeking co-sponsorship from Network and Emergency Evacuation committees?
Serge Hoogendoorn

We are organising a special workshop during TRB 2014. Next to presenting our new subcommittee, the workshop should be about:

- Identifying the critical issues in pedestrian simulation and crowd management
- Presenting the state-of-the-art
- Identifying the subcommittees main objectives
- Identification of sharable datasets

Vind & Leuk - Reageren - Delen - Bericht begelezen - 2 8 - 19 september 2013 om 10:09
Membership, posting all workshop presentations, list of papers in crowd themes for both podium and poster sessions, etc.
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<tr>
<td>9:10</td>
<td>Subcommittee activities in the last year</td>
<td>Sarvi</td>
</tr>
<tr>
<td>9:20</td>
<td>PED conference 2014 activities and report</td>
<td>Daamen</td>
</tr>
<tr>
<td>9:30</td>
<td>Menge: A Modular Framework for Simulating Crowd Movement</td>
<td>Manocha</td>
</tr>
<tr>
<td>10:00</td>
<td>Data collection to calibrate pedestrian models</td>
<td>Hoogendoorn, Sarvi and Sobhani</td>
</tr>
<tr>
<td>10:40</td>
<td>ACP-based emergency evacuation for metro transfer hubs</td>
<td>Dong</td>
</tr>
<tr>
<td>11:10</td>
<td>Calibration work for PTV Viswalk</td>
<td>T. Kretz</td>
</tr>
<tr>
<td>11:40</td>
<td>Round table discussion</td>
<td>Hoogendoorn</td>
</tr>
</tbody>
</table>
Subcommittee Future Agenda

• Research challenges
• Set-up a list of critical issues
• Future topics/List, research statement
• Joint research agenda based on identified critical issues
• Subcommittee main activates considering the topics above
• Webinars in Crowd Dynamic to establish collaboration with other disciplines
Liaison With Other Committees
International Liaison

- NEARCTIS
- MULTITUDE
  - Summerschool June 10-12
- MOCoPo Trajectory Data Enhancement
2015 Summer School
Advanced Traffic Simulation
University of Cyprus, Nicosia, Cyprus

Building on the summer school series by:
COST Action TU0903 - MULTITUDE.

June 10-12, 2015

Max. number participants: 40
Registration: January 30 - April 15, 2015
Fee: 50 Euros (includes coffee-breaks, lunches and a social dinner)
Applications and more information soon at: www.multitude-project.eu

Organising committee:
Constantinos Antoniou (NTUA)
Mark Brackstone (TSS – Transport Simulation Systems)
Loukas Dimitriou (UCY)
Vincenzo Punzo (UniNA)

Contacts:
lucdimit@ucy.ac.cy
antoniou@central.ntua.gr
TRAJECTORY DATA ENHANCEMENT

Christine Buisson
AHB45-TFTC committee meeting
13th January 2015
What do we have from the MOCoPo experiment? (see mocopo.ifsttar.fr)

- More than 9 hours of films taken from a helicopter in three locations of a freeway with 2 lanes in both directions
- Numerical treatment (colab. TUDelft) produced trajectories
- Those trajectory data are not perfect (see film)
What needs to be done?

- For previous researches, we focused on some of the vehicles.
- Obtaining a complete and therefore fully usable trajectory dataset means a first step forward:
  - Making sure each vehicle is associated with one and only one trajectory, this has to be done manually to ensure quality.
- Objective of today: generating a “trajectory cleaning team” of 6 groups devoting themselves to clean 5 minutes of data.
- The amount of work is about 3 weeks per team (120 hours).
- RESULT: A set of 30 minutes of complete and exploitable trajectory data each group can fully exploit during 365 days.
- Side effect: making those tasks collectively might prevent some questions /difficulties our community had before with the NGSim dataset.
The resulting 30 minutes of trajectory data will be shared among the 6 teams during 365 days of exclusivity.
Your time schedule as a member of a group belonging to the MOCoPo cleaning team:

- **Today**
  - If you are interested to join, please meet after the TFTC meeting or send an email to christine.buisson@Ifsttar.fr

- **January-February**
  - Contribute to recruit other groups!
  - Choose the period that is suitable to all groups of the team

- **March**
  - Receive the interface for doing the job, the imperfect trajectory data set, the corresponding images, and the tutorials through a dropbox link

- **April-May**
  - Do the job of cleaning the trajectories with the help of our hotline

- **At the end of May I will verify and fuse enhanced 5’ datasets together**

- **June 2015 to May 2016: use the data to do whatever you want!**

- **June 2016: the data will be available for everyone**
What will be your benefit?

- A set of more than 1,500 trajectories collected on stretch of 500 meters of a representative freeway
- Car-following and lane changing (mandatory and discretionary) data of unprecedented quality
- This permits you to
  - Analyze precisely various traffic conditions
  - Test and calibrate microscopic models CF, MLC, DLC
  - Quantify extreme behaviors
- Having contributed to their enhancement give you a clear view of their drawbacks and qualities
- You gain exclusive access for 365 days
Announcements/Future Meetings

- ISTTT21 August 5-7 Kobe, Japan
- Traffic and Granular Flow October 28-30 Nootdorp, the Netherlands
- AVS15 July 21-23 Ann Arbor
  - Workshop? Break out session?
Traffic and Granular flow 2015

- Conference on Traffic Flows
- Microscopic and Macroscopic
- Organisation TU Delft
- 28-30 October 2015
- Nootdorp (greater Delft area)
- Abstract submission before 1 April 2015
Connected and Automated Vehicle Systems: State of the Art and TRB Activities

Prepared by:
Steven E. Shladover, Chair AHB30
(Vehicle-Highway Automation)
Jane Lappin, Chair AHB15
(Intelligent Transportation Systems)

TRB Annual Meeting
January 2015
New Technology Opportunities in Road Transportation

- Traditional transportation technologies have matured to the point of diminishing returns
  - Civil infrastructure
  - Mechanical vehicle systems
- Basic intelligent transportation systems (ITS) have been developing gradually for 25 years
  - Electronic implementations of traditional functions, separately on vehicles and infrastructure
- Connectivity integrates vehicles and roadway infrastructure into a transportation system
- Automation overcomes driver limitations
Autonomous and Cooperative ITS

Autonomous ITS (Independent, unconnected)

Cooperative ITS (Connected Vehicle Systems)

Automated Driving Systems
Why connectivity?

• Anything you can do unconnected (autonomously) you can do better connected.

• Providing better information about vehicle movements to infrastructure operators (V2I)

• Providing better information and guidance about traffic, road and weather conditions to drivers and vehicle systems (I2V)

• Providing better information about vehicle movements to other vehicles and drivers (V2V)
Automated Driving Systems

- Deep historical roots back to 1939 GM Futurama
- Intermittent technical progress since 1950s
- Recent resurgence of interest motivated by DARPA Challenges and Google publicity
- Intense media and public attention, but based largely on hype and misinformation, compounded by misleading vocabulary:
  - “driverless”
  - “self-driving”
  - “autonomous”
Automation is a Tool for Solving Transportation Problems

- Alleviating congestion
  - Increase capacity of roadway infrastructure
  - Improve traffic flow dynamics
- Reducing energy use and emissions
  - Aerodynamic “drafting”
  - Improve traffic flow dynamics
- Improving safety
  - Reduce and mitigate crashes (by far the hardest)
    - Fatal crash MTBF > 3 M veh-hours today
    - Injury crash MTBF > 65 K veh-hours today

...BUT the vehicles need to be connected
<table>
<thead>
<tr>
<th>Level</th>
<th>Example Systems</th>
<th>Driver Roles</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Adaptive Cruise Control OR Lane Keeping Assistance</td>
<td>Must drive other function and monitor driving environment</td>
</tr>
<tr>
<td>2</td>
<td>Adaptive Cruise Control AND Lane Keeping Assistance Traffic Jam Assist (Mercedes)</td>
<td>Must monitor driving environment (system nags driver to try to ensure it)</td>
</tr>
<tr>
<td>3</td>
<td>Traffic Jam Pilot Automated parking</td>
<td>May read a book, text, or web surf, but be prepared to intervene when needed</td>
</tr>
<tr>
<td>4</td>
<td>Highway driving pilot Closed campus driverless shuttle Driverless valet parking in garage</td>
<td>May sleep, and system can revert to minimum risk condition if needed</td>
</tr>
<tr>
<td>5</td>
<td>Automated taxi (even for children) Car-share repositioning system</td>
<td>No driver needed</td>
</tr>
</tbody>
</table>
Automated Vehicle Symposia - History

- 125 participants
- Educated transportation community on recent progress in automation research, especially activities outside the U.S.
- Co-sponsored by 5 TRB committees

- 335 participants
- Hosted by Stanford University
- Focused on challenges and opportunities for road vehicle automation
- Resulted in 40+ research needs statements
- Co-sponsored by 7 TRB committees

- 572 participants
  - 44% industry
  - 34% acad/research
  - 22% government
  - (25% international)
- Produced in partnership with AUVSI
- Details in following slides
TRB Sponsoring Committees (2012-14)

- Intelligent Transportation Systems | AHB15
- Vehicle-Highway Automation | AHB30
- Emerging Technology Law | AL040
- Major Activity Center Circulation Systems | AP040
- Emerging and Innovative Public Transportation and Technologies | AP020
- Vehicle User Characteristics | AND10
- Cyber Security | ABE40(7)
- Transportation Energy | ADC70
- Managed Lanes | AHB35
- Travel Analysis Methods | ADB00 (2014)
- Transportation Demand Forecasting | ADB40 (2014)
- Statewide Multimodal Transp. Planning | ADA10 (2014)
Of those outside U.S.

- Japan 30%
- Canada 17%
- Germany 11%

16 Countries
## Plenary Sessions -

### Plenary Day 1

**Opening Keynote:** Ralph Herrtwich, Daimler AG

**Manufacturer and Supplier Briefings:** Bosch, BMW Group, Nissan Research Center

**Digital Infrastructure Panel:** Nokia HERE, Google

**Technology Issues Panel:** VisLab, Technical University of Crete, Carnegie Mellon University, MIT

### Plenary Day 2

**Clifford Nass Memorial Lecture:** Don Norman, UCSD

**Manufacturer and Supplier Briefings:** GM, Continental, Valeo, Google

**European Automation Projects:** CityMobil2, AdaptIVe, Drive Me (Volvo)

**Societal and Non-Technical Issues and Challenges Panel:** Texas A&M, Stanford, Toyota Research, J.D. Power

### Plenary Day 3

**Public Sector Addresses:**
- U.S. Department of Transportation
- National Highway Traffic Safety Administration
- U.S. Department of Energy
- European Commission
- Japan Ministry of Land, Infrastructure, Transportation, and Tourism
- California DMV
# AVS14 Breakout Session Topics

1. Evolutionary and Revolutionary Pathways to Automated Transit and Shared Mobility
2. Regional Planning and Modeling Implications of Driverless Cars
3. Roadway Management and Operations with Automated Vehicles
4. Truck Automation Opportunities
5. Legal Accelerators and Brakes
6. The State and Future Direction of Automated-Vehicle Human Factors
7. Near-Term Connected/Automated Technology Deployment Opportunities
8. Personal Vehicle Automation Commercialization
9. Technology Roadmap, Maturity and Performance: Operational Requirements for Vehicle-Road Automation Systems and Components
10. Road Infrastructure Needs of Connected-Automated Vehicles
Survey of Attendees on Market Introduction Dates

- **Low Speed**
  - 2018
  - Speed: Low

- **Freeway Driving**
  - 2019
  - Take-over: Driver take-over

- **Freeway Limited Access**
  - 2020
  - Safe: Safe

- **Truck Platooning**
  - 2020
  - Lead Driver: Lead driver only

- **Full Driver Replacement**
  - 2025
  - "Automated Taxi": "Automated Taxi"
  - Urban Driving: Urban Driving
  - Take Child to School: Take Child to School

- **Shuttle in Pedestrian Zones**
  - Before 2020

- **Valet Parking**
  - Before 2020

- **Freeway Driving, fail-safe**
  - 2020

- **Truck Platooning, drivers in all trucks**
  - 2020

- **Truck Platooning, lead driver only**
  - 2020

- **Urban Driving**
  - 2020

- **"Automated Taxi"**
  - 2020

- **Take Child to School**
  - 2020

- **2030**
  - 2030

- **2040 & After**

- **Never**

Planning for AVS 2015: July 21-23, Ann Arbor

Challenges and Opportunities of Road Vehicle Automation (Joint Subcommittee of AHB30, AHB15)

– Thursday 15 January, 8:00-12:00, Convention Center, Salon C
– Subcommittee created to cut across all TRB technical committees, with the mission of producing the workshops/symposia
– Planning starts on Thursday: Ideas discussed, break-out topics and volunteers identified
– Participation is open to all volunteers
Contact Information

- Automated Vehicles Symposium 2014 proceedings at:
  http://www.auvsi.org/avs2014/proceedings

- Automated Vehicles Symposium 2015:
  http://www.automatedvehiclessymposium.org/home

- Jane Lappin, AHB15 Chair (Volpe Center):
  Jane.Lappin@dot.gov

- Steve Shladover, AHB30 Chair (University of California PATH Program):
  steve@path.berkeley.edu

- Bob Denaro, CORVA Subcommittee Chair (Consultant):
  BobDenaro@aol.com
SAVE THE DATE

The Automated Vehicles Symposium 2015 will be a multidisciplinary forum designed to advance the deployment of automated vehicles. Each day will kick off with high-level presentations by some of the brightest minds in the field. Network over lunch, and then in the afternoon, choose from interactive breakout sessions where you can go in-depth with your colleagues, share perspectives and have an open dialogue on the industry’s most pressing issues.
New Business

- TSSM Task Force
- 2016 Annual Meeting Call for Papers
- Classic Papers Retreat Idea
- Joint Subcommittee on Road Vehicle Automation
- Future Products and Activities
Closing Thoughts

D.L. Gerlough
1963

D. Cleveland
1964-1967

H. Michael
1963-1964

J. Oppenlander
1964-1968

D. Capelle
1968-1974

K. Crowley
1974-1980

John Haynes
1980-1986

Carroll Messer
1986-1992

Hani Mahmassani
1992-2000

Nathan Gartner
2000-2009

Robert Bertini
2009-2015
Bertini’s Closing Thoughts as Chair

- Congratulations to Sue Ahn!
- Appreciation to Alex Skabardonis, Nathan Gartner and Hani Mahmassani
- Thank you to all members and friends for innumerable volunteer hours
- 2009-2015 By the Numbers
  - Personal: 3 jobs, 5 residences
  - January: 6 committee meetings, 30 lectern sessions, 16 poster sessions, 1 birthday cake, x receptions
  - August: 965 papers, 4086 reviews
  - 189 TRR publications, 3 TR Circulars, 2 journal special issues, 6 summer meetings, 1 Blue Ribbon Award, 2 strategic plans, 2 member rotations
- Reflection on original goals:
  - Active subcommittees
  - Products and activities throughout the year
  - Wonderful mentoring of young members
  - Reflection and respect for our predecessors
- Special thanks to Rich Cunard!
Adjourn

Please don’t forget to sign in!