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JOSEPH BLOCHBERGER, PE

Professional Engineer & Graduate Student
Department of Electrical & Computer Engineering
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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, 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

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

- Post-Masters Student (Electrical & Computer Engineering), **The Johns Hopkins University**, 01/2021 to present
- Project Manager, **The Johns Hopkins University Applied Physics Laboratory**, 09/2020 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, Independent Test & Evaluation, Mechanical Engineering, Noise Control, Project Management, Sonar, Signal Processing, Systems Engineering, 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
Acoustical Society of America, 2014 to 2019

PROFESSIONAL SERVICE

- Technical **Committee Member**
  - ASME Noise Control & Acoustics Division (NCAD), Structural Acoustics
- Conference Organizer
  - **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**
  - 2021 ASME International Mechanical Engineering Congress & Exposition
  - 2020 ASME International Mechanical Engineering Congress & Exposition
  - 2019 ASME International Mechanical Engineering Congress & Exposition
  - 2018 ASME International Mechanical Engineering Congress & Exposition
  - 2017 ASME International Mechanical Engineering Congress & Exposition