

# Sydney J. Litterer

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## Education

### **Bachelor of Science in Mechanical Engineering, Certificate in Peace Studies**

University of Kentucky, Lexington, KY

Graduated May 2019, Summa Cum Laude (4.00 GPA)

Lewis Honors College

## Research Experience

### **RAND Corporation**, Arlington, VA – *Research Assistant*

July 2019-present

- Performed research on national security issues and emerging technologies to evaluate and inform public policy
- Conducted quantitative analysis and data visualization
- Conducted qualitative data collection and analysis
- Wrote reports and created briefings presenting research design, analysis, results, and recommendations
- Created, assessed, and evaluated metrics and measurement frameworks
- Collaborated with team members to design and execute research games on short deadlines
- Administered an organization-wide crowdsourcing effort

### **University of Kentucky**, Department of Political Science, Lexington, KY – *Undergraduate Research Student*

January-May 2019

- Performed statistical analysis of the impact of varying forms of violence on women's legislative representation for peace studies capstone project

### **University of Kentucky**, Department of Mechanical Engineering, Lexington, KY – *Undergraduate Research Student*

August-December 2017

- Set up, ran, and analyzed computational fluid mechanics models to confirm results of other analyses

### **Karlsruhe Institute of Technology**, Institute for Material Handling and Logistics, Karlsruhe, Germany – *Undergraduate Research Student*

March-August 2016

- Created a computer model depicting the operational envelope for the end of a robotic arm

## Peer-Reviewed Publications

Parker, E., Gonzales, D., Kochhar, A. K., Litterer, S., O'Connor, K., Schmid, J., Scholl, K., Silberglitt, R., Chang, J., Eusebi, C. A., & Harold, S. W. (2022). *An Assessment of the*

*U.S. and Chinese Industrial Bases in Quantum Technology* (RR-A869-1), Santa Monica, CA: RAND Corporation.

Romita Grocholski, K., Savitz, S., Wong, J. P., Litterer, S., Khan, R., & Cooper, M. (2022). *How to Effectively Assess the Impact of Non-Lethal Weapons as Intermediate Force Capabilities* (RR-A654-1), Santa Monica, CA: RAND Corporation.

Martin, B., Linick, M. E., Fraade-Blanar, L., Gardner Burns, J., Foran, C., Romita Grocholski, K., Hastings, K. C., Litterer, S. J., Lynch, K.F., & Mondschein, J. (2021). *Measuring Strategic Readiness: Identifying Metrics for Core Dimensions* (RR-A453-1). Santa Monica, CA: RAND Corporation.

Mayer, L. A., Schmid, J., Litterer, S. J., & Blumenthal, M. S. (2021). *A Structured Elicitation Approach to Identify Technology-Based Challenges With Application to Inform Force Planning for Technological Surprise* (RR-A701-1), Santa Monica, CA: RAND Corporation.

Wirth, A. J., Litterer, S., Lored, E. N., Baldwin, L. H., & Sanchez, R. (2021). *Keeping the Defense Industrial Base Afloat During COVID-19: A Review of Department of Defense and Federal Government Policies and Investments in the Defense Industrial Base* (RR-A1392-1), Santa Monica, CA: RAND Corporation.

## Other Publications

Romita Grocholski, K., Savitz, S., Wong, J. P., Litterer, S., Khan, R., & Cooper, M. (2022). *Evaluating the Use of Non-Lethal Weapons in Operational Environments* (RR-A654-1), Santa Monica, CA: RAND Corporation.

Litterer, S. & Romita Grocholski, K. (2022, April 22). Effective Use of Nonlethal Weapons Could Require Combating Disinformation. *RealClearDefense*.

## Speaking Engagements

*Gaming Contested Logistics: A Case Study from J4 Gaming*, RAND Center for Gaming Brown Bag – Innovations Series, May 3, 2022

- Described the design for a newly developed research game focusing on movement of supplies through a logistics network
- Offered suggestions for adapting the design to answer future research questions

## Skills

**Research Methodologies:** Statistical analysis, mathematical modeling, geospatial analysis, interview content analysis, measurement framework and metric development, research game design and implementation, and historical analysis (basic agent-based modeling and network analysis)

### Computer Programs:

*Statistics:* Stata, R, Minitab

*Other data analysis and modeling:* ArcGIS, MATLAB, Excel (basic Python, NetLogo, and Visual Basic for Applications)

*Engineering:* Solidworks, NX, Autodesk Inventor, Creo Parametric, Revit, AutoCAD LT, Abaqus

**Communication:** Technical Writing, Public Speaking, Cross-Cultural Communication

**Languages:** Read, write, and speak conversational French and German

## **Awards and Achievements**

Spotlight Award – Awarded by the RAND Corporation for contributions to improving U.S. Coast Guard data entry processes

Engineer-in-Training designation from Commonwealth of Virginia

Best Peace Studies Capstone Project of 2019

2017 Outstanding Junior in Mechanical Engineering

National Merit Scholarship

## **Industry Experience**

**Ethicon**, Cincinnati, OH – *Co-op*

May-August 2018, May-August 2017, August-December 2016

- Led component redesign process; provided prototypes and appropriate test methods for proof of concepts
- Provided statistically sound recommendations through test development and data analysis
- Developed predictive models for component behavior
- Designed components and test fixtures for manufacture using solid modeling programs
- Managed 7 committees with a total of 50 members organizing classes, volunteering opportunities, and networking events for co-ops

**Engineering Ministries International**, Calgary, AB, Canada – *Intern*

January 2018-May 2018

- Worked with a multidisciplinary team of engineers and architects on a project based in Haiti
- Completed project research and wrote/compiled final report for client
- Designed electrical plans and drafted architectural drawings for multiple buildings using Revit and AutoCAD

**Capital One Summit for Developing Leaders**, Plano, TX – *Workshop Participant*

January 2016

- Developed a solution for a business problem relevant to Capital One in collaboration with team members
- Presented the solution to a panel of Capital One executives

## **Educational Travel**

*Semester Exchange – Karlsruhe Institute of Technology*

March-August 2016

- Completed engineering coursework in German and English
- Conducted research with the Institute for Material Handling and Logistics

*Calculus III Education Abroad Program, Karlsruhe, Germany*

June-July 2015

- Completed one semester of Calculus III content in 5 weeks

## **Volunteer Experience**

**Highlands Urban Garden, Arlington, VA**

- Grow and harvest food for local food banks

**Read to Succeed, Lexington, KY**

- Led a weekly children's reading program designed to improve reading proficiency
- Worked with recent immigrants from China

**International Friends, Lexington, KY**

- Met with international students to answer cultural questions and work on conversational English

**Refugee Aid, Karlsruhe, Germany**

- Participated in counseling sessions with refugees