



# Now Hiring

**Job Title: Senior Research Engineer, Fast Bayesian Algorithms**

## Job Description and Key Responsibilities

You will work in close collaboration with an expert in the application of Dynamic Bayesian Network models to the automatic segmentation, transcription, articulatory gesture recognition, and source separation of musical audio signals. Initially, responsibilities will focus on: 1) fast parallel algorithms and approximation techniques for particle filtering and smoothing for dynamic probabilistic models involving mixed continuous/discrete state spaces (including, but not limited to Rao-Blackwellized approaches); and 2) efficient computational approaches for identification of continuous-time Markov models using non-uniformly sampled data.

This position involves scalable, cross-platform C++ development and research. You must be familiar with code optimization for a variety of processor architectures, with a particular focus on massively parallel and/or cluster computing architectures. Duties will be initially weighted towards assisting the modeling expert with specific implementation and optimization tasks, and will eventually become more balanced towards developing general-purpose software toolkits.

Thrive in a fun, fast-paced, informal working environment? To this end, you should be highly self-directed, yet capable of forming close collaborative working relationships. Excellent oral and written communication skills are a must.

## Required Qualifications

- Extensive research background in Bayesian signal processing; familiarity with dynamic probabilistic models; sequential Monte Carlo; variational methods; EM.
- Strong record of innovation in fast algorithms and approximation methods for Bayesian signal processing, with an emphasis on parallel algorithms.
- Familiarity with continuous-time Markov models; identifying such models from non-uniformly sampled data.
- Familiarity with sparse computation.
- Excellent C++ coding skills for cross-platform development, including intimate knowledge about exploiting unique characteristics of contemporary microprocessor and DSP architectures.
- Experience with multithreaded and parallel C++ development, working familiarity with MATLAB.
- Demonstrated ability to perform innovative and significant research in the form of technical papers, theses, or patents.

## Desired Qualifications

- Interest in musical audio signal processing; ability to play an instrument.
- Experience developing general purpose toolkits and APIs.

## Education Requirements

- Ph.D. in Computer Science, Electrical Engineering, or a closely-related field.

This is a full-time position, working in the Research Triangle Park area in North Carolina. Excellent pay, stock options, full medical and dental benefits, IRA matching.

**Interested?** Contact us at: [ZenphJobs@gmail.com](mailto:ZenphJobs@gmail.com)

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