



WORKSHOP: Temporal Event Sequence Analysis EventFlow & CoCo User Group Meeting

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www.cs.umd.edu/hcil/eventflow/workshop2015



UNIVERSITY OF
MARYLAND



Goals



- Update on EventFlow & CoCo Development
- Reports on our Case Studies
- Research Results

- Form Community of Event Analytics Users
- Invite Newcomers to Try EventFlow
- Build Consensus about Next Steps

Morning Session (11:00am-12:30pm)

Introduction

Ben Shneiderman

HCIL, University of Maryland

- **14 Strategies for Sharpening Analytic Focus** Fan Du¹, Ben Shneiderman¹, Catherine Plaisant¹, Sana Malik¹, Adam Perer², *¹HCIL, Univ of Maryland; ²IBM T.J. Watson Research Center*
- **Application of EventFlow to Model the Complexity and Continuity of Antipsychotic Use Among Youth** Susan dosReis¹, Wendy Camelo Castillo¹, James Gardner¹, Ming-Hui Tai^{1,2}
*¹Dept of Pharmaceutical Health Services Research, Univ of Maryland School of Pharmacy;
²Pharmetrics*
- **Management of Co-Morbid Conditions Among Patients Diagnosed with Incident Prostate Cancer,** Eberechukwu Onukwugha
Department of Pharmaceutical Health Services Research, Univ of Maryland School of Pharmacy



Afternoon Sessions (1:15pm-3:00pm)

- **Understanding Temporal Patterns in Hypertensive Drug Therapy**
Margret Bjarnadottir¹, Sana Malik², Catherine Plaisant², Eberechukwu Onukwugha³: ¹Smith School of Business, ²HCIL, Univ of Maryland; ³School of Pharmacy, Univ of Maryland, Baltimore
- **Exploring the Effects of mild Traumatic Brain Injuries using Temporal Events**
Filip Dabek, Jesus J Caban: National Intrepid Center of Excellence (NICoE), Walter Reed National Military Medical Center
- **High-Volume Hypothesis Testing: Systematic Exploration of Event Sequence Comparisons**
Sana Malik¹, Catherine Plaisant¹, Margret Bjarnadottir², Eberechukwu Onukwugha³, Ben Shneiderman¹ ¹HCIL; ²Smith School of Business, Univ of Maryland; ³School of Pharmacy, Univ of Maryland, Baltimore
- **Learning Analytics with EventFlow and CoCo: Exploring Course Enrollment Pathways to Inform Curriculum Planning**
Leah P. Macfadyen: Faculty of Arts, Univ of British Columbia



Afternoon Sessions (3:20pm-4:45pm)

- **Analysis of Activity Logs: Using Visualization to Clarify Results of Anomaly Detection**
Fan Du, Catherine Plaisant, Ben Shneiderman, *HCIL, Univ of Maryland*
- **(s|qu)eries: Visual Regular Expressions for Querying and Exploring Event Sequences**
Emanuel Zraggen^{1,2}, Steven M. Drucker¹, Danyel Fisher¹, Robert DeLine¹
¹*Microsoft Research*; ²*Brown Univ*
- **Simplified Overviews for Temporal Event Sequences: Designs for Novice and Expert Analysts**
Matt Mauriello, Ben Shneiderman, Fan Du, Sana Malik, Catherine Plaisant, *HCIL, Univ of Maryland*
- **Wrap-up & Future Directions**

Recent Progress

- EventFlow
 - Hierarchical Event Aggregation
 - Sharpening Analytic Focus
 - Simplified Overviews
 - Workflow Management
- CoCo (Cohort Comparison)
 - Taxonomy of Metrics
 - High Volume Hypothesis Testing

Case Studies

- **DEVIATION, WORKFLOW:** Children's Hospital
- **CONTRAST:** Washington Hospital Center
- **EPILEPSY:** Rennes University Hospital
- **VIOLENCE:** Yale University Hospital Center
- **ASTHMA:** Army Pharmacovigilance Center
- **DRUG:** Robert H. Smith School of Business
- **PROSTATE CANCER:** Univ of Md School of Pharmacy
- **ACTIVITY LOGS:** Leidos
- **CYBERSECURITY:** Caffeine Security Consultants
- **EMPLOYEE CAREERS:** IBM Human Resources
- **TRAFFIC INCIDENT MANAGEMENT:** Baltimore Metro



Future Work

- **Case Studies: EventFlow & CoCo**
- **Papers: IEEE infoVis & VAST, Pharma, etc.**
- **Licensing: UM Office of Tech Commercialization**

- **Promote Event Analytics:**
 - **Medical histories**
 - **Cybersecurity**
 - **Social media log analysis**
 - **E-commerce histories**
 - **Employee histories**
 - **Educational Analytics**