

Year-End Summary: The WSU Complex Social Interactions Lab (2025-2026)

Executive Summary

The 2025–2026 year marked continued growth and impact for the Complex Social Interactions Lab. Through the integration of applied research, student workforce development, public safety partnerships, and technology innovation, the lab expanded its contributions to both the university and communities across Washington State. The following highlights summarize key outcomes and accomplishments from the past year.

Key Achievements

- Supported over 6,100 hours of student research activity, providing hands-on experience in applied research, data analytics, and public safety initiatives.
- Produced research recognized at regional and national conferences, resulting in multiple student awards, honors, and scholarly presentations.
- Established and maintained collaborative partnerships with 10 law enforcement agencies across Washington State, as well as community-based organizations.
- Developed and enhanced innovative technology platforms, including the Guided Interactions platform, RCW Legal AI Agent, and new artificial intelligence tools supporting legal analysis and deriving insights.
- Expanded the lab's role as a research and technology partner by providing no-cost support, evaluation services, and technical expertise to public-sector agencies.

Organizational Highlights

Measure	2025–2026 Result
Student Researchers Engaged	70+
Academic Disciplines Represented	17
Student Research Hours	6,100+
National Science Foundation Interns	9
Washington Law Enforcement Partners	10+
Research Manuscripts in Development	~10
Washington Law Benchmark Dataset	500,000+
Major Technology Platforms Advanced	4+
Embedding Models	2
Conference Presentation Venues	Internal, Regional, and National

Detailed Summary

The demand for evidence-based practices to guide policy and practice has been echoed by academics, police departments, and community partners alike. The Complex Social Interactions Lab at Washington State University addresses this need with a practical, data-focused method and represents an intersection of public safety, research innovation, and student development. Collaborating with law enforcement agencies across Washington, the lab converts complex data into actionable tools that enhance officer training, shape evidence-based policies, and support program development and evaluation. These efforts also help agencies build and sustain community trust. At the same time, the lab provides students with meaningful, hands-on experience in data collection, interpretation, and applied research, preparing them for careers that demand both technical expertise and social awareness. The results from the past year highlight the importance of this work.

Research Engagement

A central component of the lab is its expansive, interdisciplinary student engagement at Washington State University. With over 70 students contributing over 6,100 research hours and representing 17 specialties, the lab serves as a hub for applied learning across the university. Their involvement in programs such as the Honors College, ROTC, McNair Scholars, and other campus initiatives highlights the lab's role in cultivating well-rounded, high-achieving scholars. The strong retention rate—over one-third of students returning in subsequent semesters—highlights the value and impact of the experience, regardless of career path or discipline.

During the past year, the lab hosted its final year of a summer Research Experiences for Undergraduates program funded through the National Science Foundation (NSF). Nine additional students were involved through this program, and all presented their work at the WSU Research Symposium. Their projects were also presented at the Western Association of Criminal Justice, extending their work to a broader academic audience. Several of these projects continued beyond the program, with expanded research showcased at the WSU Showcase for Undergraduate Research and Creative Activities (SURCA). One project received a Gray Award, while another was developed into an Honors College thesis that earned a Passed with Distinction designation.

Student research from the lab has also been presented at multiple regional and national venues, further demonstrating its reach and quality. Presentations have taken place at the Gabriel E. Gallardo Student Symposium at the University of Washington, the Pacific Northwest Pre-Health Symposium, and the National McNair and Undergraduate Research Conference at the University of Maryland. This work has received formal recognition, including an Excellence in Research Presentation Award at the 2026 Pacific Northwest Pre-Health Symposium and the 2026 Emerita/Emeritus Society Excellence in Undergraduate Research Award in the Social,

Economic, and Behavioral Sciences at WSU. These outcomes demonstrate sustained student engagement in competitive academic environments.

Over the past academic year, students focused on contributing to research on intimate partner violence, helping improve resource connections for survivors. However, nearly 10 manuscripts are currently in progress on a variety of topics, many of which use machine learning methods to analyze large datasets. At the same time, the lab began deploying a project to measure officer stress using biometric data from FDA-approved devices, with anticipated collection from at least three police agencies, making it the largest of its kind. This collaboration contributes to the lab's coordination with nearly 10 law enforcement agencies across Washington State on research and technology adoption partnerships. Further, community engagement occurred with organizations such as the Spokane Domestic Violence Coalition and through participation in events such as the End the Violence Conference, broadening partners beyond law enforcement to include other criminal justice entities and community support organizations.

Technology Innovations

These later connections have been centered on developing technology to support public health and safety. The lab's technology development focuses on building tools that support incident reporting, real-time decision-making, and data analysis in applied settings. One primary output is the *Guided Interactions* platform, which provides officers with structured guidance during high-risk situations, helping standardize workflows and improve consistency in responses to victims. Integrated into the software, the lab has developed the *RCW Legal AI Agent*, an AI assistant designed to improve accuracy when interpreting Washington State law.

The lab also emphasizes workforce development by making advanced AI tools more accessible in practice. These efforts aim to connect machine learning techniques with everyday investigative and analytical work. The *AI Field Guide* serves as a technical resource for law enforcement and academic users, outlining how to conduct secure analyses in air-gapped environments. Complementing this is the *Kamiak Workspace Interface Platform*, which provides a secure, visual interface to the WSU Kamiak High-Performance Computing cluster. The platform includes built-in large language model integration and custom tools, allowing users to run analyses and manage workflows without needing extensive technical expertise.

To advance AI architecture, the lab developed domain-specific *embedding models for Washington State law*. These models convert both legal text and user queries into a shared vector space, improving the ability to match everyday language with formal statutory content. This approach supports more effective legal search and interpretation, particularly in applied contexts. Alongside developing these models, we created accompanying open-data resources to support research in legal information retrieval and artificial intelligence. The *Washington Law Benchmark* dataset includes 500k+ set of paired examples that connect hypothetical scenarios

and legislative drafts to relevant statutes. In addition, the structured *Revised Code of Washington dataset* provides a complete and organized version of state law as of 2026. Together, these datasets support the development and evaluation of tools for legal search, analysis, and machine learning applications.

Building directly upon this architectural foundation, the lab-initialized *Project Lighthouse*, an automated compliance and municipal policy auditing platform. Designed as a decision-support tool for city attorneys and local government clerks, *Project Lighthouse* utilizes our custom embedding models to scan local city ordinances and cross-reference them against state statutes. By automatically identifying and flagging high-similarity legal pairs, the system acts as a powerful force multiplier for municipal legal teams. It significantly cuts down on manual review time while highlighting potential structural contradictions and preemption conflicts for human review before local policies are formalized.

Continued Impact

Over the past year, the Complex Social Interactions Lab has expanded its role as a center for applied research, student training, and technology development in public safety. The lab increased student participation, produced research recognized at regional and national levels, strengthened partnerships with law enforcement and community organizations, and advanced tools designed to support decision-making in the field. These efforts demonstrate a consistent approach to combine research, practice, and education to address the challenges facing policing and community interactions. The outcomes from this year show not only growth in scale but also the continued integration of student learning with real-world impact.

Looking ahead, the lab is positioned to build on this progress by expanding capacity and continuing engagement. Enrollment for Fall 2026 is already the largest to date, enabling more students to participate in research and increasing the lab's capacity to support partner agencies. The lab will continue to provide this support at no cost, maintaining its commitment to advancing public safety and aligning with the university's land-grant mission. At the same time, research will increasingly focus on areas such as officer wellness and the adoption of new technologies, responding to needs identified by both departments and communities.

Future work will also include transitioning the developed tools into applied settings. The Guided Interactions platform will enter beta testing with partner agencies, providing an opportunity to evaluate its use in real-world scenarios and refine its functionality based on user feedback. Ongoing technology development will remain focused on ensuring that tools are grounded in legal frameworks and designed for practical use in sensitive environments. Together, these efforts position the lab to continue contributing to research, workforce development, and community-focused innovation in the coming year.