Joseph Young

Assistant Teaching Professor
Director of the Professional Master's Program

Electrical & Computer Engineering
Rice University

Education

2018-2020 **Ph.D.**, *Rice University*, Houston, TX
Electrical & Computer Engineering (ECE)
GPA: 3.8/4.0
Thesis Title: *Addressing Indirect Functional Connectivity in Neuroscience via Graphical Information Theory: Causality and Coherence*

2015-2018 **M.S.**, *Rice University*, Houston, TX
Electrical & Computer Engineering (ECE)
Thesis Title: *Information Theoretic Analysis of the Neurophysiology Associated with Visual Task Learning*
GPA: 3.74/4.0

2011-2015 **B.S.**, *North Carolina State University*, Raleigh, NC
Electrical Engineering
GPA: 4.0/4.0 – *summa cum laude*

Publications

2021 **Addressing indirect frequency coupling via partial generalized coherence** (link)
Joseph Young, Ryota Homma, & Behnaam Aazhang
Scientific Reports

2021 **Inferring functional connectivity through graphical directed information** (link)
Joseph Young, Curtis L Neveu, John H Byrne, & Behnaam Aazhang
Journal of Neural Engineering

2020 **Precise measurement of correlations between frequency coupling & visual task performance** (link)
Joseph Young, Valentin Dragoi, & Behnaam Aazhang
Scientific Reports

2019 **Multi-Sensory Stimuli Improve Distinguishability of Cutaneous Haptic Cues** (link)
Jennifer Sullivan, Nathan Dunkelberger, Joshua Bradley, Joseph Young, Ali Israr, Frances Lau, Keith Klumb, Freddy Abnousi, & Marcia O'Malley
IEEE Transactions on Haptics

2017 **Understanding and Controlling Chromaticity Shift in LED Devices** (link)
J. Lynn Davis, Karmann Mills, Michael Lamvik, Curtis Perkins, Georgiy Bobashev, Joseph Young, Robert Yaga, & Cortina Johnson
RTI International
IEEE EuroSimE 2017 Conference in Dresden, Germany

2016 **CALiPER Report 20.5: Chromaticity Shift Modes of LED PAR38 Lamps Operated in Steady-State Conditions** (link)
J. Lynn Davis, Joseph Young, & Michael Royer
RTI International/U.S. Department of Energy/PNNL PNNL-25201

Relevant Work Experience

Jan-Pres **Assistant Teaching Professor**, *Department of Electrical & Computer Engineering, Rice University*

- Oversee wireless communications & computer engineering capstone projects in the master's in electrical and computer engineering (MECE) program.

- Teach both at the undergraduate & graduate levels.
- Provide general advising to MECE students.
- Host summer workshops on Arduinos & printed circuit board design.

Jan-May 2020 **Teaching Assistant (ELEC 220)**, *Rice University*
Supervisor: Ray Simar
- Helped manage ELEC 220, an introductory computer engineering course.
- Led undergraduate TAs during all lab sections, which included interacting with individual students to help them learn computer engineering concepts and debug hardware and software issues.
- Coached students in the development of final projects involving the use of microcontrollers.
- Designed future course content to allow for broader course appeal and accessibility.

May-Aug 2017 **Electrical Engineering Intern**, *Sandia National Laboratories*, Albuquerque, NM
- Designed high performance server architecture, which included selecting processors, motherboards, racks, and networking equipment, as well as determining the layout of the server room to allow for proper equipment ventilation.
- Performed SolidWorks modeling of various prototypes, which included background research on equipment specifications and the design of prototypes that would be compatible with such equipment.
- Researched materials suited for space applications, which included intensive study of a number of NASA research documents and culminated in the writing of a document summarizing my findings and recommendations.

May-Jul 2015 **Electrical Engineering Intern**, *RTI International*, Research Triangle Park, NC
- Conducted tear-down analysis of LED lamps from elevated temperature testing. Efforts included identification of key components & determination of major electrical parameters such as board temperature, power consumption, & power factor at the end of tests. Used problem solving & electrical engineering skills to identify failures & determine root cause.
- Developed summary presentation of findings & participated in presentation of findings to Pacific Northwest National Labs (PNNL) & an industry group.
- The work was later assembled into a joint RTI-PNNL publication as part of DOE's Commercially Available LED Product Evaluation and Reporting (CALiPER) series.

Teaching

Spring 2021 **ELEC 243: Electronic measurement systems** (co-taught with Dr. Chong Xie)
- Introduction to circuits, signals, systems, and digital signal processing.

ELEC 244: Analog circuits laboratory
- Advanced hands-on circuits class covering diodes, operational amplifiers, and transistors.

Fall 2021 **ELEC 424/553: Mobile & embedded system**
- Advanced hands-on software & hardware course focused on mobile & embedded system applications in the space of autonomous systems.

ELEC 594: MECE capstone project
- Capstone projects for students in the professional master's in electrical and computer engineering (MECE) program.

Skills & Background

Technical C, VLSI (Xilinx System Generator & Vivado HLS), Assembly Language, MATLAB, Python, R, LaTeX
Cultural Lived in Italy, Puerto Rico, and Ireland

Honors & Activities

2021-Pres Member of ECE's diversity, equity, & inclusion committee
2020-Pres Member of Rice University Committee on Teaching
2018-2020 Graduate Student Liaison for ECE on Center for Teaching Excellence's (CTE) Graduate Advisory Board
2019-2020 VP of Administration for Rice Graduate Student Association
2017-2019 NSF Integrative Graduate Education and Research Traineeship (IGERT) awardee

2017 Rice ECE Distinguished Student Service Award
2009 Eagle Scout Award