

# JOSEPH BLOCHBERGER, PE

Professional Engineer & Graduate Student  
Department of Civil & Systems Engineering  
The Johns Hopkins University  
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## **PROFESSIONAL SUMMARY**

Experienced multidisciplinary engineer well-versed engineering acoustics, analyzing sensor data, and sonar systems engineering. Committed to studying the performance of fielded and future engineering systems using real-world data, engineering principles, and applied probability / statistics. Licensed professional engineer in the Commonwealth of Virginia.

Research Interests: Creativity in Design, Data-Driven Analysis, Decision Analysis, Design of Complex Systems, Design Synthesis, Operations Research, Predictive Analytics, Probability & Stochastic Processes, Signal Processing, Simulation-Based Design Under Uncertainty, Systems Engineering, Systems Science

## **EDUCATION & LICENSURE**

**Post-Masters Certificate, Electrical & Computer Engineering**, 08/2022, The Johns Hopkins University

**Professional Engineer, License No. 0402060705**, 06/2021, Virginia Department of Professional & Occupational Regulation

**Master of Science, Mechanical Engineering**, 12/2018, The Pennsylvania State University (Penn State)

**Bachelor of Science, Mechanical Engineering**, 05/2015, Virginia Polytechnic Institute and State University (Virginia Tech)

## **PROFESSIONAL EXPERIENCE**

- Project Manager, **The Johns Hopkins University Applied Physics Laboratory**, 09/2020 to present
- PhD Student (Civil & Systems Engineering), **The Johns Hopkins University**, 01/2021 to present
- Test & Evaluation Engineer, **The Johns Hopkins University Applied Physics Laboratory**, 03/2019 to present
- Systems Engineer (Acoustics), **General Dynamics Electric Boat**, 05/2015 to 03/2019
- Research Assistant, **Energy Harvesting and Mechatronics Research Laboratory** (Advised by Prof. Lei Zuo), Virginia Tech, 01/2015 to 05/2015
- Engineering Intern, **General Dynamics Electric Boat**, 06/2014 to 01/2015
- R&D Engineering Intern, **Kollmorgen**, 01/2014 to 05/2014
- Lab Operator, **Virginia Tech Math Emporium**, Virginia Tech, 2013 to 2014

## **TECHNICAL PROFICIENCIES**

- **Languages:** MATLAB, MySQL, Mathematica, Octave, R, Python, CSS, HTML, Javascript
- **Skills:** Acoustics, Analyzing Sensor Data, Applied Probability / Statistics, Data-Driven Analysis, Independent Test & Evaluation, Mechanical Engineering, Noise Control, Project Management, Sonar, Signal Processing, Systems Engineering, Systems Science, Vibrations

## **PUBLICATIONS**

### ***Peer-reviewed Conference Proceedings***

**J. Blochberger**, “Analysis of Structural Acoustic Design Variables for a Periodically Stiffened Plate Using the Finite Element Method,” *Proceedings of the ASME 2019 International Mechanical Engineering Congress & Exposition. Volume 11: Acoustics, Vibration, and Phononics*. Salt Lake City, Utah, USA. November 11-14, 2019. V011T01A007. ASME. <https://doi.org/10.1115/IMECE2019-10259>

### ***Master of Science in Mechanical Engineering Capstone***

**J. Blochberger**, “Analysis of Structural Acoustic Design Variables for a Periodically Stiffened Plate Using the Finite Element Method,” The Pennsylvania State University. Advisor: Dr. Alok Sinha. December, 2018.

## **NON-REFEREED TECHNICAL REPORTS**

- The Johns Hopkins University Applied Physics Laboratory
  - Lead author on 4 engineering analysis reports regarding real-world performance quantification of fielded sonar systems
  - Cognizant project manager signing off on multiple engineering reports and analysis studies
  - Independent test & evaluation analyst evaluating sonar signal processing capabilities planned for insertion on current sonar platforms
- General Dynamics Electric Boat
  - Lead author on 3 engineering reports regarding technology insertion efforts on US submarines
  - Lead author on report and catalog of unmanned undersea vehicle technologies
  - Co-lead on technology exploration effort regarding multidisciplinary design optimization
  - Cognizant noise control engineer signing off on over 50 engineering drawings and supporting engineer regarding three temporary alterations

## **PRESENTATIONS**

**J. Blochberger**, “Analysis of Structural Acoustic Design Variables for a Periodically Stiffened Plate Using the Finite Element Method,” ASME 2019 International Mechanical Engineering Congress & Exposition, Salt Lake City, UT, USA, 2019.

B. Ayliff, **J. Blochberger**, N. Foy, P. Norman, and T. Smith, “Smart Acoustic Monitoring System,” NASA Acoustics Technical Working Group, Hampton, VA, USA, 2015.

## **OTHER PROJECTS**

- J. Blochberger**, “Simulating Schelling’s Segregation Model in MATLAB Using An Iterative 2D Convolution Approach,” Post-Masters Research Project, 2021. <https://github.com/joeblochberger/ABM-Schelling>
- J. Blochberger**, “Simulating a Reverberation Effect Using Convolution in MATLAB,” Post-Masters Research Project, 2020. <https://github.com/joeblochberger/ConvolutionReverbProject>
- J. Blochberger**, “Performance of Reactive Acoustic Mufflers,” Wolfram Demonstrations Project, 2016. <https://demonstrations.wolfram.com/PerformanceOfReactiveAcousticMufflers/>
- B. Ayliff, **J. Blochberger**, N. Foy, P. Norman, and T. Smith, “Smart Acoustic Monitoring System – Virginia Tech Senior Mechanical Capstone Project,” 2014-2015. Sponsored by the NASA Langley Research Center and the National Institute of Aerospace. Advised by Prof. Christopher Fuller. <https://youtu.be/0nKAHMkX3tY>

## **HONORS / AWARDS**

- *Special Achievement Award*, The Johns Hopkins University Applied Physics Lab, 2020
- *Janney Explore Award*, The Johns Hopkins University Applied Physics Lab, 2019
- *Excellence in Mentoring Award*, General Dynamics Electric Boat, 2019
- *James Brown Memorial Scholarship*, General Dynamics Electric Boat Management Association, 2017
- *Best in Innovation & Creativity Award*, Virginia Tech Mechanical Engineering Department, 2015
- *Dean’s List*, Virginia Tech, 2014

## **MEMBERSHIPS / AFFILIATIONS**

American Society of Mechanical Engineers (ASME), 2012 to present  
Society for Industrial and Applied Mathematics (SIAM), 2022 to present  
Acoustical Society of America, 2014 to 2019

## **PROFESSIONAL SERVICE**

- **Technical Committee Member**
  - ASME Noise Control & Acoustics Division (NCAD), Structural Acoustics
- **Conference Organizer**
  - **Topic Organizer**, Analytical & Computational Vibrations & Acoustics, 2022 ASME International Mechanical Engineering Congress & Exposition
  - **Session Chair** (Co-Chair with Dr. Linda Zhu, University of Michigan-Flint), Analytical & Computational Vibrations & Acoustics, 2021 ASME International Mechanical Engineering Congress & Exposition
  - **Topic Organizer**, Analytical & Computational Vibrations & Acoustics, 2020 ASME International Mechanical Engineering Congress & Exposition
- **Conference Paper Reviewer**
  - ASME International Mechanical Engineering Congress & Exposition, 2017-2022