Chao Lin

Contact Information

TéSA Laboratory
14-16, Port Saint-Etienne
31000 Toulouse
France

Mobile: +33 7 61 17 95 55
Fax: +33 5 61 24 73 73
E-mail: chao.lin@tesa.prd.fr
http://lin.perso.enseeiht.fr/

Professional Profile

A competent, creative and highly motivated Ph.D. research engineer in signal processing with 3 years' experience in biomedical engineering. Possesses specific expertise in statistical signal processing, especially in physiological signal processing and clinical data analysis. Proven ability in multi-cultural team-working environment. Highly intuitive and excellent communication skills.

Objective

Placement in a research position (i.e., postdoctoral, research scientist in industry or faculty) that allows for advanced research in biomedical signal processing (i.e., modeling, estimation, detection and classification) with a particular focus on the physiological signal processing (e.g., electrocardiogram, electroencephalogram, electromyography...) and the analysis of clinical data.

Research Interests

statistical signal processing, biomedical signal processing, sparse signal processing, Bayesian inference, hierarchical models, Markov chain Monte Carlo methods, sequential Monte Carlo methods, array processing, computer graphic

Education

National Polytechnic Institute of Toulouse, Toulouse, France
Ph.D., TéSA Laboratory/CNRS-IRIT, October 2009 to present
- Thesis Topic: *P and T-wave analysis in ECG signals using Bayesian methods*
- Funding: Research fellowships provided by TéSA and St. Jude Medical, Inc.
- Adviser: Prof. Corinne Mailhes and Prof. Jean-Yves Tourneret

Ecole Nationale Supérieure d'Electrotechnique, d'Electronique, d'Informatique, d'Hydraulique et des Télécommunications (ENSEEIHT), Toulouse, France
M.Eng / Diplôme d'ingénieur, Electronics Engineering, Sep. 2007 to July 2009
- Thesis Topic: *Optimized Spatial Resampling for Microphone Array Beamforming*
- Scholarship provided by Rockwell Collins Co. Ltd.

Beihang University, Beijing, China
B.S., Electronics Engineering and Telecommunication, Sep. 2002 to July 2006

Research Experience

Doctoral Research Engineer, TéSA, Toulouse, France Oct. 2009 to present
- Studying innovative Bayesian methods for physiological signal analysis.
- Designing, validating and implementing ECG signal processing algorithms.
- Collaborating with scientists from St. Jude Medical and cardiologist form Toulouse Rangueil Hospital.
- Sharing research results with project co-workers from different countries (Austria, USA) and presenting at international scientific conferences (ICASSP, EMBC...).
- Writing original papers for publication in scientific journals.

Intern Researcher, ST-Ericsson Ltd., Paris, France Feb. 2009 to Oct. 2009
- Designing multi-channel audio processing algorithms for mobile platforms.
- Validating and optimizing algorithms.
- Implementing designed algorithms on DSP devices.

Intern Engineer SAFRAN-Technofan Ltd., Toulouse, France June 2008 to Sep. 2008
- Developing embedded software for the electronic boards of Airbus A380 fan system.
- Writing software documents and project reports.

Teaching Experience

Teaching Assistant, National Polytechnic Institute of Toulouse Sep. 2010 to present
- Practical sessions of signal processing (24h) for 2^{nd} year Master student (in English)
- Tutorials of signal representation and analysis (16h), numeric signal processing (12h) and adaptive filtering (10h) for 1^{st} year Master student (in French)
- Signal processing project (36h) for 2^{nd} year Master student (in French)

Journal Publication

Chao Lin, C. Mailhes and J.-Y. Tourneret. P and T wave delineation in ECG signals using a Bayesian approach and a partially collapsed Gibbs sampler, *IEEE Transactions on Biomedical Engineering*, 57(12):2840–2849, Dec. 2010. doi:10.1109/TBME.2010.2076809

Submitted Journal Publication

Chao Lin, G. Kail, C. Mailhes, J.-Y. Tourneret and F. Hlawatsch. Beat-to-beat P and T wave delineation and waveform estimation in ECG Signals using a block Gibbs sampler, *IEEE Transactions on Biomedical Engineering*, 2011. Submitted.

Conference Publications

Chao Lin, G. Kail, J.-Y. Tourneret, C. Mailhes and F. Hlawatsch. P and T wave Delineation and Waveform Estimation in ECG Signals Using a Block Gibbs Sampler. In: *IEEE Int. Conf. on Acoust., Speech and Sig. Proc. (ICASSP)*, Prague, Czech Republic, May 2011, pp. 537-540.

Chao Lin, C. Mailhes and J.-Y. Tourneret. T-wave Alternans Detection Using a Bayesian Approach and a Gibbs Sampler. In: *Annu. Int. Conf. IEEE Eng. Medicine Biol. Soc. (EMBC)*, Boston, MA, Aug. 2011, pp. 5868-5871.

Chao Lin, M. Bugallo, C. Mailhes and J.-Y. Tourneret. ECG denoising using a dynamical model and a marginalized particle filter. In: *IEEE Asilomar Conf. Signals, Systems and Computers*, Pacific Grove, CA, Nov. 2011, to appear.

Chao Lin, A. Grand, S. Tassart, J.-Y. Tourneret, O. Besson and L. Saïd. Optimized Spatial Resampling for Microphone Array Beamforming. In: *IEEE Int. Conf. on Sig. Proc., Comm. and Computing*, Xi'an, China, Sep. 2011, pp. 1-4.

Expertise and Software Skills

Statistical signal Processing and biomedical signal processing:
- Probability, Random Variables, Stochastic Processes, Bayesian detection and estimation, Information Theory, Sparse signal processing, Markov chain Monte Carlo methods, Physiological signal processing, clinical data analysis

Computer Programming:
- C, C++, Python, Java, GNU make, Matlab, LabView, Mathematica

Embedded and Real-time Systems:
- Software development with several DSP platforms (e.g., Analog Devices DSP's)

Productivity Applications:
- TEX (LATEX, BIBTEX, PSTricks), most common productivity packages (for Windows and Linux platforms)

Language

- **English** *fluent* **TOEIC**: 990/990 **TOEFL**: 623/660
- **French** *fluent* **TFI**: 890/990 five years' study in France
- **Chinese** *mother tongue*