



**BODY-WORN
CAMERA**
TRAINING & TECHNICAL ASSISTANCE

Improving Police Research and Training: Integrating Data from Body-Worn Camera Footage into the Workflow

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Meeting Logistics

- Meeting is recorded
- Muting
- Chat questions
- Session access
- Meeting evaluation



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Complex Social Interactions Lab
Department of Criminal Justice and Criminology

Agenda

- Complex Social Interactions Lab (CSI Lab) Overview
- Problem Statement
- Gaps in the Research
- Operationalizing De-Escalation
- Coding Approach
- Importance of Context
- Developing and In-field Projects
- Integrating Data into the Workflow
- What Departments Need/Want to Know

Mission

- The Complex Social Interactions (CSI) Lab, established in 2016, is committed to developing new behavioral science methodologies and technologies that can be utilized in real world applications to investigate police officer decision-making and interpersonal interaction by examining unredacted footage recorded by officer body-worn cameras.

Improved understanding of how policing occurs in practice

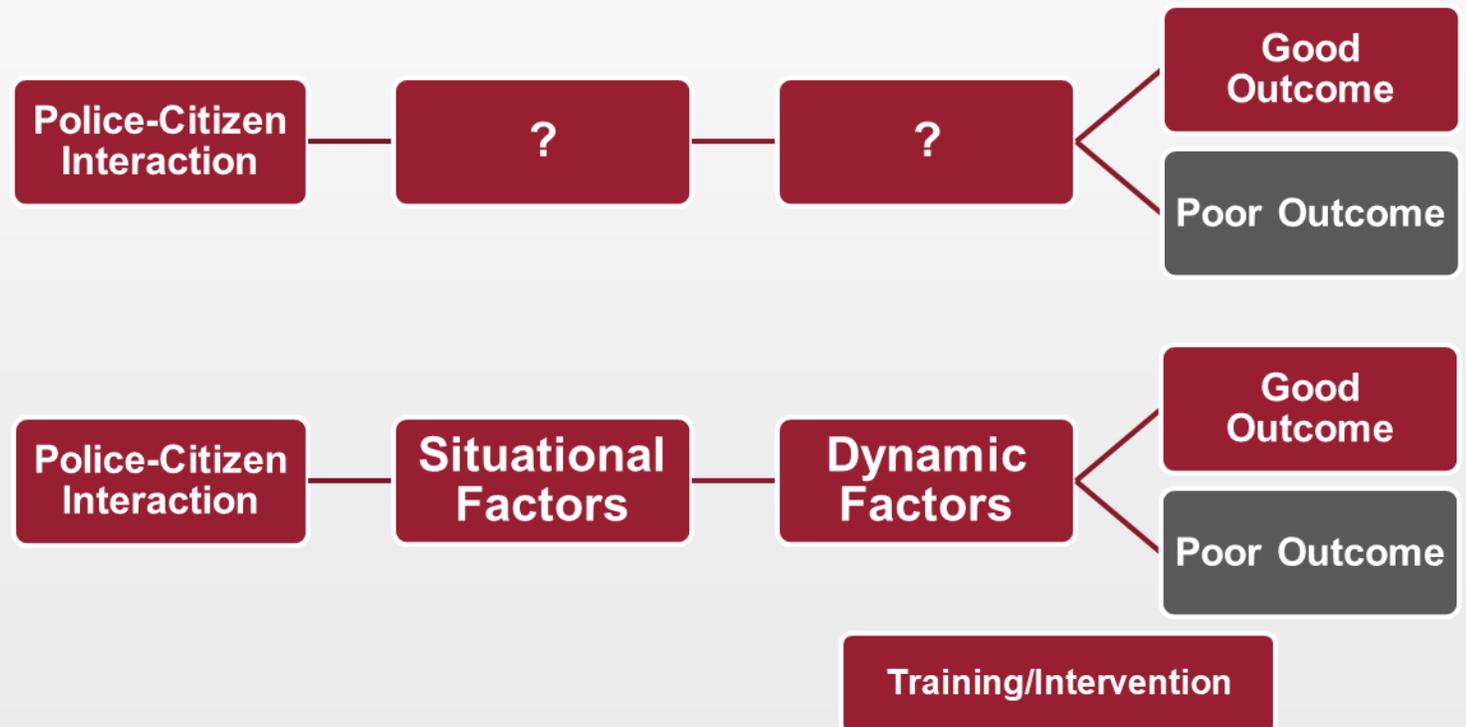
- Accounting for individual, situational, and dynamic factors what causes stress and affective states in police, and how do those states contribute to actions taken?

Provides a foundation for developing interventions to

- Reduce Agency Risk
- Improve Operational Performance
- Evaluate Training Interventions
- Improve Officer Health and Wellness

Develop New Technology

- Real-Time Feedback on Emotional States
- Testing Intervention Strategies (Haptic Feedback)



Multidisciplinary Research Team

- Dr. David A. Makin is a leader in the efforts to investigate police officer decision-making and police-community interaction using un-redacted police body-worn camera (BWC) footage.
- Dr. Dale Willits is an expert on situational violence and co-creator of the CSI Lab.
- Dr. Bala Krishnamoorthy is a computational mathematician and expert in topological data analysis (TDA).
- Dr. Wendy Koslicki is an expert on police militarization and body-worn cameras.
- Dr. Mona Ghandi is a leading expert on emotive intelligence and affective artificial intelligence, and is also the Director of the Morphogenesis Lab.
- Dr. Bryce Dietrich is an expert in audio analytics.
- Dr. Rachel Bailey is a communications expert examining the factors influencing human behavior, information processing, and decision-making.
- Megan Parks is the First Research Fellow in the CSI Lab.

Status

- Analysis of over 15,000 hours of BWC footage.
- Developed a custom software solution and published methodology (Systematic Social Event Modeling) for coding footage.
- Cloud Storage Environment to Remain Compliant
- Provisional Patent on technology to automate the detection of events in footage.
- Currently, the lab has provided research opportunities to over 130 undergraduate and graduate students, helping them to develop important marketable skills, as well as experiential knowledge regarding policing and data modeling.

Police Department Partners (Signed or In-Processing MOU/DUA)

- Two Large Urban Police Departments
- Three Small Police Departments
- One Medium Police Department

Operationalizing Body-Worn Camera Footage

- Agencies are using <5% of their footage

The State of the Research on Stress

• **Problematizing and Professionalizing Stress and Affective States Among Police**

- There is limited empirical data indicating if, and to what extent, stress among police is different from other similar service professions (i.e., nursing).
- There is limited empirical research contextualizing stress or affective states among police in the field.
- Overreliance on Cortisol Testing.

The State of the Research Officer Decision-Making

• **Police Research, as with the First-Responder Research, is largely focused on *institutional* records.**

- Researchers rarely examine what transpires with an emphasis on objectively understanding what took place and why.
- Managing risk necessitates understanding decision-making at the level it happens (i.e., Street-Level)
- Early intervention is the most *cost-effective solution* to mitigating risk.

The Urgency and Criticality of a Multidisciplinary Effort

• **Documenting Stress and Affective States and Connecting it to Decision-Making**

- 1) Baseline stress and affective states,
- 2) connect these states to decision-making, and subsequently
- 3) evaluate interventions aiming to improve decision-making by reducing stress and negative affective states.

The State of the Research on De-Escalation

- Challenges in studying de-escalation
- What is de-escalation?
 - Engel, McManus, and Herold (2019) find in their recent systematic review of 64 de-escalation studies, and as was found in the work of Baker (2012), there has yet to be a validated instrument of what qualifies as de-escalation.

De-escalation versus "Non-escalation"

- A current topic of concern, one of which the research approach developed by the CSI Lab creators is equipped to address.

Now that BWC footage data is being used and its importance is being recognized: How do we integrate this new knowledge into the workflow?

- This is what we will be talking about today.

Establishing a Foundation in the Literature

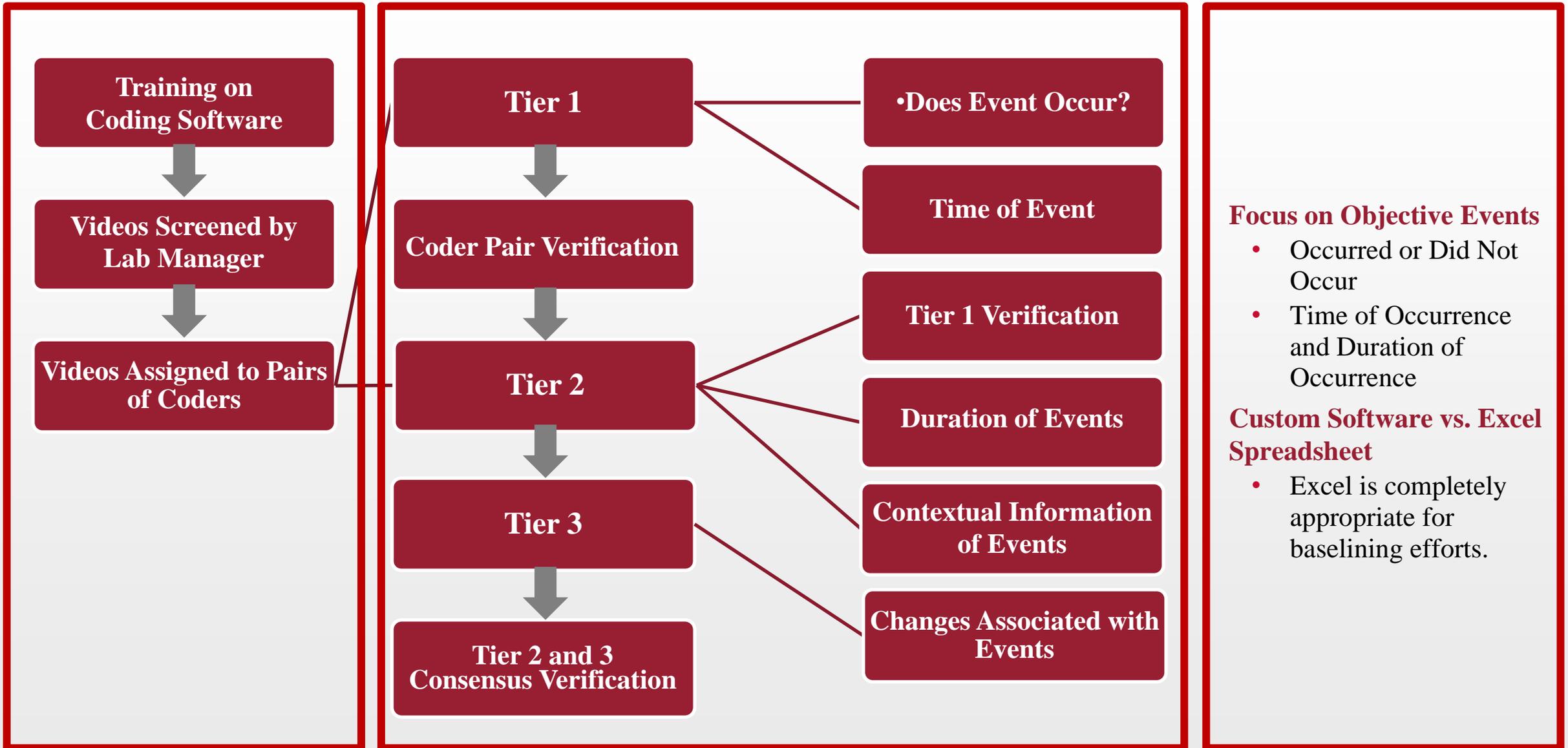
- Seven key themes associated with de-escalation research, categorized into two areas: staff skills and interventions.
- Staff Skills
 - Theme 1: Characteristics of effective de-escalators (*Procedural Justice*)
 - Theme 2: Maintaining personal control (*Officer Emotional Regulation*)
 - Theme 3: Verbal and non-verbal skills (*Verbal Communication Intensity, Active Listening*)
- Interventions
 - Theme 4: Engaging with the patient (*Active Participation/Voice, Respect/Dignity, Neutrality, Trustworthy Motives*)
 - Theme 5: When to intervene (*De-escalation is in response to emotive behaviors and intensity*).
 - Theme 6: Ensuring safe conditions for de-escalation (*environmental factors should be considered before attempting to de-escalate*)
 - Theme 7: Strategies for de-escalation (*Active Listening, Statements of Control made by the Officer, Empathetic Statements*)

Officer Identification

- Officer identification of interactions de-escalation. Flagged for additional review

We mapped the thematic analysis of Price and Baker (2012) to existing distinct measures of procedural justice (Active Participation/Voice, Respect/Dignity, Neutrality, and Trustworthy Motives), which we then further link to existing instruments of emotive behaviors and emotionality intensity. The italicized parenthetical items represent concepts that have been operationalized within existing published instrumentation (see Jonathan-Zamir et al., 2015; Mazerolle et al., 2012; Skogan et al., 2015; Reisig et al., 2004; McCluskey et al., 1999; Makin et al., 2019).

Coding Approach



What are These NLP/Video Analytics Systems Missing?

- Context should not be ignored—every community/situation is different and if interactions are broken down without attention to these contextual factors limits the ability to holistically and effectively implement departmental change and influence individual behavior.

The Importance of Context

- The CSI Lab coding software and approach to BWC footage analysis highlights and captures the importance of context
- What are long term impacts of only using language or video analytic systems?

COVID-19

- How are patrol officers dealing with COVID-19-related interactions?
- Public health/safety language
- Time spent discussing the issue
- Enforcement/minimization of pandemic related violations

Incivility

- Establishing a baseline of incivility and dimensions of incivility. Do officers “loosen” their regulation among certain groups, specific individuals? Alternatively, how frequently do officers experience incivility?

De-Escalation and Non-Escalation (1,500 Interactions)

- Examining changes to intensity and emotionality.
- Emphasis on objective events occurring prior to and after changes to intensity or suspect emotionality
 - Captured for bystanders and other officers
 - Increase/Decrease/Maintained
- Inductive exploration of verbal and physical strategies and tactics

Enhanced Notification Statement Project

- Does an enhanced BWC recording statement paired with increased transparency tactics differentially impact police-citizen interactions?
- Awaiting funding decision to implement a Randomized Control Trial

Develop, Refine, or Augment Existing Supervisory Review

- Focus on Objective Key Performance Indicators (KPIs)
 - Observed (Stated the Reason for the Interaction, Used Directed Profanity)
 - Not Observed (Did Not State the Reason for the Stop, Did not Use Directed Profanity)

Supervisory Review

- How Frequently and How Many?
- Importantly Randomize BWC Review
- Learn from the Reviews (Contextualize Decisions)
- Debrief
- Action and Follow-Up

Self-Assessment

- How Frequently and How Many?
- Learn from Success
- Build a Video Repository of Successful Techniques, Strategies, and Consistent Compliance (KPI)

Auditing

- Frequency of Review, Dates of Review, Duration of Review
- Change to Assigned Footage (change or no change)

How to Start These Projects

- Police department FAQs

Building a Project Around a Purposeful Research Question

- Better to have a focused project than an open-ended analysis—can directly influence departmental changes

Practical Considerations

- Department Review or External Review
- Data storage
- Data access
- Coders/Codebooks
 - Built around research supported variables
- Privacy/IRB
- Training
- How much time it takes!

What are those KPIs?

- How might the conceptualization of KPIs differ when asked and evaluated from the police perspective (as opposed to a researcher's perspective)?

BWC lab as an instrument

- What is the best way to leverage this tool from the perspective of police departments?

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