

Contact Information:

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Brian K. Foo

Education

University of California, Los Angeles – Ph.D. (June 2008)

- **Major:** Electrical Engineering—Communications
- **Minor:** Optimization
- **Advisor:** Mihaela van der Schaar

University of California, Los Angeles – M.S. (Fall 2003-Fall 2004)

- **Major:** Electrical Engineering—Communications
- **GPA:** 3.92

University of California, Berkeley – B.S. (Fall 1999-Spring 2003)

- **Major:** Electrical Engineering and Computer Science
- **Emphasis:** Communication, Networks, and Systems
- **Minor:** Mathematics
- **GPA:** 3.89

Research Interests

- Mathematical Optimization
- Distributed Algorithms
- Scheduling and Resource Allocation for Multimedia Systems
- Information Theoretic Rate-Distortion-Complexity Modeling for Video Coders

Professional Experience

IBM Watson Internship—Summer 2007

- **Manager:** Lisa Amini
- Designed and implemented resource management algorithms for distributed classifiers on System S
- **Submitted a patent** for an algorithm for optimization of classifier trees under resource constraints

IRI Corporation—Fall 2005 to Spring 2006

- **Manager:** Prof. Izhak Rubin (UCLA)
- Job: Consultant
- Designed joint MAC, routing, and node placement/movement protocols for a self-organizing mobile sensor network

Rockwell Scientific Company—Summer 2003

- **Group:** Mixed Signals, **Manager:** M. J. Choe
- Did layouts for various components in a D/A converter
- Analyzed statistics from track and holds

Lockheed Martin Mission Systems in Sunnyvale, CA—Summer 2001

- **Group:** Advanced Technology Systems, **Manager:** Mark Gersh
- Modified a message-oriented middleware for procedure calls across different operating systems and programs
- Wrote Java programs to generate VRML files from data received through satellites.
- Evaluated Matlab libraries for 3d modeling

Technical Skills

Computer languages: Java, C, C++, Tcl/Tk, HTML, Javascript, Python

Operating Systems: Windows 2000/xp, Unix, DOS

Network simulation tools: Qualnet

Other tools: Matlab, Labview, Mathematica, MS Office

Teaching Experience

Spring 2005, Fall 2006—Teaching Assistant for Digital Signal Processing at UCLA

Selected Coursework

Communications/Networks:

- Estimation and Detection in Communication and Radar Engineering, Digital Communication, Information Theory, Channel Coding Theory, Stochastic Modeling with Application to Telecommunication Systems, Switching and Queuing Systems, Telecommunication Architecture and Networks

Signal Processing:

- Signal Processing in Communications, Digital Image Processing, DSP (undergraduate)

Optimization:

- Linear Programming, Nonlinear Programming, Linear Dynamical Programming

Computer Science: (Undergraduate coursework)

- Algorithms and Graph Theory, Formal Languages and Automata Theory, Computer Graphics, Combinatorics and Discrete Probability, Logic Programming, Operating Systems

List of published and submitted works:

Journal Papers (Accepted)

- **B. Foo**, Y. Andreopoulos, M. van der Schaar. "Analytical Rate-Distortion-Complexity Modeling of Wavelet-based Video Coders." *IEEE Trans. on Signal Processing*, Vol. 56, No. 2, Feb. 2008.
- **B. Foo**, M. van der Schaar. "A Queuing Theoretic Approach to Processor Power Adaptation for Video Decoding Systems." *IEEE Trans. on Signal Processing*, Vol 56, No. 1, Jan. 2008.
- **B. Foo**, D. Turaga, O. Verscheure, M. van der Schaar, L. Amini. "Resource Constrained Stream Mining with Classifier Tree Topologies," *IEEE Signal Processing Letters*, May. 2008.
- **B. Foo**, D. Turaga, O. Verscheure, M. van der Schaar, L. Amini. "Configuring Cascades of Classifiers in Distributed Stream Mining Systems," *IEEE TCSVT*, accepted with major revisions, June 2008.

Journal Papers (Submitted)

- **B. Foo**, M. van der Schaar. "Informationally-Decentralized System Resource Management for Multiple Multimedia Tasks," *IEEE Trans. on Parallel and Distributed Systems*, submitted July 2007.
- **B. Foo**, M. van der Schaar. "Distributed Optimization Solutions for Real-Time Stream Mining Systems," *IEEE Trans. on Multimedia*, submitted Nov 2007.
- **B. Foo**, M. van der Schaar, "A Rules-based Approach for Configuring Chains of Classifiers in Real-Time Stream Mining Systems," *to be submitted to IEEE TKDE Special Issue: Mining Multimedia Streams in Large-Scale Distributed Environments*, May 2008.

Conference Papers

- **B. Foo**, M. van der Schaar, "Distributed optimization for real-time multimedia stream mining systems," *SPIE Multimedia Content Access*, Jan. 2008. (Invited paper)
- Z. Cao, **B. Foo**, L. He, M. van der Schaar, "Optimality and Improvement of Dynamic Voltage Scaling Algorithms for Multimedia Applications," *Design Automation Conference (DAC)*, 2008. (Nominated for best paper award)
- **B. Foo**, M. van der Schaar, "Joint Scheduling and Resource Allocation for Multiple Video Decoding Tasks," *SPIE Multimedia Communications and Networking*, 2008.
- **B. Foo**, D. Turaga, O. Verscheure, M. van der Schaar, L. Amini, "Configuring Trees of Classifiers in Distributed Stream Mining Systems," *IBM Austin Center for Advanced Studies*, 2008.
- **B. Foo**, Y. Andreopoulos, M. van der Schaar. "Analytical Complexity Modeling of Wavelet-based Video Coders." *ICASSP 2007*.
- **B. Foo**, M. van der Schaar, "Queuing-theoretic Processor Power Adaptation for Video Decoding Systems." *ICIP 2007*.
- D. Turaga, **B. Foo**, O. Verscheure, R. Yan, "Configuring Topologies of Distributed Semantic Concept Classifiers for Continuous Multimedia Stream Processing," *submitted to ACM Multimedia*, 2008.