

# GEOFFREY WILLIAMS BSc, MA, PhD

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**Date of Birth:** 29th December 1957, Liverpool.

**Nationality:** British.

**Family:** Married with one son, born April 1992.

Full clean driving licence.

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## CAREER HISTORY

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**Jan 2002 - :** **Dept of Phonetics & Linguistics, UCL** **Senior Research Fellow**

Senior researcher on SYNFACE project, collaboration with KTH, RNID and Swedish industrial partners to develop a synthetic talking face driven by speech recognition to provide speech-reading support for hearing impaired.

Responsible for software development for perception experiments to evaluate benefits of system, investigation of speech recognition techniques for generating effective oral movements.

**Supervisor:** Dr Andrew Faulkner

**Salary:** RAIL, spine point 12

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**March -Nov 2000:** **Home-based** **Software Consultant**

Contracted to **Centre for Speech and Language Research, University of Colorado, USA**, to develop a Reading Tutor program based on the CSLU Speech Toolkit, using Tcl/Tk under Windows 98/NT. Demonstrated program at Toolkit Short Course, INSTIL 2000 Conference, University of Abertay, Dundee, August 2000.

**Supervisor:** Prof. Ronald A. Cole.

**Salary:** US\$5k per month.

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**Oct-Dec. 1999:** **SOAS, Dept of Linguistics (p-t).** **Lecturer in Computational Linguistics**

Taught an introductory course in natural language processing with Prolog. Included lectures, lab classes and setting and marking assignments. 5 hours per week contact time. Temporary post (one term).

**Head of Dept:** Dr Monik Charette

Hourly-paid.

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**August 1992 - Feb. 1999:** **Phonologist / Research Associate, "Project HAL".**

Jan. 1998 - Feb. 1999: **Root Mean Square Inc., Longmont, Colorado, USA.**

Aug. 1992 - Dec. 97: **Linguistics Dept., School of Oriental & African Studies, University of London.**

Commercially funded research in Automatic Speech Recognition: application of phonological theory (government phonology) to multi-lingual ASR. Supervised recording and transcription of a large multi-lingual speech database (German/Spanish/Japanese/Mandarin); performed statistical pattern recognition experiments (using SPSS); built a rule-based recogniser to demonstrate the viability of the approach (based on ESPS/waves). Also built standard polyphone speech recognisers using a standard package (HTK), and researched the viability of alternative recogniser architectures based on syllable structure and sub-segmental targets. Member of small team (maximum 4 at any one time).

Completed a PhD during this period, and contributed articles and conference papers. Filed a successful joint patent application in several countries.

**Reason for leaving:** Returned to UK reluctantly following funding uncertainties.

**Supervisor:** Prof. Jonathan D. Kaye

**Final salary:** US\$50k

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**May-June 1992:** **SOAS, Dept of Linguistics (p-t).** **Teaching Assistant in Phonology**

Taught exam revision classes in Phonology for the MA in Linguistics, including marking assignments.

Temporary post.

Course Tutor: Dr M. Charette

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**Feb 1991 - April 1992:** **SOAS, Department of Linguistics.** **Research Assistant, (RA 1A)**

Main researcher on ESRC project *Towards a Principle-Based Phonology: Theory and Application*.

(PI: Prof. J. Kaye; co-authors Dr John Harris, Dr Geoff Lindsey, both of UCL).

Job description as above, but more academically oriented research program. Basic research in 2-member team into acoustic properties of primitives of government phonology. Work resulted in 2 publications and some early results were incorporated into government phonology theory.

**Supervisor:** Professor J.D. Kaye

**Final Salary:** £19,094 inc. (point 12)

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**April 1989 - Jan 1991:** **SOAS, IT Department.** **Computer Programmer/Advisor**

Support and advisory work in micro-computing for School staff and students. Main responsibilities: networking, comms, IBM-PC software support and training (covering DOS / Windows and some Unix). Planned and installed the School's first Novell/Ethernet network. Involved in selection, recruitment and supervision of junior staff.

Senior member of department of 3.

**Reason for leaving:** Ambition to work in linguistic research.

**Final Salary:** £16,500 (ALC scale Grade 2, pt

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**January 1980 - October 1988: Marconi Research Centre, Chelmsford, Essex.**

**Research Engineer**

Various departments: worked on development of novel electro-mechanical sensors. Subsequently moved to Hybrid Circuits Group, where I was responsible for automatic testing for all in-house components.

**Reason for Leaving:** Job function ceased following re-organisation.

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## EDUCATION, ADDITIONAL SKILLS and EXPERIENCE

### Further Education:

1991-98 (part-time): PhD in Phonology and Speech Processing - **SOAS, University of London**

Thesis title: "The phonological basis of speech recognition". Available from:

[http://web.onetel.net.uk/~geoff\\_williams/thesis.html](http://web.onetel.net.uk/~geoff_williams/thesis.html)

1989-91 (part-time): MA (Linguistics) (Distinction) - **SOAS, University of London**

1976-79 (full-time): BSc (Electronics) Class 2.ii - **University of Southampton**

### Adult Education:

1987: Russian A-level (grade A) (Central London Polytechnic)

1983: Institute of Linguists Intermediate Dip, German. (Brentwood AEC, Essex)

### School:

1976: Liverpool Institute: A-levels: Advanced Maths (B), Physics (B), Further Maths (D)

1974: St Margaret's CE High: 9 GCE O-levels, incl. Grade 1 in Maths, French, Physics.

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### Academic Awards:

- One year ESRC Postgraduate Research Award, 1996-97 for completion of PhD.
- Nomination for Laura Soames award for contributions to Phonetics (University of London), 1991. For work on speech recognition submitted as MA dissertation.
- Nominated for best Taught Masters prize for 1991, SOAS.

### Foreign Languages:

- **German** - speak and read fluently. Professional experience of **technical translation** (patents, scientific papers)
- **Russian, French** - reading knowledge, reasonable spoken fluency.
- **Spanish, Mandarin Chinese** - basic conversation.

### Programming Languages, Software Packages:

#### *Unix, Dos/Windows:*

- 7 years' C programming, incl. Turbo-C for DOS, most recently Gnu C under Unix (Solaris, Linux, FreeBSD). Competent in bash shell scripting; working knowledge of Perl, good knowledge of Prolog.
- 6 months' experience of Tcl/Tk under MS Windows. Working knowledge of LaTeX typesetting and HTML.
- 3 years' use and script development in ESPS/waves, 2 years' usage and code development using LSI Speech Workstation. Around 1 year's use of SPSS for Windows, and HTK v 2.1.
- System administration of Novell NetWare 3.0 OS, Unix and Windows NT servers.

#### □ *Apple Macintosh:*

2 years MacOS and a range of Macinto

- (12 weeks): Basic Education for Employment Purposes: teacher training for tutors in Adult Basic Education
- 5-day course in HP Pascal (Operating and Programming), January 1985 (Hewlett-Packard, Reading).

### Professional activities:

Association of University Teachers: member of the SOAS AUT executive committee 1994-98, negotiating on behalf of fixed-term contract staff and acting as Vice-President for 1 year. Currently active member of UCLAUT committee. Research staff representative on departmental Staff Development Committee.

**Leisure and Other Interests:**

Active supporter of World Development movement; active in local politics, especially peace movement and trade union activities. I am a self-taught acoustic guitar player, and enjoy folk and rock music, foreign travel, hiking, learning languages, and psychology. I spent around 18 months as a volunteer adult literacy and numeracy tutor in the mid-1980's.

## **PUBLICATIONS LIST for Geoffrey Williams, PhD**

(A selection of these is downloadable from <http://www.phon.ucl.ac.uk/home/geoff/pubs>)

### **Books & Articles:**

PhD Thesis: *The phonological basis of Speech Recognition*. SOAS, University of London (1998).

Williams, G. (forthcoming) On the computability of certain derivations in Government Phonology. In S. Ploch (ed) *A Festschrift for Jonathan Kaye*. Berlin: Mouton.

Siciliano, C., G. Williams, J. Beskow, & A. Faulkner (2003). Evaluation of a multilingual synthetic talking face as a communication aid for the hearing impaired. *Speech Hearing & Language* **14**, UCL Dept of Phonetics & Linguistics.

Williams, G. (1997) A pattern-recognition model for the phonetic interpretation of elements. *SOAS Working Papers in Linguistics*, Vol **7**, 1997.

Williams, G. (1994) On the role of phonological parsing in Speech Recognition. *SOAS Working Papers in Linguistics*, Vol **4**, 1994.

Williams, G. and Brockhaus, W. (1992) Automatic Speech Recognition: a principle-based approach. *SOAS Working Papers in Linguistics*, Vol **2**.

### *Non-linguistics:*

Williams, G. & J.B. Flower (1988). Automated Testing of Hybrid Systems - strategy and implementation. *GEC Review*, Vol **4**(1), 1988.

### **Conference Papers and talks:**

Williams, G., A.M. Terry and J.D. Kaye (1998). Phonological elements as a basis for language-independent ASR. *Proceedings of ICSLP 98*, Sydney Australia.

Williams, G., G. Martindale, A.M. Terry and J.D. Kaye (1996a). Multi-lingual speech recognition using phonological primes. Poster presented at ASA-AJA conference, Honolulu, December 1996.

Williams, G., G. Martindale, A.M. Terry and J.D. Kaye (1996b). Multi-lingual speech recognition using phonological primes. *Proceedings of SPECOM 96*, St Petersburg, Russia, October 1996. (sole presenter)

Williams, G. (1995). Speech recognition and the formal power of phonology. Presented at Computational Phonology Workshop, ESSLI 95 Summer school, Barcelona, Spain. August 1995.

Williams, G. and J.D. Kaye (1994). For a principle-based approach to Speech Recognition: arguments from phonological structure. *Proceedings of the Workshop on Computational Linguistics for Speech and Handwriting Recognition*, Leeds University, England, 1994.

Williams, G. (1992). Automatic Speech Recognition: a Government Phonology approach. In Dressler et al (eds) *Phonologica 1992: Proceedings of the 7<sup>th</sup> International Phonology Meeting*. Krems, Austria. 1992. (refereed)

Automatic Speech Recognition: a Government-Based Approach. Presented at London Phonology Seminar, November 1991.

### **Patents:**

Joint holder with Jonathan Kaye of US, European & Japanese patents for Phonology-Based ASR. (US Patent # 5,623,609)