Ghinwa F. Choueiter

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Education

Massachusetts Institute of Technology   *Cambridge, MA*
Expected October 2008

Candidate for a Doctoral Degree in Electrical Engineering and Computer Science.
Thesis title: "*Linguistically-Motivated Sub-word Modeling With Applications to Speech Recognition.*"

Massachusetts Institute of Technology   *Cambridge, MA*
July 2004

Master of Science in Information Technology.
Thesis title: "*A Wavelet and Filter Bank Framework for Phonetic Classification.*"
Cumulative GPA: 4.9/5.0. Graduate courses in pattern recognition, automatic speech recognition, stochastic processes and probability, wavelet analysis, signal processing, acoustic phonetics, optimization.

American University of Beirut   *Beirut, Lebanon*
June 2002

Bachelor of Engineering in Computer and Communications Engineering.
High distinction, Cumulative GPA: 4.0/4.0. Undergraduate courses in signals and systems, probabilities and statistics. Graduate courses in signal and image processing.

Jesus and Mary School   *Mtayleb, Lebanon*
June 1998

Lebanese Baccalaureate II, Elementary Mathematics, Rank 10 nationwide.

Experience

Spoken Language Systems Group, CSAIL, MIT   *Cambridge, MA*
Research Assistant   *June 2003–January 2005, September 2005–present*
Implemented a subword model for the acquisition of pronunciation and spelling of new words where subword model encodes lexical stress and sub-syllable structure. Evaluated the model in a multi-stage isolated word recognizer and a phonetic dictionary learner. The subword model was also implemented as an OOV model in a continuous speech recognition system as well as an information retrieval application.

Implemented wavelets and filter banks for feature extraction in the phonetic classification task. Examined filter design and 'rational' wavelets. Assessed classification performance.

Microsoft Research   *Redmond, WA*
Summer Intern   *June 2007–August 2007*
Implemented a 23-way accent classifier to be used in a product rating application over the phone. Trained a GMM-based classifier using ML and MMI criteria. Investigated GMM order, feature reduction, and discriminative training, and studied effect on classification performance.

Department of Electrical and Computer Engineering,
American University of Beirut   *Beirut, Lebanon*
Research Associate   *June 2006–August 2006*
Co-developed an initial prototype for a computer-aided Arabic tutoring tool which uses speech and hand-writing recognition engines. Prototype is based on educational model from the National Committee for Literacy in the Lebanese Ministry of Social Affairs.

IBM T.J. Watson Research Center   *Yorktown Heights, NY*
Summer Intern   *June 2005–August 2005*
Implemented a morpheme-based language model for a large vocabulary Arabic speech recognizer. Studied effect on word error rate and out-of-vocabulary performance.

Electrical Engineering and Computer Science, MIT *Cambridge, MA*
Teaching Assistant *February–May 2005*
Served as a teaching assistant for a class on Automatic Speech Recognition. Held office
hours. Co-wrote and corrected assignments, labs, and exams.

Computer Science Department, University of Akron *Akron, OH*
Summer Intern *July–August 2001*
Studied and designed multi-tier applications for information retrieval and data mining.
Implemented using Java servlets, Java Server Pages, and APIs.

Publications

Choueiter G. F., Ohannessian M. I., Seneff S., and Glass J. R., "A Turbo-Style Algorithm
for Lexical Baseforms Estimation," Proc. ICASSP, Las Vegas, Nevada, USA, April 2008.

Choueiter G. F., Zweig G., and Nguyen P., "An Empirical Study of Automatic Accent
Classification", Proc. ICASSP, Las Vegas, Nevada, USA, April 2008.

Choueiter, G. F., Seneff S., and Glass J. R., "Automatic Lexical Pronunciations Gener-
ation and Update," Proc. ASRU, Kyoto, Japan, December 2007.

Alaoui A. M., Ohannessian M. I., Choueiter G. F., Akl C., Avakian T. T., Al-Kamal
I., and Ferzli R., "A Pilot Project From Illiteracy to Computer Literacy: Teaching and
Learning Using Information Technology,", Proc. ICL, Villach, Austria, September 2007.

Choueiter, G. F. Seneff S., and Glass J. R., "New Word Acquisition using Subword Mod-
eling," Proc. Interspeech, Antwerp, Belgium, August 2007.

Choueiter, G. F. and Glass J. R., "An Implementation of Rational Wavelets and Filter
Design for Phonetic Classification," IEEE Trans. Acoustics, Speech and Signal Process-
ing, Vol 15, March 2007.

Choueiter, G., Povey, D., Stanley F. C., and Zweig G. "Morpheme-Based Language
Modeling for Arabic LVCSR." Proc. ICASSP, Toulouse, France, May 2006.

Ohannessian, M. I., Choueiter, G. F., and Diab, H. "A Novel Parallel Architecture for
Local Histogram Equalization," Proc. VCIP, Beijing, China, July 2005.

Choueiter, G. F. and Glass J. R. "A Wavelet and Filter Bank Framework for Phonetic
Classification," Proc. ICASSP, Philadelphia, Pennsylvania, March 2005.

Naous, Y. S., Choueiter, G. F., and Ohannessian, M. I., "Speech Recognition for Voice
Based Control," Proc. 2nd ISSPIT, Marrakech, Morocco, December 2002.

Skills

Programming: Matlab, C++, Visual Basic, Perl.
Languages: Fluent in Arabic (Native level), English, and French. Beginner's level in
German.

Honors

2003 World Lebanese Cultural Union Scholarship.
2002-2003, MIT, Thurber Fellowship.
1998-2002, AUB, Dean's honor list.

Extracurricular Activities

2006-present, member of the Computer Science and Artificial Intelligence Lab (CSAIL)
student committee.
2006, Head of the Registration & Attendee Relations Committee and co-organizer of
TECHLEB—06, the 1st International Conference on Technology Development in Lebanon.
2004-2006, officer in the Lebanese club @ MIT.
2003-2004, officer in on-campus dorm at MIT (Green Hall).
Choir singing, piano and buzuk playing, swimming.