


INSTINCT

The Influence of a Signal Optimiser
oN Route Choices

Urie Bezuidenhout MSc.(Eng.)
(PhD Candidate -Univ. of Auckland)

Supervisors Dr P Ranjitkar, Dr J Wang

IPENZ 2011, Auckland



Previous Research

(MUSIC)

Management of traffic Using Signal Control



Objectives of research

- Signal Optimisation
 - Improve offset algorithm
 - Active and passive techniques
- Understand
 - Platoon dispersion
 - Queues
- Empirical vs. Psychological
 - Visual perception
 - Steering changes
 - Velocity changes
- Route Choices

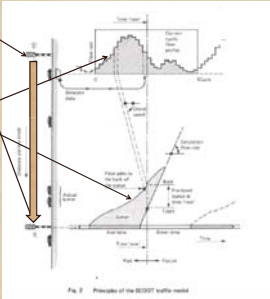

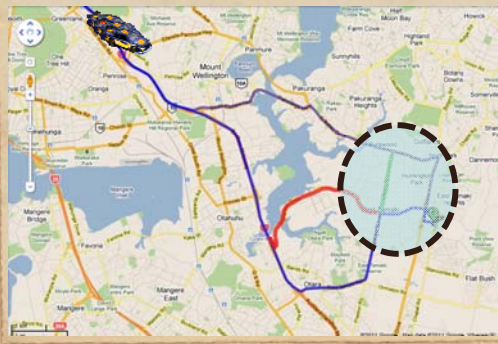

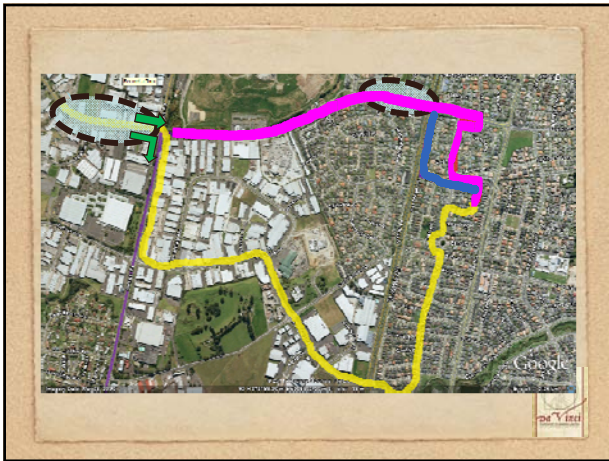


Fig. 2 Principles of the SIGHT traffic model



Gross Route Choice



Models-Predictions-Forecasts

| | |
|--------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Engineers</p> <p>Economists</p> <p>Geographers</p> <p>Psychologists</p> <p>Mathematicians</p> | <p>vehicles ~ infer driver behaviour</p> <p>money ~ derive choices.</p> <p>historical data ~ how we travel</p> <p>simulation ~ how we could react</p> <p>ideal world ~ how we should react</p> |
|--------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Psychogineering

| | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><u>Psycholog</u></p> <p>∩</p> <p style="text-align: center;">Stimuli</p> <p>Visual perception</p> <p>Cognition</p> <p>Sensorimotor action</p> <p>Feedback</p> <p style="text-align: center;">Behavioural Model</p> <p>Eye fixations</p> <p>Saccades</p> <p>Gaze tracking</p> | <p>+</p> <p>+</p> <p>↔</p> | <p><u>Engineering</u></p> <p style="text-align: center;">Control</p> <p>Signal Control</p> <p style="text-align: center;">Behavioural Model</p> <p>Queue Dispersion</p> <p>Platoon Dispersion</p> <p>Queue Formation</p> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Perception

- Visual sensation → sensorimotor system
- Eye Fixations → to perceive and remember
- Eye Saccades → memory blanking
- No Visual Memory → spatial and object encoding



Fixation and Saccades

Welcome to the OGAMA demo slideshow!
Thanks for your interest ...

The slides contain a wealth of production, capture and analysis features. During the show your eye and mouse movements were recorded, so you can run your first analysis with your own gaze data.

For demo purposes it has a looped background sound which is a property that is available for each slide.

Please start by clicking the left mouse button.

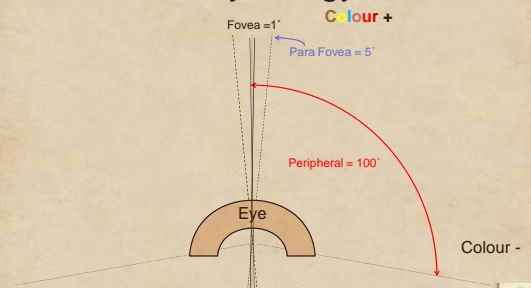


Eye Tracking

- Fixation → path and tracking
- Gaze saliency → scan path and duration



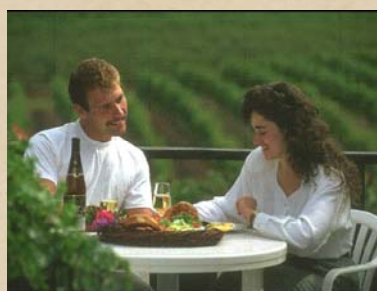
Physiology



Foveal vision



Limitations



Change Blindness



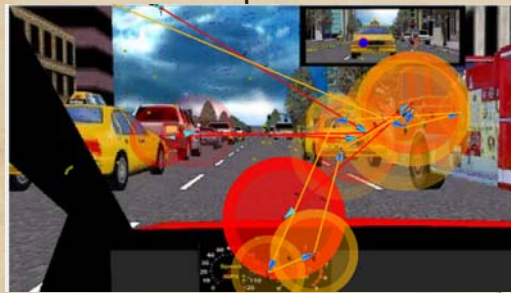
Scan paths



Saliency



Comparisons



Data collection

Instrumented Vehicle



Simulated

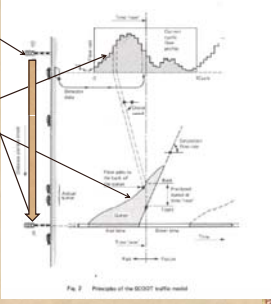


Traficon Video Detection



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The diagram illustrates the 8007 traffic model, showing a sequence of vehicle trajectories over time. It includes labels for 'Queue', 'Platoon', 'Dispersion', and 'Signal Timing'. A vertical arrow on the left indicates the direction of traffic flow. The diagram is labeled 'Fig. 7 Principles of the 8007 traffic model'.

QUESTION TIME

urie@davincitransport.co.nz
+64 (0)21 367 516