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## BIOGRAPHICAL SKETCH

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NAME Pennington, Christopher A.	POSITION TITLE Systems and Database Manager Nemours / Alfred I. DuPont Hospital for Children Bioinformatics Core
eRA COMMONS USER NAME (credential, e.g., agency login) penningt	

EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE (if applicable)	MM/YY	FIELD OF STUDY
Messiah College	BA	05/88	Computer Science / Mathematics
University of Delaware	MS	05/90	Computer and Information Sciences

### A. Personal Statement

I have over 25 years of experience in the areas of natural language processing, augmentative communication research, and multimedia web development. I have also been significantly involved with projects dealing with personalized speech synthesis and intelligent tutoring.

### B. Positions and Honors

#### Positions and Employment

1988 - 1993      Research Assistant, Applied Science and Engineering Laboratories,  
University of Delaware, Alfred I. duPont Hospital for Children, Wilmington, DE

1993 - 1997      Research Engineer, Applied Science and Engineering Laboratories,  
University of Delaware, Alfred I. duPont Hospital for Children, Wilmington, DE

1997 - 1999      Research Associate, Center for Applied Science and Engineering,  
University of Delaware, Alfred I. duPont Hospital for Children, Wilmington, DE

1999 - 2009      Research Coordinator / Multimedia Developer, AgoraNet, Inc., Newark, DE

2009 - present   Systems and Database Manager, Bioinformatics Core Facility  
Nemours Biomedical Research, Alfred I. DuPont Hospital for Children,  
Wilmington, DE

#### Honors

1984              National Merit Scholarship

1984 – 1988      Messiah College Founder's Scholarship

1992 – 1993      University of Delaware Competitive Fellowship

1996              Best Paper co-author: Fifth International Conference on User Modeling

### C. Selected Peer-reviewed Publications

#### Most relevant to the current application

Bunnell, H. T., Hoskins S., Yarrington D., Gray J., Pennington C., Moyers B., et al. (2011). ModelTalker - A text to speech synthesis system for voice banking and communication devices.

Bunnell, H. T., Gray J., Pennington C., & Moyers B. (2011). MTRV - The ModelTalker Voice Recorder System.

Bunnell, H. T., & Pennington C. A. (2010). Advances in Computer Speech Synthesis and Implications for Assistive Technology. Computer Synthesized Speech Technologies: Tools for Aiding Impairment. 71.

Bunnell, H. T., Lilley J., Pennington C., Moyers B., & Polikoff J. (2010). The ModelTalker System. Proceedings of The 2010 Blizzard Challenge Workshop.

Trnka, K., McCaw J., Yarrington D., McCoy K. F., & Pennington C. (2009). User interaction with word prediction: The effects of prediction quality. ACM Transactions on Accessible Computing (TACCESS). 1, 17.

### **Additional recent publications of importance to the field (in chronological order)**

Mineo, B. A., Peischl D., & Pennington C. (2008). Moving targets: the effect of animation on identification of action word representations.. Augmentative and alternative communication (Baltimore, Md. : 1985). 24(2), 162-73.

Yarrington, D., Gray J., Pennington C., Bunnell H. T., Cornaglia A., Lilley J., et al. (2008). ModelTalker Voice Recorder - An interface system for recording a corpus of speech for synthesis. Proceedings of the 46th Annual meeting of the Association for Computational Linguistics: Human Language Technologies (ACL-08:HLT).

Trnka, K., Yarrington D., McCaw J., McCoy K. F., & Pennington C. (2007). The effects of word prediction on communication rate for AAC. Human Language Technologies 2007: The Conference of the North American Chapter of the Association for Computational Linguistics; Companion Volume, Short Papers. 173-176.

Trnka, K., Yarrington D., McCoy K., & Pennington C. (2006). Topic modeling in fringe word prediction for AAC. Proceedings of the 11th international conference on Intelligent user interfaces. 276-278.

Bunnell, H. T., Pennington C., Yarrington D., & Gray J. (2005). Automatic personal synthetic voice construction. Ninth European Conference on Speech Communication and Technology.

Gray, J., Pennington C., Yarrington D., & Bunnell H. T. (2005). A system for creating personalized synthetic voices. Proceedings of ASSETS 2005, Baltimore.

## **D. Research Support**

### **Ongoing Research Support**

P20 RR020173 Shaffer (PI)

09/23/04 to 09/22/15

NIH/National Center for Research Resources/COBRE Center for Pediatric Research

The goal of this project is to develop a Pediatric Research Center at the Alfred I duPont Hospital for Children. The current grant is a 5-year renewal/extension of the original 5-year project.

Funding bioinformatics core facility activities, notably server and network support, database design, and development of web-based applications.

Role: Systems and database manager

### **Completed Research Support**

NIH Grant I R41/42 DC006193

Bunnell (PI)

05/15/03-12/31/09

Personalizing Speech Output for Communication Devices

The goal of this project was to transfer and develop a commercially-viable speech recording and synthesis system (ModelTalker Voice Recorder) to capture and reconstruct the voices of those

with ALS and other disorders who are at risk of losing their ability to communicate.

Role: Project coordinator / developer

OSERS Grant H327A060059 Mineo Mollica (PI) 01/01/07-12/31/09

Facilitating Language and Learning Through Customized Language Representations

The goal of this study was to investigate the creation and use of customized language representations for children with significant cognitive disabilities. It included the design and development of specialized graphics construction software tools called Chauvet (PC) and Chauvet Lite (for mobile-based systems).

Role: Project coordinator / developer

NIH Grant 2R01DC003670-04A2 Bedrosian (PI) 02/01/01-08/31/09

Communicative Competence and the Use of Prestored Text

The goal of this study was to investigate the use of prestored messages in augmentative communication and how they affect the conversational partner's perception of the user's linguistic competence.

Role: Paid consultant

NIDRR Grant H133G040051 McCoy (PI) 11/01/04-10/31/08

Enhancing AAC Communication through Improved Access to Fringe Vocabulary Words

The goal of this study was to investigate better access and prediction of more diverse content words in an augmentative communication context using text corpora and statistical classification methods.

Role: Project coordinator / developer