FINDING PATTERNS IN TEMPORAL DATA

KRIST WONGSUPHASAWAT
JOHN ALEXIS GUERRA GÓMEZ
TAOWEI DAVID WANG
CATHERINE PLAISANT
BEN SHNEIDERMAN

HUMAN-COMPUTER INTERACTION LAB
UNIVERSITY OF MARYLAND
FINDING PATTERNS IN TEMPORAL DATA

KRIST WONGSUPHASAWAT
JOHN ALEXIS GUERRA GÓMEZ
TAOWEI DAVID WANG
CATHERINE PLAISANT
BEN SHNEIDERMAN

HUMAN-COMPUTER INTERACTION LAB
UNIVERSITY OF MARYLAND
NEW STUFF

Needs for an overview -> LifeFlow!
TASKS

• Example: Finding “Bounce backs”

• Other questions
LIFEFLOW

AGGREGATE
Merge multiple records into tree

VISUALIZE
Display the aggregation
AGGREGATE

• Aggregate by prefix

Example with records
AGGREGATE

- Aggregate by prefix
VISUALIZE

- Inspired by the Icicle tree [Fekete}
VISUALIZE (2)

- Use horizontal axis to represent time
- Video
DEMO – LIFEFLOW

When the lines are combined into flow
FUTURE WORK

- Comparison
TAKE-AWAY MESSAGE

Information visualization is a powerful way to explore temporal patterns.

You can work with us on new case studies.
TEMPORAL CATEGORICAL DATA

Electronic Health Records: symptoms, treatment, lab test
Traffic incident logs: arrival/departure time of each unit
Student records: course, paper, proposal, defense, etc.

Others: web logs, usability study logs, etc.
EXAMPLE – TRAFFIC INCIDENTS
ACKNOWLEDGEMENT

DR. PHUONG HO, DR. MARK SMITH, DAVID ROSEMAN
WASHINGTON HOSPITAL CENTER
http://www.whcenter.org

NATIONAL INSTITUTES OF HEALTH (NIH) - GRANT
CA147489
http://www.nih.gov

MICHAEL PACK, MICHAEL VAN DANIKER
CENTER FOR ADVANCED TRANSPORTATION TECHNOLOGY LAB
(CATT LAB
http://www.cattlab.umd.edu
TAKE-AWAY MESSAGE

Information visualization is a powerful way to explore temporal patterns.

You can work with us on new case studies.

{kristw, jguerrag, tw, plaisant, ben}@cs.umd.edu
http://www.cs.umd.edu/hcil/temporalviz
Q&A
Questions?

{kristw, tw, jguerrag, plaisant, ben}@cs.umd.edu
http://www.cs.umd.edu/hcil/temporalviz
THANK YOU
Thank you