



CENTER FOR COLLABORATIVE SYSTEMS FOR SECURITY, SAFETY & REGIONAL RESILIENCE

## UNIVERSITY of WASHINGTON

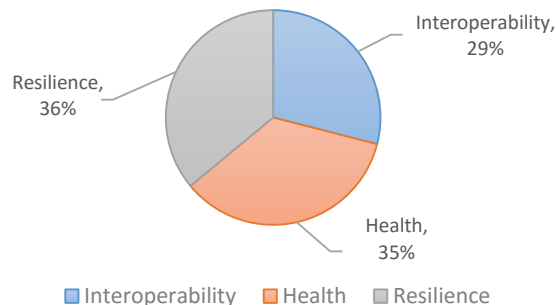
The Center for Collaborative Systems for Security, Safety, and Regional Resilience (CoSSaR) was created to lead innovation in the design, development, and use of collaborative systems that support regional operations for security, safety, and resilience in the Puget Sound region. The center is a multi-disciplinary facility and environment where professionals hailing from federal, state, local, tribal, international, public, and private entities team with university experts to align strategies, processes, and investments in systems for security, safety, and resilience.

CoSSaR is active in the areas of maritime and land based security, safety and resilience, as well as health security.

For more information see: [bit.ly/introducing-cossar](http://bit.ly/introducing-cossar)

### Research Funding

- \$5,265,779 in total grant funding awards
- \$4,030,779 in total active awards
- \$1,235,000 in total completed awards



### Completed Grants

- Puget Sound Operation Information Sharing Requirements Analysis (MOISA I) – Department of Homeland Security - Interagency Operations Center (IOC), Program Manager for the Information Sharing Environment (PM-ISE) & National Maritime Intelligence-Integration Office (NMIO)
- Maritime Operational Information Sharing (MOISA II) – NMIO, IOC, PM-ISE
- Practitioner Needs Analysis of Red Cross/Red Crescent Societies – American Red Cross

### Memberships

- Sector Seattle Area Maritime Security Committee (AMSC)
- Object Management Group (OMG)
- Standards Coordinating Council (SCC)

### Active Grants

- Modeling and Analysis of Clinical Care for Health Information Technology Improvement – Agency for Healthcare Research & Quality
- Project Interoperability in Puget Sound – PM-ISE & DHS S&T First Responders Group
- Modeling Post-Disaster Housing Recovery Integrating Performance Based Engineering and Urban Simulation – National Science Foundation (NSF)
- Simulation-Based Hypothesis Testing of Socio-Technical Community Resilience Using Distributed Optimization and Natural Language Processing – NSF
- IMDE Design Development Partnership – SRI International
- Cascadia Region Earthquake Workgroup Regional Resilience Plan Assessment; Earthquake and Tsunami Resilience Summit

### Highlights

- Hosted Commandant of the Coast Guard for tour of CoSSaR/UW
- DHS S&T IMDE-CSS Leadership Visit
- Participated in National Academy of Sciences “Resilient America”
- Participated in Search and Rescue coordination meetings
- Presented quarterly to the Area Maritime Security Committee
- Presented to the Object Management Group
- Presented to the Puget Sound Harbor Safety Committee
- First annual advisory board meeting

**W** UNIVERSITY of WASHINGTON  
HUMAN CENTERED DESIGN & ENGINEERING  
College of Engineering

Visit CoSSaR’s Website @ [hcde.uw.edu/cossar](http://hcde.uw.edu/cossar)

## Q&A

### Project Interoperability in Puget Sound (PIPS)

Q: What is Project Interoperability in Puget Sound?

A: PIPS is developing methods of applying interoperability tools and standards to improve information sharing with the goal of helping our region's safety and security community more efficiently achieve mission goals. We are working with stakeholders in the Puget Sound region to refine tools and concepts to meet mission requirements and for interoperability.

### Maritime Operational Information Sharing Analysis (MOISA)

Q: What is the focus of the MOISA project and what has it achieved?

A: MOISA has analyzed the daily operational information sharing environment (ISE) and challenges of diverse stakeholders in the Puget Sound Maritime area. The project's primary contribution has been the articulation and demonstration of a repeatable, evidence-based, human centered process for integrating the full range of maritime partners into the design, development, and fielding of system enhancements to the regional ISE.

### Modeling and Analysis of Clinical Care for Health Information Technology Improvement

Q: What is the value of modeling the workflow of operations?

A: Our MATHflow tool captures the use and change of information as part of a workflow model. We can export detailed information requirements for the design of an information system that supports a measurably improved workflow.

### Simulation-Based Hypothesis Testing of Socio-Technical Community Resilience Using Distributed Optimization and Natural Language Processing

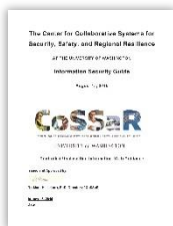
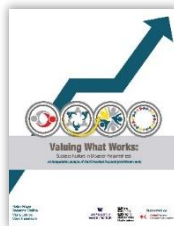
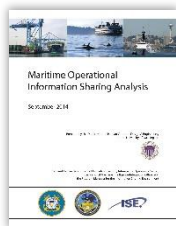
Q: What will be the practical benefits of the project?

A: This project will improve the design and management of critical infrastructure to build resilience in the face of minor disruptions and large disasters. We will inform strategies to improve the functioning and operation of critical infrastructure in order to achieve socially defined goals.

### HCDE Principles

Q: How are we using Human Centered Design (HCD) to achieve technology innovation for the Puget Sound safety, security, and resilience community?

A: Via close collaboration among a team of designers, researchers, software developers, safety and security professionals, and federal project sponsors, we employ, such as contextual inquiry and iterative prototyping, to co-design technology, ensuring that the regional community has a voice in the design of interventions that will impact its work.



## Publications

- Haselkorn et al. "MOISA 2: Fostering regional partnerships and innovation for maritime security, safety, and resilience" *University of Washington*. 2015. (under review)
- Zito, B. "Information Security Guide for Controlled Unclassified Information." *University of Washington*. 2015. [http://hcde.uw.edu/files/news/CoSSaR\\_ISG.PDF](http://hcde.uw.edu/files/news/CoSSaR_ISG.PDF).
- Haselkorn, M. "Project Interoperability in the Puget Sound." *Information Sharing Environment*. 2015. <http://hcde.uw.edu/news/project-interoperability-in-puget-sound>.
- Butler et al. "Model checking for verification of interactive health IT systems." (Forthcoming preceding AMIA 2015) (San Francisco, November 18, 2015).
- Berry et al. "Using conceptual work products of care to design health IT." *Journal of Biomedical Informatics* 2015. (in press)
- Haselkorn et al. "Regional Resilience and the Information Sharing Environment." *University of Washington* 2015. <http://hcde.uw.edu/files/news/RaISE.PDF>.
- Kieras, D. & Butler, K. A. "Task analysis & the design of functionality." Boca Raton: *Computing Handbook: Information Systems and Information Technology*, 2014.
- Haselkorn et al. "Maritime Operational Information Sharing Analysis." *University of Washington*. 2014. <http://www.hcde.washington.edu/files/MOISA1-Final-Report.pdf>.
- Mays et al. "Valuing what works: success factors in disaster preparedness." *Global Disaster Preparedness Center*. 2014. <http://www.alnap.org/resource/19219>.



PhD Candidate Maura Rowell and researcher Anne Tyler onboard a King County Sheriff's Office helicopter.

## Student Q&A

Q: How has working with CoSSaR enriched your education?

A: "Working with COSSAR, I have had the opportunity to travel all over the Puget Sound region and engage directly with stakeholders throughout the large and diverse maritime safety and security community. Working directly with community members and software developers, I get to apply human centered design methodology to the codesign of systems that support this community in its incredibly complex, collaborative work."

– Melissa Braxton, PhD Candidate

## Student Contributors

PhD: Andrew Berry, Melissa Braxton\*, Chia-Fang Chung, Dharma Dailey, Christena Little, Robin Mays\*, Mike McLeod, Pam Munro, Maura Rowell\*, and Yi-Chen Sung.

MS: Emily Bulajewski, Nikki Pete, and Nick Zimmer\*.

BS: Morgan Duffy, Heather Eberhart, Stephanie Grose, Derek Huling, Perry Meas, Anushka Mohajerjasbi, and Tongfang Sun.

\* Current Students

## Advisory Board

- Rep. Gael Tarleton, Washington State Legislature
- Brandon Hardenbrook, PNWER
- Dr. Santosh Devasia, College of Engineering - UW
- John Veenster, Marine Exchange of Puget Sound
- Dr. David McDonald, UW- HCDE

## Staff

- Dr. Mark Haselkorn, Director
- Dr. David Jones, Associate Director
- Dr. Mark Zachry, Associate Director
- Dr. Keith Butler, Principal Research Scientist
- Dr. Scott Miles, Principal Research Scientist
- Dr. Sonia Savelli, Research Scientist
- Dr. Kate Starbird, Associate Professor
- Brian Zito, Research Scientist
- Elizabeth Kirby, Engineer
- Chris Hussein, Program Coordinator