



INSIGHTS INTO THE RIGHT-HOOK CRASH AT SIGNALIZED INTERSECTIONS: RESEARCH RESULTS FROM A DRIVING SIMULATOR

**10TH UNIVERSITY TRANSPORTATION CENTERS SPOTLIGHT
CONFERENCE ON PEDESTRIAN AND BICYCLE SAFETY**

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Research Team:

David Hurwitz, Associate Professor, OSU

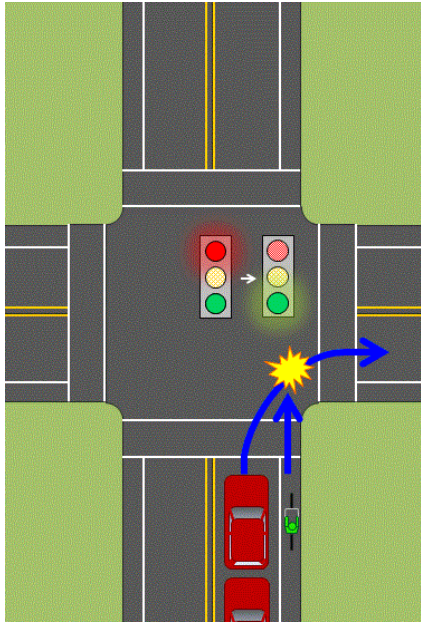
Chris Monsere, Associate Professor, PSU

Mafruhatul Jannat, PhD '15, OSU

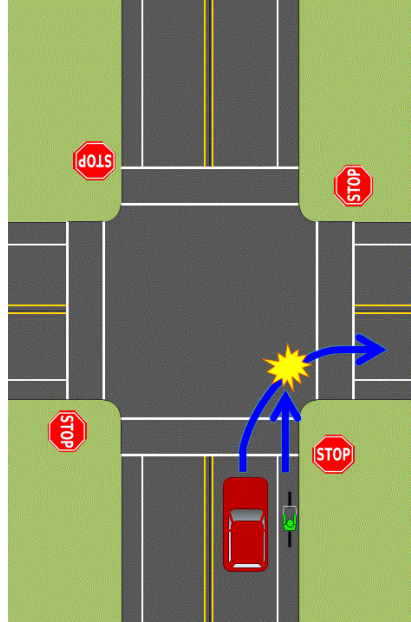
Jennifer Warner, MS '15, OSU

Ali Razmpa, MS candidate, GRA, PSU

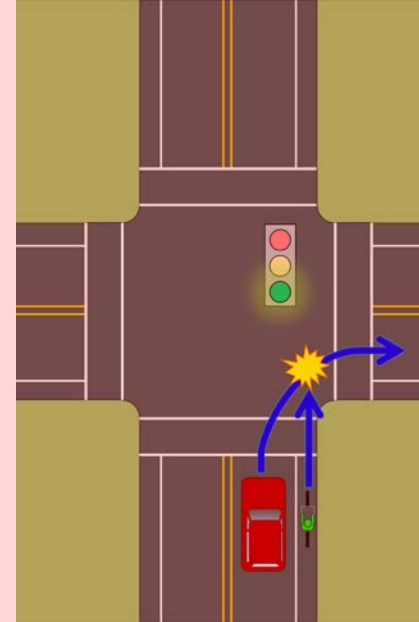
Right-Hook Crash Scenarios (Intersection with bike lane)



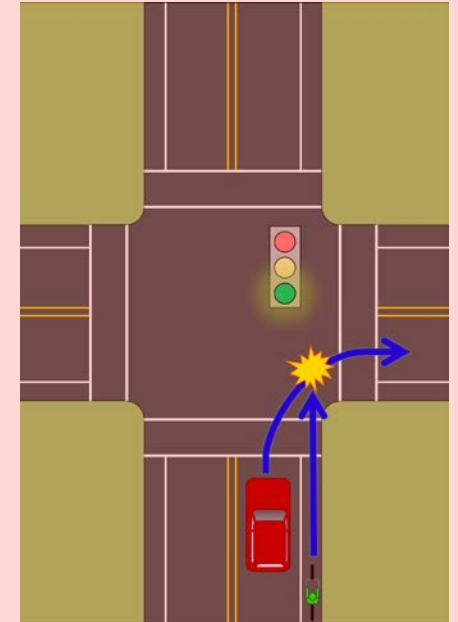
onset of the green indication



at a stop sign



cyclist passing motorist



motorist passing cyclist

Latter portion of green indication

Exp. 1: Right-Hook Crash Causality – Data Acquisition

Participants:

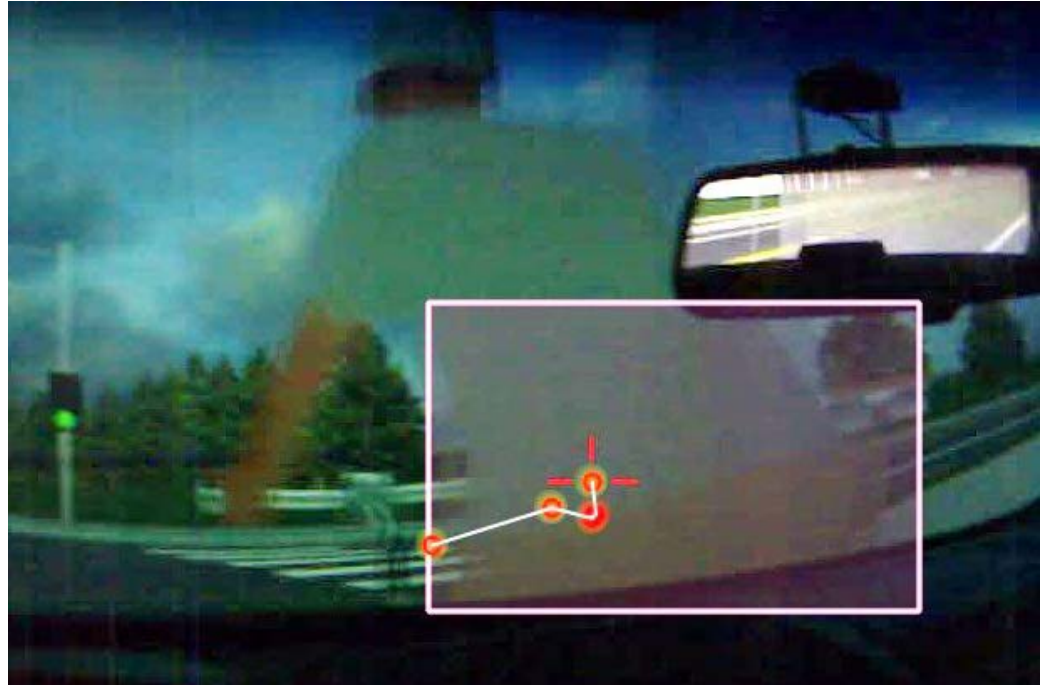
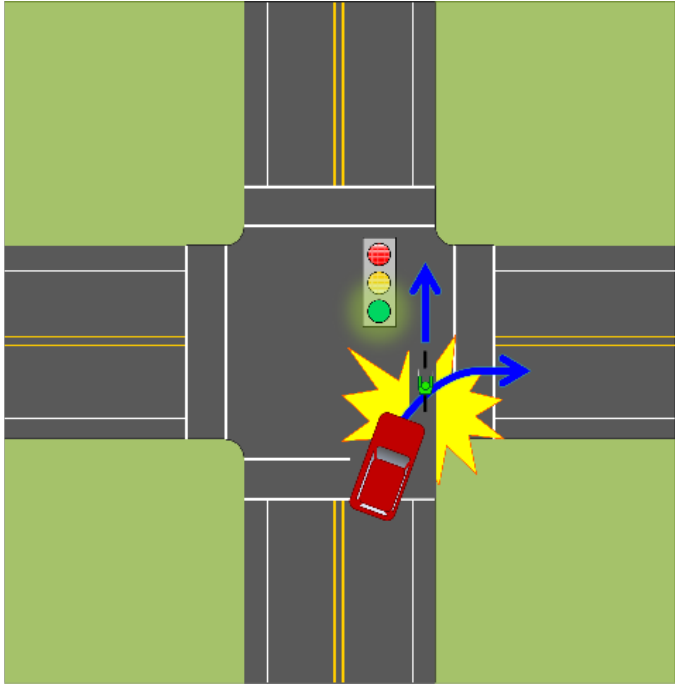
- 67 Participated
- 16 Simulator Sickness
- 51 Usable
- 1,071 total-right turn scenarios

Data:

- Visual attention
- SAGAT responses
- Observed crashes
- Position and speed of vehicles, bicycles, and pedestrians



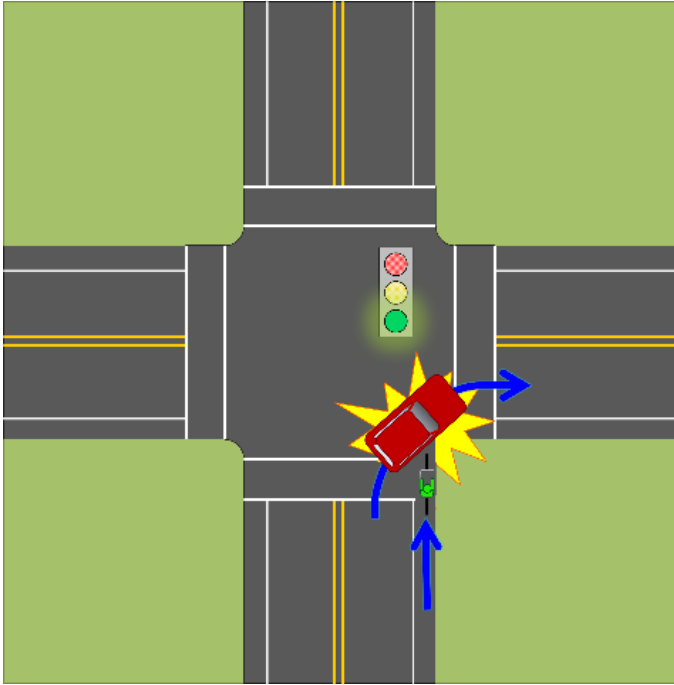
Crash Avoidance: Crashes



From 1,071 right turns, 26 collisions observed:

- 66% did not check mirror before turning
- 5% looked but didn't see
- 18% assumed the bike would yield or there was enough time

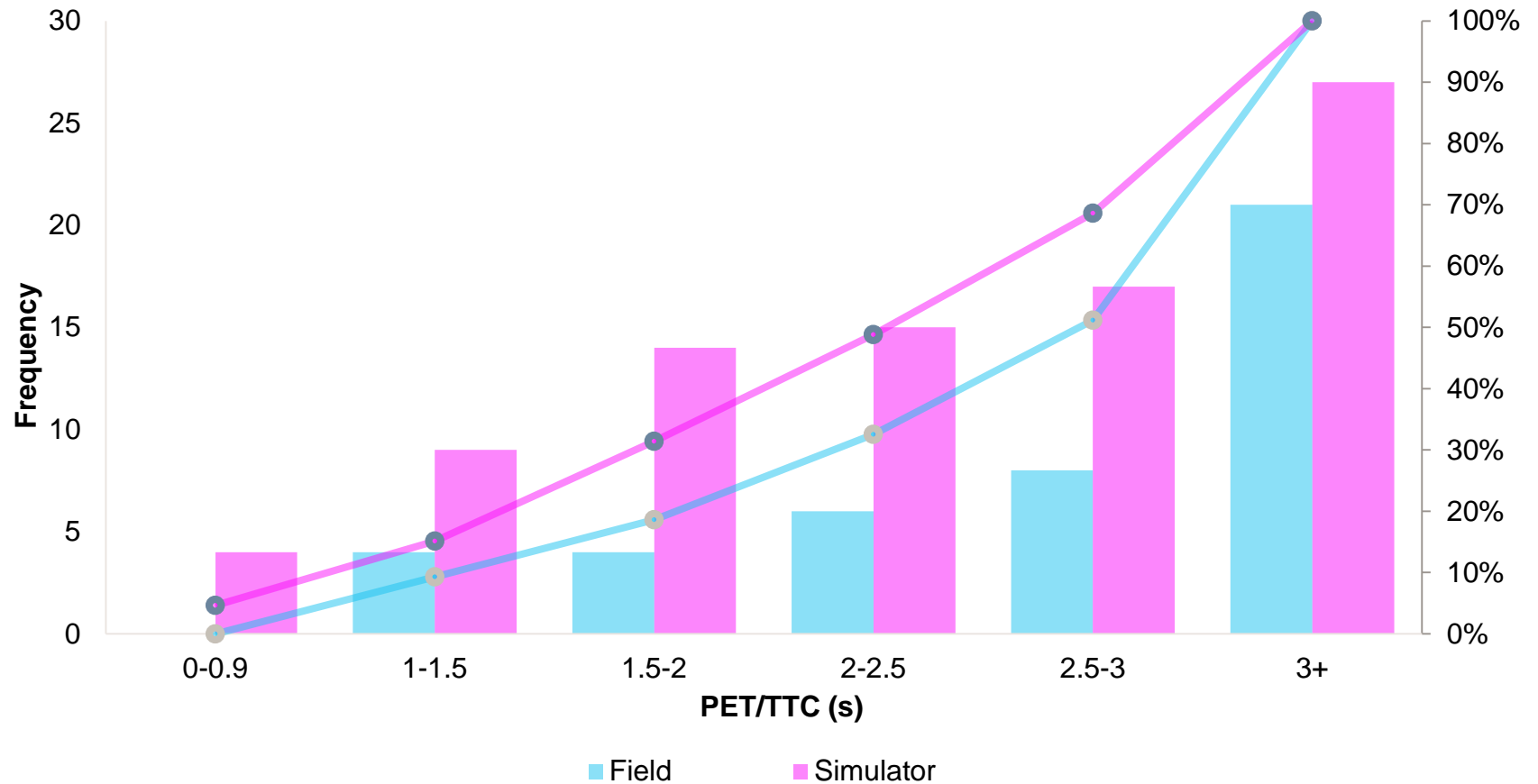
Crash Avoidance: Near-Crashes



From 408 right turns, 28 near-collisions observed:

- 58% did not check mirror before turning
- 23% looked but didn't see
- 19% assumed bike would yield or there was enough time

Comparison of All Field and Simulator PET/TTCs



Exp. 2 Evaluation of Right-Hook Crash Treatments - Data Acquisition

Participants:

- 46 Participated
- 18 Simulator Sickness
- 28 Usable
- 616 total-right turn scenarios


Data:

- Observed crashes
- Visual attention
- Position and speed of vehicles, bicycles, and pedestrians




Recommendations

SIGNAGE



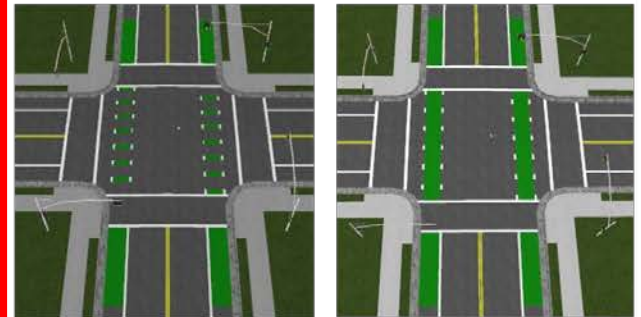
ODOT OR10-15b
"Turning Vehicles
Yield to Bicycles"

PAVEMENT MARKINGS



Dashed white bike line with stencil, single line

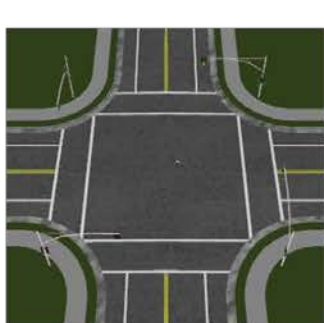
Dashed white bike line with stencil, double line



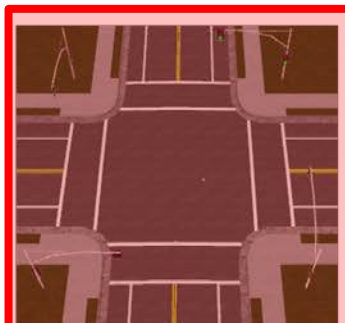
Dashed green bike lanes with white outline

Full green bike lane with dashed white outline

CURB RADII



Larger curb radii, 30ft



Smaller curb radii, 10ft

PROTECTED INTERSECTIONS



With islands



With islands and green pavement markings

Questions?



David Hurwitz, PhD
Associate Professor
Oregon State University
Email: david.hurwitz@oregonstate.edu

and



Chris Monsere, PhD, PE
Department Chair and Associate Professor
Portland State University
Email: monsere@pdx.edu