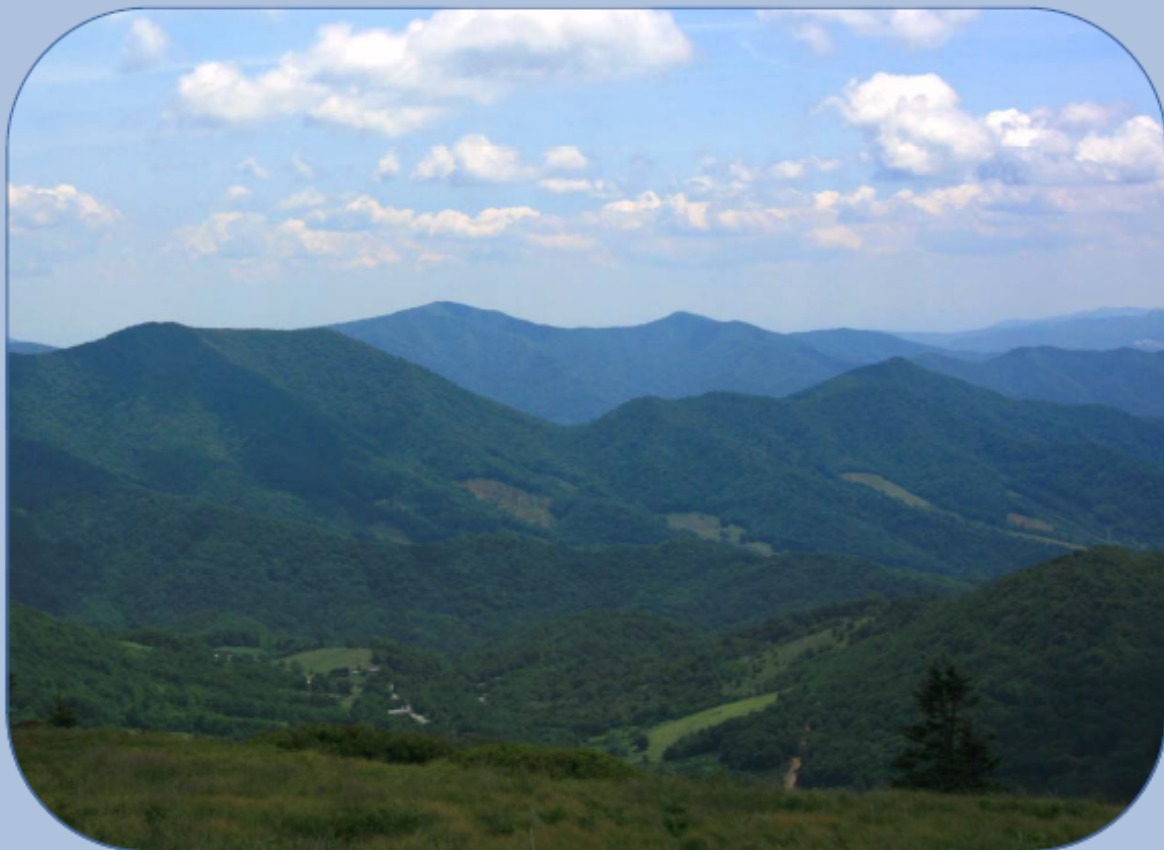


25th Annual  
Appalachian Spring Conference:  
War-Related Injuries to the  
Hearing and Balance Systems



Mountain Home, Tennessee  
June 28-29, 2018

## Thursday June 28, 2018

7:30 am - 8:30 am	Registration & Breakfast <i>Ground Floor</i>
8:30 am - 8:45 am	Welcome & Introductions (no CEUs)
8:45 am - 9:45 am	<b>Overview of War-Related Injuries Across Conflicts</b> Colonel Sidney Hinds II, M.D.
9:45 am - 10:45 am	<b>Windows to the Brain: The Neuropsychiatry of War-Related Brain Injury and Its Co-Morbidities</b> Robin Hurley, Ph.D.
10:45 am - 11:00 am	Break <i>Please remember to visit the exhibitors!</i>
11:00 am - 11:30 am	<b>Vestibular Short Latency Evoked Potentials (VsEP) in Rats Attenuated by Intense Noise Exposure</b> Courtney Stewart, Ph.D.
11:30 am - 12:00 pm	<b>Changes in Guinea Pig VsEP &amp; Vestibulo-Ocular Reflexes (VOR) Induced by Intense Noise Exposure</b> W. Michael King, Ph.D.
12:00 pm - 1:00 pm	Box Lunches
1:00 pm - 1:30 pm	<b>Forging a Path Towards Identifying Central Mechanisms and Developing Objective Measures for Tinnitus Diagnosis and Treatment</b> Avril Genene Holt, Ph.D.
1:30 pm - 2:00 pm	<b>Effects of Small Arms Fire-Like Noise in the Rat Cochlea: Hidden Hearing Loss and Tinnitus and Potential Types of Treatments</b> Richard Altschuler, Ph.D.

2:00 pm - 2:30 pm

Break & Exhibits  
*Ground Floor*

2:30 pm - 3:00 pm

**Perceptual, Neuropsychological, Biochemical, and Electroacoustic Correlates of Blast-Induced Tinnitus in Humans**  
Anthony Cacace, Ph.D.  
John Woodard, Ph.D.

3:00 pm - 4:00 pm

**Effects of Blast Exposure/mTBI on Otolith Function and Brain Blood Flow**  
Jorge Serrador, Ph.D.

6:00 pm

BBQ & Bluegrass Reception

## Friday June 29, 2018

8:00 am - 8:30 am

Check-In & Breakfast  
*Ground Floor*

8:30 am - 9:30 am

**Noise- and Blast-Related Effects on Vestibular and Balance Function**  
Faith Akin, Ph.D., Owen Murnane, Ph.D. & Courtney Hall, Ph.D.

9:30 am - 10:30 am

**Tinnitus and PTSD Issues Related to War Injuries**  
Marc Fagelson, Ph.D.

10:30 am - 11:00 am

Break & Exhibits  
*Ground Floor*

11:00 am - 12:00 pm

**Unique Factors Influencing Hearing Health in the Military**  
Douglas Brungart, Ph.D.

*This course is offered for up to 0.85 AAA and ASHA CEUs.*

*(See opposite page for further information.)*



# WELCOME

Thank you for joining us for the 25th annual Appalachian Spring Conference: **War-Related Injuries to the Hearing and Balance Systems** at Stanton-Gerber Hall on the East Tennessee State University campus.

This conference is presented by the Mountain Home Hearing and Balance Research Program and the Audiology Service at the James H. Quillen VA Medical Center.



East Tennessee State University is approved by the Continuing Education Board of the American Speech-Language-Hearing Association (ASHA) to provide continuing education activities in speech-language pathology and audiology. See course information for number of ASHA CEUs, instructional level and content area. ASHA CE Provider approval does not imply endorsement of course content, specific products or clinical procedures.

This course is offered for up to 0.85 ASHA CEUs (Intermediate Level, Professional Area).



MHRP is approved by the American Academy of Audiology to offer Academy CEUs for this activity. The program is worth a maximum of 0.85 CEUs. Academy approval of this continuing education activity is based on course content only and does not imply endorsement of course content, specific products, or clinical procedure, or adherence of the event to the Academy's Code of Ethics. Any views that are presented are those of the presenter/CE Provider and not necessarily of the American Academy of Audiology.

## Speakers

### **Faith Akin, Ph.D.**

Faith W. Akin is the Director of the Vestibular Laboratory at the James H. Quillen VAMC. She is an adjunct Professor in the Department of Audiology and Speech Pathology at ETSU. Her research is funded by the DoD and DoVA.

**DISCLOSURES: Financial:** salary and research funding from the Department of Veterans Affairs; **Non-Financial:** professor in Doctorate of Audiology program (East Tennessee State University)

### **Richard Altschuler, Ph.D.**

Richard Altschuler, Ph.D. is a Professor at Kresge Hearing Research Institute in the Department of Otolaryngology and in the Department of Cell and Developmental Biology at the University of Michigan and also has an appointment in the VA Ann Arbor Health Care System. He received his Ph.D. in Anatomy from the University of Minnesota in 1978, was then at the intramural program at NIH until 1985 when he joined the University of Michigan. He has been the PI on multiple NIH and DoD grants, including on Amino Acid Transmitters in the Auditory Brain Stem, Lateral Efferent Neurotransmission; Mechanisms Underlying Age-Related Hearing Loss, Tissue Engineering in the Inner Ear; Studies of Cochlear Protheses; and Hearing Preservation for Noise or Cochlear Implantation: Mechanisms & Treatments". He currently has a DoD grant on Mechanism-Based Prevention of Noise-Induced Tinnitus, a VA grant on Treatment of Age-Related Hearing Loss and is also on a VA grant studying the effects of Noise on the Vestibular System.

**DISCLOSURES: Financial:** salary from University of Michigan, VA Ann Arbor Health Care System, and NIH; research funding from DoD and DoVA; **Non-Financial:** N/A

### **Douglas Brungart, Ph.D.**

Douglas S. Brungart, Ph.D. is the Chief Scientist of the National Military Audiology and Speech Pathology Center at Walter Reed and is currently also serving as the Chief Scientist for the DoD Hearing Center of Excellence. From 1993 to 2009, he was a research engineer at the Air Force Research Laboratory with research focusing on advanced auditory displays for spatial and speech information. Since 2009, he has been at Walter Reed focusing on the application of advanced technology to improve the prevention, diagnosis, and treatment of hearing loss and other hearing and speech disorders. He holds a M.S. and Ph.D. in Electrical Engineering from the Massachusetts Institute of Technology and a B.S. in Computer Engineering from Wright State University.

**DISCLOSURES: Financial:** salary from DoD, research funding from MOMRP, CDMRP, and DoVA; **Non-Financial:** N/A

DoD: Department of Defense; DoVA: Department of Veterans' Affairs. ETSU: East Tennessee State University; NIDCD: National Institute on Deafness and Other Communication Disorders; NIH: National Institutes of Health; VAMC: Veterans' Affairs Medical Center

## Speakers

### **Anthony Cacace, Ph.D.**

Dr. Cacace is Professor of Communication Sciences & Disorders at Wayne State University, Detroit, Michigan. He is an Elected Fellow of the American Speech Language Hearing Association and Fellow of the American Academy of Audiology. His background is in the areas of clinical audiology, auditory electrophysiology, electroacoustics, psychoacoustics, and neuroimaging; his expertise has been focused in the areas of auditory processing disorders, tinnitus, and vestibular function/dysfunction. He has extensive and wide-ranging peer reviewed publications, edited books, and book chapters in the domains of central auditory processing disorders, blast and mild traumatic brain injury issues related to hearing loss, tinnitus, vestibular, cognitive-related function/dysfunction, and neuroimaging. He has been funded throughout his career by the NIH, the DoD, the DoVA, and various foundations related to hearing loss and tinnitus. He was former Chair of the Scientific Advisory Committee and member of the Board of Directors for the American Tinnitus Association.

**DISCLOSURES: Financial:** salary from Wayne State University, research funding from NIH and DoVA **Non-Financial:** Elected Fellow of ASHA, Fellow of AAA

### **Marc Fagelson, Ph.D.**

Dr. Marc Fagelson is Professor of Audiology at East Tennessee State University. He received a B.A. in English and M.S. in Audiology from Columbia University, and his Ph.D. in Hearing Science from the University of Texas at Austin. His academic teaching includes courses covering hearing science, audiologic evaluation, pathologies of the auditory system, and tinnitus management. Fagelson has co-edited with Dr. David Baguley two texts published by Plural that center on tinnitus and disorders of sound tolerance. He has more than 35 publications and has made more than 100 conference and workshop presentations. In 2001, he opened the James H. Quillen VAMC Tinnitus Clinic that now enrolls more than 1000 patients. The clinic offers extensive and collaborative counseling for patients, as well as a variety of sound therapy strategies designed to support a patient's ability to manage their tinnitus experience and sound tolerance issues. A substantial proportion of the veterans in that clinic experience tinnitus that is complicated by the influence of co-occurring psychological conditions, and in particular posttraumatic stress disorder. This challenging and underserved population is the focus of Dr. Fagelson's research.

**DISCLOSURES: Financial:** salary from ETSU, consulting fee from James H. Quillen VAMC; **Non-Financial:** member of American Tinnitus Association Scientific Advisory Council

## Speakers

### **Courtney Hall, Ph.D.**

Courtney Hall, Ph.D. received her Ph.D. in Kinesiology from the University of Texas at Austin. She joined the Vestibular/Balance Research Laboratory at the James H. Quillen VAMC in October 2011 as the Director of the Gait and Balance Laboratory. Dr. Hall's research has focused on clinical questions that will provide knowledge to develop novel, effective exercise interventions to reduce impairments related to dizziness and imbalance. Dr. Hall's research program is aimed at better understanding age-related (both normal and pathological) changes in balance control and how best to intervene therapeutically to prevent loss of mobility and falls. She has been studying various risk factors impacting mobility and falls for a number of years. Her research to this point has examined the contributions of motor (lower extremity strength and power), sensory (visual and vestibular), and cognitive function to balance control in older adults. Two current research projects are geared towards developing novel interventions to reduce dizziness and/or imbalance in adults. The first study is based on promising results from a clinical case study and will test whether stimulation of the otolith organs using off-axis rotation (i.e., centrifugation) will lead to vestibular compensation. The second study is part of a long-term research program with the goal of establishing a unique treatment platform to diagnose and treat dizziness related to mild traumatic brain injury. The purpose of this study is to determine factors that contribute to successful outcomes of patients with concussion/blast-related dizziness using VA/DoD databases to examine characteristics of Veterans with diagnoses of post-concussion dizziness. **DISCLOSURES: Financial:** salary and research funding from DoVA; **Non-Financial:** N/A

### **Colonel Sidney Hinds II, M.D.**

Colonel Sidney Hinds, M.D., is the DoD Brain Health Research Coordinator at the US Army Medical Research and Materiel Command (MRMC). He also currently serves as Staff Physician in Nuclear Medicine and Neurology at Walter Reed National Military Medical Center, and as Assistant Professor in the Departments of Radiology and Neurology at the Uniformed Services University of the Health Sciences in Bethesda, MD. Colonel Hinds received his M.D. at the University of Connecticut Health Center and completed his residency in neurology and a fellowship in nuclear medicine at Walter Reed Army Medical Center. Over the past 30 years, he has served as lead or chief physician for numerous US military health centers and as a member of several military health advisory committees, including his current membership on the Combat Casualty Care Research Program Government Steering Committee. In addition, he has been awarded multiple military honors including two Bronze Star Medals and three Meritorious Service Medals. Colonel Hinds' research focuses on using advanced imaging techniques to diagnose and monitor recovery from brain injuries. He currently serves as co-Principal Investigator for the Chronic Effects of Neurotrauma Consortium (CENC) project that is jointly funded by the DoD and Department of Veterans Affairs.

**DISCLOSURES: Financial:** salary and research funding from DoD; **Non-Financial:** assistant professor at Uniformed Services University of the Health Sciences, military health advisory committee member

## Speakers

### **Avril Genene Holt, Ph.D.**

Avril Genene Holt, Ph.D. is an Associate Professor in the Department of Ophthalmology, Visual, and Anatomical Sciences at Wayne State University and a Health Research Specialist at the John D. Dingell VAMC in Detroit, Michigan. Dr. Holt's research program is focused on identifying, assessing, and modulating neuronal excitability in order to reverse maladaptive neuroplasticity observed with hearing and vestibular dysfunction. She has published numerous articles and recently co-edited a book *Scientific Foundations of Audiology*. Merit awards from the VA, grants from the NIH, and the American Tinnitus Association have funded her previous studies. She is currently a principal on a VA Merit Award to determine effects of noise on the vestibular system and the partnering principal investigator on a DoD grant to study restoration of noise and blast induced hearing loss. She was selected to participate in leadership workshops hosted by the AAMC and is currently on the Fulbright Specialist roster. Her service has included chairperson and member of diversity related committees for the Association for Research in Otolaryngology and the American Auditory Society, as well as a mentor for the Mentoring Institute of Neuroscience for Diversity Scholars and service on numerous grant review panels.

**DISCLOSURES: Financial:** salary from Wayne State University, research funding and salary from DoD and DoVA, consultant travel reimbursement from DoD and DoVA, as well as NIH; **Non-Financial:** N/A

### **Robin Hurley, Ph.D.**

Dr. Hurley is a Professor of Psychiatry and Radiology and Senior Liaison for Veterans Affairs, Office of the Dean, Wake Forest School of Medicine and the Associate Chief of Staff for Research & Academic Affairs, Salisbury VAMC, Salisbury, NC. Dr. Hurley is a Diplomate of American Board of Psychiatry and United Council for Neurologic Subspecialties Certification in Behavioral Neurology & Neuropsychiatry. Dr. Hurley has co-authored over 105 scientific articles, as well as multiple book chapters, Neuroanatomical Teaching Charts, and numerous scientific presentations. She is the Co-Editor of the "Windows To The Brain" section of the *Journal of Neuropsychiatry and Clinical Neurosciences* and "Windows To the Brain" Imaging Textbook. Dr. Hurley is President-Elect and Fellow of the American Neuropsychiatric Association. Dr. Hurley has maintained a VAMC neuropsychiatric traumatic brain injury teaching service for 22 years and given well over 125 invited lectures, including both within the United States and internationally (including NATO). Dr. Hurley is a co-author of and Associate Director of the Veterans Integrated Services Networks (VSN) 6 Mental Illness Research Education and Clinical Center (MIRECC), a Center Grant focused on Post-Deployment Mental Health. She is co-investigator on several brain injury and post-traumatic stress disorder research studies, principal investigator for a new brain injury rehabilitation program, and site P.I. for several multi-site cooperative and pharmaceutical studies.

**DISCLOSURES: Financial:** salary, research funding, and travel reimbursement from DoVA; research funding from Teva Pharmaceuticals **Non-Financial:** N/A

## Speakers

### **W. Michael King, Ph.D.**

W. Michael King, Ph.D. is Professor of Otolaryngology Head and Neck Surgery and a member of the Kresge Hearing Research Institute at the University of Michigan in Ann Arbor Michigan. Dr. King's current research interests are focused on the damaging effects of noise, aging, ototoxic drugs and chemicals on the vestibular system. In particular, our current research seeks to understand the cellular mechanisms of noise-induced vestibular damage and how such damage might be prevented or alleviated using animal models. Our current research suggests that there might be a vestibular correlate to what is now recognized as "hidden hearing loss", a noise induced inability to process complex auditory information. Dr. King's research is supported by an NIH research grant for which he is the principal investigator and a VA research grant for which he is a co-investigator.

**DISCLOSURES: Financial:** salary from University of Michigan, research funding from NIH and the DoVA, and travel reimbursement from the DoVA; **Non-Financial:** N/A

### **Owen Murnane, Ph.D.**

Owen Murnane received his Ph.D. from Syracuse University and, along with Dr. Akin, was an original member of the Vestibular and Balance Laboratory at Mountain Home. Dr. Murnane's research has been funded by the VA Rehabilitation Research & Development Service and has focused on clinical applications of measures of human vestibular and auditory physiology.

**DISCLOSURES: Financial:** salary and research funding from the DoVA; **Non-Financial:** professor in Doctor of Audiology program at ETSU

### **John Woodard, Ph.D.**

Dr. John Woodard received his Ph.D. in Clinical Psychology at Wayne State University in 1991. He completed an internship in Clinical Psychology at the VAMC in Ann Arbor, MI in 1991, and a postdoctoral fellowship in Neuropsychology at Henry Ford Hospital in 1992. Dr. Woodard is currently a Professor of Psychology at Wayne State University, and his research interests include neuropsychological test construction and assessment, detection and tracking of sports-related concussion and mild traumatic brain injury, and neuropsychological and neuroimaging studies of memory in aging and Alzheimer's disease.

**DISCLOSURES: Financial:** salary from the Wayne State University; grant funding from NIH; **Non-Financial:** N/A



## Speakers

### **Jorge Serrador, Ph.D.**

Jorge M. Serrador, Ph.D. is Associate Professor in the Department of Pharmacology, Physiology and Neuroscience, New Jersey Medical School, Rutgers University. He earned his BS in Physiology, BA in Psychology and MS in Kinesiology from the University of Waterloo, Ontario, Canada. He went on to complete his Ph.D. in Kinesiology from the University of Western Ontario, London, Canada. Dr. Serrador's interest in mild traumatic brain injury (mTBI) is a direct result of his interest in integrative physiology and personal experience with head concussions as a rugby player. His research lab was the first to clearly demonstrate that the vestibular system can directly affect cerebral blood flow. That work has now extended into blast exposure and mTBI by examining how damage to the vestibular system may also be affecting cerebral blood flow and that by using advanced signal processing techniques we can better understand more complex systems such as cerebral autoregulation. His current work is supported by the DoD and Rutgers Brain Health Institute. He has many publications in the areas of cerebral blood flow regulation, vestibular-autonomic interactions and sex differences in human physiology. **DISCLOSURES: Financial:** salary from DoVA, Veterans' Biomedical Research Institute, Rutgers, The State University of New Jersey, and National University of Ireland Galway; research funding from DoD and DoVA; and travel reimbursement from DoVA; **Non-Financial:** editorial board member for BioMed Central Neuroscience and BioMed Central Neurology

### **Courtney Stewart, Ph.D.**

Courtney E. Stewart, Ph.D. is a Postdoctoral Fellow in the Department of Otolaryngology and the Kresge Hearing Research Institute at the University of Michigan. She earned her Ph.D. in Neuroscience from the University of Mississippi Medical Center in 2016. During her dissertation work, Dr. Stewart use physiological recordings from the vestibular branch of the eighth nerve to characterize changes in vestibular responses to natural stimulation after noise-induced injury, and correlated changes in physiological responses with damage to vestibular sensory epithelia. The results of this work showed that intense broadband noise is capable of injuring not only the cochlea and otolith organs, but also the anterior and horizontal semicircular canal cristae. Since joining the Kresge Hearing Research Institute in the Department of Otolaryngology at the University of Michigan, Dr. Stewart has tracked noise-induced loss of vestibular nerve activity and subsequent recovery following brief and extended intense low frequency noise exposures, and how noise exposure may result in persistent damage to vestibular sensory epithelia within the inner ear.

**DISCLOSURES: Financial:** salary from University of Michigan, grants from NIDCD and the DoVA; **Non-Financial:** N/A

Please join us for our annual

# Bar-B-Que & Bluegrass Reception

6:00 PM

Thursday, June 28, 2018

at

The Farmhouse Gallery  
121 Covered Bridge Lane  
Unicoi, TN 37692

Take part in the Appalachian tradition of country music,  
mouth-watering food, and good company. BYOB.

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**Unitron**

**MED<sup>9</sup>EL**

**Starkey**

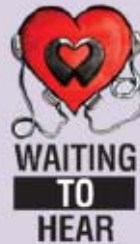
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PEOPLE FIRST

THANK YOU TO ALL THE EXHIBITORS  
WHO HELPED MAKE THE 2017 APPALACHIAN  
SPRING CONFERENCE A SUCCESS!

PLEASE BE SURE TO VISIT THIS YEAR'S  
EXHIBITORS IN THE HALL OUTSIDE THE  
AUDITORIUM.



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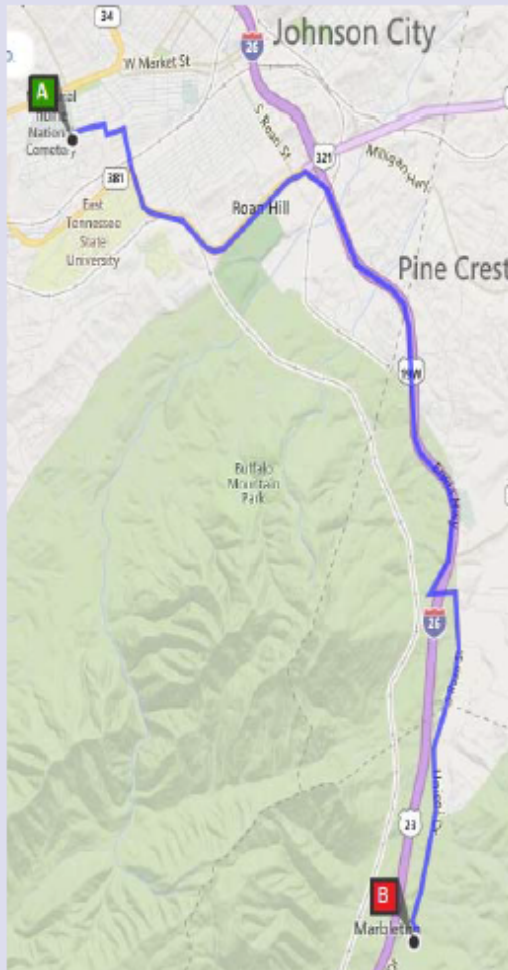
**Cochlear**

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Life sounds brilliant.

Hearing  
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## Directions to The Farmhouse Gallery



*We look forward to seeing you!*

### From the James H. Quillen VA Medical Center Main Entrance:

- Turn left onto West State of Franklin Road
- In approximately 1 mile, turn right onto University Parkway
- In 1.3 mi, turn right onto Cherokee Road
- In approximately 300 feet, turn left onto Buffalo Road
- In 1.5 miles, turn right onto South Roan Street
- Continue straight onto Unicoi Drive for 1.4 miles
- Turn left onto Covered Bridge Lane. The Farmhouse Gallery will be on your right at the end of the driveway.

The Farmhouse Gallery  
121 Covered Bridge Ln  
Unicoi, TN 37692