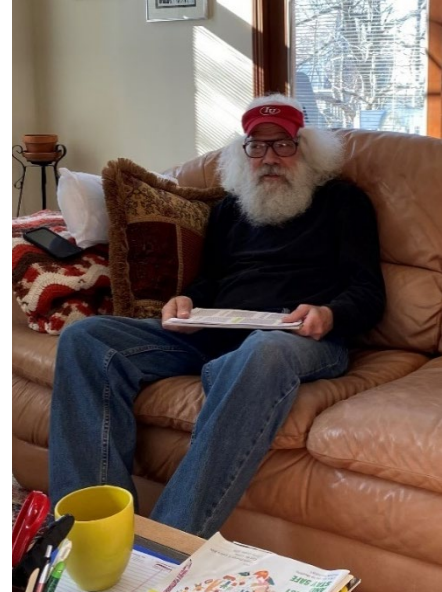


Oral History Interview

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2010 Acoustical Society of America Silver Medal in Speech Communication Award –
“For advancing the basic science of speech perception and recognition, and applying that knowledge to the clinical field of cochlear implantation.”

**Interview conducted at David Pisoni's residence in
Bloomington, Indiana on December 13, 2021**

Transcript edited and condensed by
Ann Bradlow and Tessa Bent

Present Status

Q. Can you please start by stating your present business and job title?

A. Teaching, research, and service for the State of Indiana. My title is Distinguished Professor of Psychological and Brain Sciences, and Chancellor's Professor of Cognitive Science at Indiana University in Bloomington, Indiana. I am also Adjunct Professor of Speech and Hearing, Adjunct Professor of Linguistics, and Adjunct Professor of Otolaryngology, Head and Neck Surgery in the Indiana University School of Medicine in Indianapolis.

Q. How long have you been in this position?

A. You are interviewing me on the 50th anniversary of my appointment to the faculty at Indiana University.

Questions about the Acoustical Society of America (ASA)

Q. What year did you join the ASA?

A. I joined the ASA in 1969 when I was 24 years old. I was a graduate student at the University of Michigan in Ann Arbor, and I was interested in speech communication specifically, speech perception, production, and spoken language processing.

Q. What were your reasons for joining the ASA?

A. The reason I joined the ASA was because at that time the ASA was the only venue where leading edge basic research in speech perception was being presented. There were no other professional meetings or conferences where people talked about their research on human speech perception, production, and processing.

Q. Was there anyone who encouraged you to join the ASA?

A. I think it may have been one of my mentors at the University of Michigan either [Harlan Lane](#) or [Irv Pollack](#). I don't really remember. It's, you know, too far back.

Q. Is there any particular ASA meeting that stands out as being something special, humorous, or different?

A. Yes. It was the 100th meeting of the ASA in 1980 in L.A. I heard a talk by a guy named [Brian Eukel](#), who at the time was a graduate student in [Linguistics at Berkeley](#) with [John Ohala](#). He gave a talk about phonotactics and word frequency. It was a short talk ([abstract](#)). It was common back then to write to the author, and they would send you a written copy of the oral presentation. That's how I got my hands on the written version of his ASA presentation. That talk was transformational. It was a revelation.

Q. In what way?

A. Eukel presented data demonstrating that word "frequency" was related to phonotactics but was not related to experienced frequency. He presented some novel results on the perception of non-words, which of course have a zero frequency of occurrence in the language. That intrigued me immediately. This is 1980! I realized that some of the most important problems in human speech perception and speech recognition involved word recognition and lexical organization, not just phoneme perception and speech cues. This just blew me away because I was brought up in a psychological tradition of always thinking of word frequency as reflecting frequency of occurrence of words in the language and not having anything to do with the structural properties of sound patterns in the language, which was the linguistics part, but the question that intrigued me the most was how do you get frequency effects for words that never occurred in the language? That's what his ASA talk did for me.

Q. Are there any ASA members that you met that influenced your future?

A. Yes. There were lots of friendly supportive people at ASA meetings, but one in particular was [Ira Hirsh](#), who told me about a very obscure publication that appeared in 1946 right after the end of World War II. This book by Miller, Weiner, and Stevens published the results of research on speech perception and intelligibility carried out at the [Harvard Psychoacoustic Lab](#) during the war. Ira Hirsh said to me, "Pisoni, you've got to read that book." I got a copy of the book through

interlibrary loan and I xeroxed the entire book. That [book](#)¹ has lots of “golden nuggets” that I still use in my classes and research studies today. People in the Psychoacoustic Lab at Harvard uncovered many fundamental new findings about speech communication, particularly speech intelligibility under adverse conditions.

Q. Is there anything you’d care to say about the ASA, past, present, and future?

A. Well, of course, since 1929 the ASA meetings have been the primary professional scientific meetings for people who work on human speech, speech acoustics, perception and production as well as spoken language processing. While many engineers working on automatic speech recognition (ASR) and natural language understanding (NLU) formed their own organization (IEEE International Conference on Acoustics, Speech and Signal Processing, IEEE ICASSP), researchers on human speech perception from linguistics, speech and hearing sciences, psychology, and cognitive science all get together at ASA meetings. The fact that there are two meetings a year means that there is a fast turnover of findings. So, I would say that the ASA is *our* primary venue for sharing our research findings.

Early Years, Pre College

Q. When and where were you born?

A. I was born in New York City in 1945, right after the war was over.

Q. Before entering college where were some of the places you lived?

A. I lived in Queens in New York in what was called a “garden apartment.” There were four apartments in one building. We had one bathroom and two bedrooms.

Q. What were your parents’ occupations?

A. My dad was a waiter in an old-style Italian restaurant in Manhattan in the Diamond District. He worked a double shift. So, he worked lunch and dinner and often didn’t get home until 10:30 or 11:00 at night. So, I never saw my dad for dinner during the weekdays. My mom was a nursery school assistant. She liked working with little children, and she worked in a nursery school that was in the basement of the temple in Flushing, Queens. My wife’s father was the president of that temple.

Q. How would you describe yourself during the early years?

¹ United States Office Of Scientific Research And Development. National Defense Research Committee. (1946) *Transmission and Reception of Sounds Under Combat Conditions*. Washington, D.C.: Office of Scientific Research and Development, National Defense Research Committee, Division 17. Retrieved from the Library of Congress, <https://www.loc.gov/item/2009655217/>.

A. During these early years I was just like any other kid growing up in Queens. There were trees in our neighborhood and we could play stickball in the streets. I don't think there was anything remarkable that I can think of during those years.

Q. What did you want to be when you grew up?

A. I had no idea what I wanted to do. Like a lot of other people, I went to a public grammar school that I had to walk to about six or eight blocks every day. Then, I went to a public high school, which I had to take a bus to get to.

Q. Before College what were your hobbies; special interests; heroes; etc.?

A. When I was about maybe 8 or 10 years old, I got interested in control-line model airplanes. You flew these planes by manipulating two long wires around in a circle. I was in a model airplane club with some friends, and we would go hang out and fly model airplanes together. Our parents used to drive us to competitions on Long Island, New Jersey, Connecticut, and all around the East Coast. We would stay there during the whole day and then wait until the end to see who got a trophy. I also did this with my dad, who was always very interested in building things. We would sit for hours on end building things and collaborating with the other members of the group and helping each other out, much like what we do now when we write papers and work on research together.

In high school I was actually interested in engineering and was motivated to apply to the Pratt Institute in New York, but my parents didn't have any money for tuition, so I opted to go to Queens College of CUNY. One of my friends in the model airplane club who was a year or two older than me went to Pratt and it sounded like a good alternative at the time except for the cost of tuition. In my senior year in high school I also took a course in what was then called "MD"-- Mechanical Drawing -- and did very well on the homework assignments and got very high grades. At some point I was interested in electronics and engineering; it seemed like an interesting field to pursue but the family financial situation prevented me from going to a college that had any tuition fees.

Q. Looking back was there any persons or persons during this time frame that had a strong influence on you and your future?

A. One of the strongest influences was my sister, who was 11 years older than I was. She left home when I was about 10 years old and went to graduate school at the University of Iowa. She eventually got a Ph.D. degree from Columbia. She was the person who first introduced me to doing research. She also happened to be married to a clinical psychologist, so I had the two of them as personal tutors. That's how I got interested in psychology and became a psychology major at Queens College. Any time I had any questions, I could talk to either or both of them. They gave me a lot of their old books and journal and things like that, although I didn't go into the area of psychology that they worked in.

Q. Was there any other particular person that had a strong influence on you or your future?

A. The only other person that was influential for me back in the early '60s was a guy named Eddie Lievendag who owned a Texaco gasoline station where I worked when I was in college. You know we didn't have self-serve gas back then; you had to have a young college student or someone else

pumping your gas, wiping windows, and checking tires. I really enjoyed working with Eddie and his partner Buddy Schultz. He's the one who told me that if you ever pull up to get gas and you see one of these big tanker trucks parked in the gas station filling up the underground tanks, don't buy gas because when they fill the tanks it stirs up the sediment on the bottom of the tank. Come back later on. That's what I remember.

Undergraduate Education

Q. Where did you go to college and what made you choose that college?

A. I went to Queens College-CUNY. In those years, in the 1960s, tuition was free for anyone who had a high school grade point over 85%. There was a modest registration fee each semester of a few hundred dollars, but tuition was free for everyone who was accepted. My parents didn't have any money, so if I didn't go to Queens College I would have to go get a job. Maybe I would have become an automobile mechanic. I lived at home because Queens College was not a residential school. It was a commuter school.

Q. What was your major and what made you choose that major?

A. I was very interested in statistics and statistical analysis. I did very well in those classes. At the time that I was a psychology major, there was no such thing as cognitive psychology or cognitive science or neuroscience. There was experimental psychology and clinical psychology, and I was interested in doing experiments and experimental psychology.

Q. Was there any teacher, professor or someone special that had a strong influence on you or your future?

A. Yes, there was one professor I met in 1965 named [Lou Gerstman](#) who was a new professor in the Queens College Psychology Department. He had been at Bell Labs in the 1960s, and before that, he had been at Haskins Laboratories, which at that time was in New York City. He was very interested in this new field that was unheard-of in 1965, psycholinguistics. I went and talked with him, and he and I began working together on a project. Actually, my first publication was a paper with Lou Gerstman. I took graduate classes with him even though I was still an undergraduate student at the time. I took a class on speech perception and information theory. Nobody knew any of that kind of stuff back then. On my computer I have a recording of an audio tape that Lou Gerstman played for me when I met with him in his office. He played the [tape of "Daisy"](#) that was used in the movie *2001*. He was involved in producing this recording which used the first synthesis-by-rule system. Once I heard that tape of synthesized speech generated by a computer, I knew that's what I wanted to do. This was 1965. It was an extraordinary experience to hear this and to know that Lou Gerstman, my advisor, was one of the people on the team that developed this synthesis-by-rule system at Bell Labs in 1962.

Q: Would you say that Lou Gerstman was your inspirational model during that period of your life?

A. Yes, he was the person that inspired me the most. He was one of the pioneers in the field of speech science. He was one of the original research scientists who worked at [Haskins Laboratories](#)

on speech synthesis, and in particular on the acoustic cues for speech. The foundations of what we know today about speech cues all came from the seminal pioneering studies that he was involved in during the early 1950s. He had been at Harvard with George Miller, so he had been connected to people like Ira Hirsh. I remember him taking me and a couple of other students into Manhattan to Haskins Laboratories, which was on the East Side. I think it was near the U.N. We went into the building and up to the floor where the speech people were. He fired up the [Haskins Pattern Playback](#) and proceeded to paint a pattern on the playback machine. I actually got to see this thing working for real! At the present time, there are only two people still alive that know how to paint patterns on the Haskins Pattern Playback, [Larry Raphael](#) and [Robert Remez](#). It's always been very disappointing that the Smithsonian Institute did not want to take the Haskins Pattern Playback because it is a piece of instrumentation that played a seminal role in the field of speech communication.

Graduate Education

Q. Did you continue on for a doctorate?

A. After I completed my undergraduate degree, I went directly into a Ph.D. program at the University of Michigan. This was at the recommendation of Lou Gerstman. In 1968 there was a new graduate program in the Psychology Department at Michigan in psycholinguistics with many well-known people: David McNeil, Eric Lenneberg, Harlan Lane, Irv Pollack, Ron Tikofsky, Klaus Regal, Ed Martin, Bob Bjork, Arthur Melton. There was no other multi-disciplinary program like this anywhere in the country. It was a very exciting environment. Also, at the time, the University of Michigan had a very strong cognitive psychology program, although back in 1968 they didn't call it "cognitive psychology" yet. I had some wonderful teachers in the University Michigan's Psychology Department.

Q. How were you supported?

A. During the whole time that I was at Michigan, I was supported either by research grants, a fellowship, or teaching. I taught for a couple of years, and then I was awarded a Rackham Prize Fellowship which allowed me to just finish my coursework and work on my dissertation. In around 1969-1970, I went to Haskins Laboratories, which had then moved to New Haven, Connecticut. There, I met [Michael Studdert-Kennedy](#), [Al Liberman](#), [Don Shankweiler](#), and [Frank Cooper](#). I started some collaborations with Michael Studdert-Kennedy and Don Shankweiler and published a paper on dichotic listening with them.

Q. What was the topic of your doctorate thesis?

A. I wound up doing my doctoral dissertation on the topic of auditory short-term memory and categorical perception. It was motivated by several articles by [Hiroyo Fujisaki](#), a Japanese speech scientist and electrical engineer who had developed and formalized a model that was very inspiring to me. In my thesis I showed that the degree of categorical perception is a function of the way in which the assessments are carried out, and the more that a particular test procedure relies on short-term phonetic coding, the greater the likelihood is that you will observe categorical perception. I

was able to demonstrate non-categorical perception for speech, particularly synthetic stop consonants by showing that young adult, healthy, normal-hearing listeners could actually perceive small differences that in the past people thought were lost due to phonetic categorization in short term memory.

Military Experience

Q. Were you ever in the military?

A. When I was in Michigan it was during the Vietnam War. I was working on an NIH grant in Harlan Lane's research center, CRLLB. He wrote a letter to my local draft board in Queens and got me an occupational deferment. So, I did not get drafted. A few years later the draft was eliminated.

Professional Career

Q. What was your first place of employment?

A. My first and only employment has been at Indiana University. I interviewed for a job here at Indiana University in November of 1970 a week before Thanksgiving. I was just starting my dissertation. I actually didn't have any data when I came for my job interview. I gave a talk about speech perception, and I played the audio tape of the computer singing "Daisy." I was offered a job as an Assistant Professor of Psychology, and I didn't go to any other interviews. I accepted the job, and I've been here for 51 years. I started as an assistant professor and worked my way up. The cohort of people that came as academics in my department in the late '60s and early '70s all came directly right out of graduate school. None of my colleagues had ever been on a postdoc before they joined the faculty which is common and mandatory today.

Q. Were there any special accomplishments, developments, or projects that you'd like to mention?

A. I was very fortunate that in 1975, I was able to take a year off from teaching at Indiana University. I had been at a meeting in Stockholm in 1974. This was the second Speech Communication Seminar of [Gunnar Fant](#). The first was in 1962. At that meeting, I met [Ken Stevens](#) and [Dennis Klatt](#), whom I had met when I went to MIT to do synthesis of vowel stimuli for my thesis. Ken had an NIH T32 training grant and invited me to do a postdoc in his lab at MIT. So, I came back to Indiana and talked to the chair of my department. I'm an assistant professor. I've only been here in Indiana for three years, and now I asked if I could have a year's leave. The chair of the department was very supportive. He felt that it would be very important for my career and research. He turned out to be right. I didn't stop the tenure clock. It was like having a year off for just doing research. So, that was very exciting. It was very unusual for someone to go on a postdoc while they were a new assistant professor.

The postdoc at MIT really was a very important landmark in my career because it turned out that on several sabbatical leaves that I had taken— one in 1978 and then another one in 1985 -- I went back to MIT. I was actually in Ken Stevens' group at MIT for a period of three years at three

different times. It was very stimulating to be in that environment, because there weren't a lot of cognitive psychologists around Ken's lab. There were some linguists, and there were, of course, a lot of engineers and a lot of people who were all interested in the same kinds of things I was interested in: human speech perception, synthesis, acoustic analysis, and so on.

When I came back to Indiana, after my postdoc in 1975-1976, I recognized the importance of having postdocs around. So, I got together with a bunch of other people in my department and we decided to send in an initial T32 application to the NIH for two postdoc slots. If I remember correctly, \$11,500 was the salary for the postdoc lines. We got funded on this very small training program in 1979, and every five years after that the training grant expanded. We added some predocs to the program in Bloomington, and then in the early '90s, we were able to work with Rich Miyamoto up in the IU School of Medicine in Indianapolis to bring on clinical people. The Indiana T32 training grant, "Training in Speech and Hearing Sensory Communication," was in existence for a total of 36 years and we ended up having slots for six postdocs, four of which were in Bloomington and two of which were in Indianapolis at the medical school, and six graduate students across Speech and Hearing, Psychology, Linguistics, Neuroscience, and Cognitive Science, and a couple of other departments in Bloomington. Along the way, we added summer medical students so that we had six medical students every summer on this training grant. So, when the training program finally ended after 36 years, it was the largest and longest-running T32 in the NIDCD portfolio at the time. There were over 70 postdocs and 50 graduate students and more than 100 medical students who got funded to do research under this training grant.

Publications and Research

Q. Did you ever write a book or have something published?

A. Yes, I've published over 400 peer-reviewed papers and chapters, many of them done in collaboration with graduate students, postdocs, other collaborators. I was also involved in a couple of edited volumes in the early '70s in cognitive psychology. Probably the most important edited book was [*The Handbook of Speech Perception*](#)², which is now in its second edition. There was also a book that I did with a postdoc, Steve Chin, [*Alcohol and Speech*](#)³, which was one of my side projects.

Q. Can you identify some of your important landmark publications and research activities?

If you go and look at citations, the one that has had the most influence is probably the paper on the neighborhood activation model of word recognition by Paul Luce and me that ended up in the

² *The Handbook of Speech Perception, 2nd Edition* (2021). Edited by Jennifer S. Pardo, Lynne C. Nygaard, Robert E. Remez, and David B. Pisoni. Wiley-Blackwell.

³ *Alcohol and Speech* (1997). By Steven B. Chin and David B. Pisoni. Academic Press.

journal *Ear & Hearing*⁴. The publication of my dissertation research is also cited very frequently⁵. The work that we did on the perception of "r" and "l" by Japanese speakers and the development of high variability phonetic training⁶. That shows up a lot in the second language literature now. There is a review chapter that appeared in 1978 in a handbook that was edited by Bill Estes, the *Handbook of Learning and Cognitive Processes*⁷. That was the first handbook chapter in a mainstream psychology book on the topic of speech perception. That chapter was cited very frequently. Another paper that I always like to talk about is the paper that I did with Robert Remez, Phil Rubin, and Tom Carrell when Remez was here as a visiting assistant professor, and we did this paper that appeared in *Science* on sine-wave speech⁸. That paper is cited very often. There are also a number of papers I did on the perception of speech synthesis produced by rule⁹. I also published numerous papers on short-term memory and executive functioning in deaf children with cochlear implants.¹⁰

⁴ Luce, P. A., & Pisoni, D. B. (1998). Recognizing spoken words: The neighborhood activation model. *Ear and hearing*, 19(1), 1.

⁵ Pisoni, D. B. (1973). Auditory and phonetic memory codes in the discrimination of consonants and vowels. *Perception & psychophysics*, 13(2), 253-260.

⁶ Logan, J. S., Lively, S. E., & Pisoni, D. B. (1991). Training Japanese listeners to identify English/r/and/l: A first report. *The Journal of the Acoustical Society of America*, 89(2), 874-886.

Lively, S. E., Logan, J. S., & Pisoni, D. B. (1993). Training Japanese listeners to identify English/r/and/l. II: The role of phonetic environment and talker variability in learning new perceptual categories. *The Journal of the acoustical society of America*, 94(3), 1242-1255.

Lively, S. E., Pisoni, D. B., Yamada, R. A., Tohkura, Y. I., & Yamada, T. (1994). Training Japanese listeners to identify English/r/and/l. III. Long-term retention of new phonetic categories. *The Journal of the acoustical society of America*, 96(4), 2076-2087.

Bradlow, A. R., Pisoni, D. B., Akahane-Yamada, R., & Tohkura, Y. I. (1997). Training Japanese listeners to identify English/r/and/l: IV. Some effects of perceptual learning on speech production. *The Journal of the Acoustical Society of America*, 101(4), 2299-2310.

Bradlow, A. R., Akahane-Yamada, R., Pisoni, D. B., & Tohkura, Y. I. (1999). Training Japanese listeners to identify English/r/and/l: Long-term retention of learning in perception and production. *Perception & psychophysics*, 61(5), 977-985.

⁷ Pisoni, D. B. (1978). Speech perception. *Handbook of learning and cognitive processes*, 6, 167-233.

⁸ Remez, R. E., Rubin, P. E., Pisoni, D. B., & Carrell, T. D. (1981). Speech perception without traditional speech cues. *Science*, 212(4497), 947-950.

⁹ Schwab, E. C., Nusbaum, H. C., & Pisoni, D. B. (1985). Some effects of training on the perception of synthetic speech. *Human factors*, 27(4), 395-408.

Greenspan, S. L., Nusbaum, H. C., & Pisoni, D. B. (1988). Perceptual learning of synthetic speech produced by rule. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 14(3), 421.

Logan, J. S., Greene, B. G., & Pisoni, D. B. (1989). Segmental intelligibility of synthetic speech produced by rule. *The Journal of the Acoustical Society of America*, 86(2), 566-581.

¹⁰ Pisoni, D.B., Cleary, M. (2004). Learning, Memory, and Cognitive Processes in Deaf Children Following Cochlear Implantation. In: Zeng, F.G., Popper, A.N., Fay, R.R. (eds) Cochlear Implants: Auditory Prostheses and Electric Hearing. Springer Handbook of Auditory Research, vol 20. Springer, New York, NY.

AuBuchon, A.M., Pisoni, D.B. & Kronenberger, W.G. (2019). Evaluating Pediatric Cochlear Implant Users Encoding, Storage, and Retrieval Strategies in Verbal Working Memory. *Journal of Speech, Language, and Hearing Research*, 62(4), 1016-1032.

Beer, J., Kronenberger, W. G., & Pisoni, D. B. (2011). Executive function in everyday life: Implications for young cochlear implant users. *Cochlear implants international*, 12(sup1), S89-S91.

There's also the alcohol work¹¹ which was motivated by a phone call that I received from a guy at General Motors Research Labs in Warren, Michigan. I think this was about 1982. This guy calls me up on the phone. He happened to be a Michigan alumnus, and he was from the Psychology Department. He asked me: "Do you know anything about the effects of alcohol on speech? We are working on a concept for future cars in the GM fleet that would involve having an automated voice-activated interlock system to prevent someone from driving their car if they were intoxicated or impaired. It's sort of like a breathalyzer for your car, but it uses voice input." With a couple of the graduate students I did a literature search. So, that's how that got started. It took about two years before GM would release the results of the study. At around the same time, we were engaged in some work for the bioacoustics group at Wright-Patterson Air Force Base. They were interested in how people change the way they talk under adverse conditions, both physical stress and high levels of noise. We had funding from the Air Force for many years for work on perception of synthetic speech under adverse conditions.¹²

In the summer of 1981, I was invited by Arthur House to come to Williams College for six weeks to participate in an interdisciplinary seminar on speech communication. This was the first unclassified SCAMP (Summer Camp in Applied Mathematical Problems) that was sponsored by the Institute for Defense Analysis. That's when I first heard about HMMs (Hidden Markov Models). There were physicists, engineers, mathematicians, all working on speech. Some people stayed for the whole six weeks. Other people just came for a week or two. We were put up in ski lodge in Williamstown, Massachusetts, at Williams College. It was very, very stimulating and when I came back to Indiana after that meeting, I realized that the real action and the new directions of research were on spoken word recognition and lexical access. That's how I got interested in spoken word recognition. Brian Eukel's ASA paper in 1980 and then this SCAMP in 1981 were both influential in changing the direction of my research program at IU. So, all the new graduate students who came into the lab started to do projects related to word recognition and lexical organization. I have to give full credit. It was Brian Eukel who talked about the lexicon and lexical distance, and about a similarity space of words. He coined this term "lexical density." That caught my attention. And that's where we had the idea of working with the dictionary that [Victor Zue](#) had developed. He took *Webster's Pocket Dictionary* and paid his graduate students to do a phonetic transcription using ARPABET of every word in Webster's dictionary. With this 20,000-word dictionary you could do computational analyses without having to run any subjects. You could just do computational analyses of the similarity spaces and obtain measures of lexical density of

¹¹ Pisoni, D. B., & Martin, C. S. (1989). Effects of alcohol on the acoustic-phonetic properties of speech: perceptual and acoustic analyses. *Alcoholism: Clinical and Experimental Research*, 13(4), 577-587.

Johnson, K., Pisoni, D. B., & Bernacki, R. H. (1990). Do voice recordings reveal whether a person is intoxicated? A case study. *Phonetica*, 47(3-4), 215-237.

¹² Pisoni, D. B., & Koen, E. (1982). Some comparisons of intelligibility of synthetic and natural speech at different speech-to-noise ratios. *The Journal of the Acoustical Society of America*, 71(S1), S94-S94.

different regions of the lexicon. And so, that really was a whole new direction for research in my lab.¹³

In the early '90s [Rich Miyamoto](#), who was chair of Otolaryngology and a neurologist at the School of Medicine in Indianapolis, and Mary Joe Osberger, who he had just hired away from Wisconsin came down to the lab in Bloomington and gave a talk about speech perception in deaf children with cochlear implants. I knew Mary Joe Osberger when I was an undergraduate at CUNY, and she was in the Ph.D. program in speech and hearing science at CUNY. So, we had connections. Anyway, she and Rich Miyamoto had been doing clinical trials sponsored by the NIH on multichannel cochlear implants in deaf children. They talked about what these kids could do and what problems they had in speech recognition and so on. After the talk to my lab group was over, Miyamoto says to me, "You know, Dave, you should come up to Indianapolis sometime and see some of our kids and see what they can do with their cochlear implants." And so, the next time I was on sabbatical, I contacted him and started going up there. I usually went up there on Tuesday, stayed over one night in the University Place Hotel, worked all day Wednesdays in Miyamoto's lab, and then came back down to Bloomington on Wednesday night. We always had Chinese food for dinner on Wednesday night, which I would bring back from the Dragon takeout. So that's how I got involved in starting a new direction in my career; I had never done any clinical work before this.

Simultaneously with that important shift was the expansion of the Indiana T32 training grant to encompass the faculty and research labs that were up in Indianapolis. [Mario Svirsky](#) and [Karen Kirk](#) were up there. Miyamoto had several R01 grants that supported the lab. So, it was very exciting and important for shifting my interest in speech perception to real-world problems. I didn't know very much about clinical audiology or outcomes research. I became very interested in individual differences particularly the so-called "Stars" – the deaf children who did extremely well with their cochlear implants. Working with a clinical population is like a totally different world. And of course, I was able then to get a lot of the graduate students and the postdocs interested in some of these problems as well. So, that was the shift up to the medical school 30 years ago.

Another important event occurred a couple of years ago in Indianapolis at the medical school. [Shannon Risacher](#) who works on aging and Alzheimer's asked me to be a co-investigator on her R01. She is looking for early sensory and motor biomarkers for Alzheimer's in a longitudinal study of healthy people. So I'm now involved in the hearing and speech and measures of working memory in elderly populations. Over the years, I have become very interested in multisensory processing since, as you know, speech is not just sound. Speech is a multisensory, multimodal event, and we know that clinical populations, in particular, rely very heavily on optical dynamics

¹³ Nusbaum, H. C., Pisoni, D. B., & Davis, C. K. (1984). Sizing up the Hoosier mental lexicon. *Research on spoken language processing report*, 10(3), 357-376.

Pisoni, D. B., Nusbaum, H. C., Luce, P. A., & Slowiczek, L. M. (1985). Speech perception, word recognition and the structure of the lexicon. *Speech communication*, 4(1-3), 75-95.

in the lips and face to help recognize and understand speech in adverse conditions. So, I've moved into research on cognitive aging and speech perception.

I would say that one characteristic of what I've done over the years is that I don't always work on the same thing over and over again. When interesting problems come along, I've been able to pursue these interests and find something that is intellectually stimulating to work on. I also teach both graduate students and undergraduate students. For the last, probably, 10 years I've been teaching a joint undergraduate and graduate course on human memory, which has been very beneficial in terms of the research I've been doing on deaf children and adults with cochlear implants. I also teach the undergraduate lab class called Human Learning and Cognition where the students carry out experiments and write up papers. I enjoy doing that, and as long as I can physically do this, I'm going to continue teaching.

Personal Interests and Family

Q. What are some of your favorite movies, sports, and other interests?

A. Basketball, but because of Covid, we sold our tickets, and running which I took up in 1999.

Q. What is your marital status?

A. I have been married to Beth Greene for 50 years. Beth is retired from her position as head of the Center on Reading in the School of Education at Indiana University.

Q. So, as a good note to end on can we get one classic Pisoni quote? Our favorite is: *The ear is connected to the brain!*

Thank you, David, for over half a century of cutting-edge speech research!



From left to right: Tessa Bent, David Pisoni, Ann Bradlow. December 13, 2021. Bloomington, Indiana.