

Joseph G. Tylka, Ph.D.

Research Scientist, Siemens Corporate Technology

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755 College Rd. E, Princeton, NJ 08540

EDUCATION

Princeton University

Doctor of Philosophy (Ph.D.) in Mechanical and Aerospace Engineering

Master of Arts (M.A.) in Mechanical and Aerospace Engineering

Princeton, NJ

2012–2019

The Pennsylvania State University

Non-Degree Graduate Student in Acoustics (attended online)

University Park, PA

2012–2014

University of Maryland

Bachelor of Science (B.S.) in Physics with a minor in Philosophy, *cum laude*

College Park, MD

2008–2012

RESEARCH EXPERIENCE

Siemens Corporate Technology

Research Scientist, Automation Runtime Systems Research Group

Princeton, NJ

2019–present

Princeton University

Assistant in Research, 3D Audio and Applied Acoustics Laboratory

Princeton, NJ

2012–2019

University of Maryland

Undergraduate Research Assistant, Cosmic Ray Laboratory

College Park, MD

2009–2012

TEACHING EXPERIENCE

Princeton University, Department of Mechanical and Aerospace Engineering

Assistant in Instruction, MAE 502: Mathematical Methods of Engineering Analysis II

Assistant in Instruction, MAE 433: Automatic Control Systems

Guest Lecturer, MAE 529: The Physics and Engineering of Sound

Assistant in Instruction, MAE 412: Microprocessors for Measurement and Control

Princeton, NJ

Spring 2017

Spring 2016 and Fall 2016

Spring 2016

Fall 2014

University of Maryland, Department of Physics

Teaching Assistant, PHYS 103: Physics of Music Laboratory

College Park, MD

Fall 2011

SELECTED PROJECTS

SAFE: Safe Autonomy Features in the Edge

Role: Research Scientist

Advanced Robotics for Manufacturing (ARM) Institute

2020–present

RECON: Resilient Control Systems for Naval Vessels

Role: Research Scientist

U.S. Naval Research Laboratory (NRL)

2019–present

Virtual Navigation of 3D Sound Fields

Role: Assistant in Research

Sony Corporation of America

2015–2019

SELECTED PUBLICATIONS

¹ E. Y. Choueiri and J. Tylka. System and Method for Virtual Navigation of Sound Fields through Interpolation of Signals from an Array of Microphone Assemblies, Jan. 16, 2020. US Patent Application 2020/0021940.

² J. G. Tylka and E. Y. Choueiri. Domains of Practical Applicability for Parametric Interpolation Methods for Virtual Sound Field Navigation. *The Journal of the Audio Engineering Society*, 67(11):882–893, November 2019.

³ R. Sridhar, J. G. Tylka, and E. Y. Choueiri. Generalized Metrics for Constant Directivity. *The Journal of the Audio Engineering Society*, 67(9):666–678, September 2019.

⁴ J. G. Tylka. Virtual Navigation of Ambisonics-Encoded Sound Fields Containing Near-Field Sources. Doctoral dissertation, Princeton University, June 2019.

⁵ E. Y. Choueiri, J. Tylka, R. Sridhar, and B. Boren. Method and system for producing low-noise acoustical impulse responses at high sampling rate, May 1, 2018. US Patent 9,959,883.

⁶ J. G. Tylka and E. Y. Choueiri. Models for evaluating navigational techniques for higher-order ambisonics. *Proceedings of Meetings on Acoustics*, 30(1):050009, October 2017.

⁷ J. G. Tylka, B. B. Boren, and E. Y. Choueiri. A Generalized Method for Fractional-Octave Smoothing of Transfer Functions that Preserves Log-Frequency Symmetry. *The Journal of the Audio Engineering Society*, 65(3):239–245, March 2017.