Modern Methods of Time-Frequency Analysis II
Programme organised by: Hans-Georg Feichtinger and Karlheinz Gröchenig
September 10 - December 15, 2012

Time-frequency methods for the applied sciences
Workshop organised by: Peter Balazs, Monika Dörfler, and Bruno Torrésani
December 3 - 8, 2012

- **Monday, December 3, 2012**

  09:45 - 10:10 Welcome and Registration

  10:10 - 11:10 Patrick Flandrin
  Uncertainty and spectrogram geometry

  11:10 - 11:30 coffee break

  11:30 - 12:30 Hau-Tieng Wu
  Nonparametric and adaptive modeling of dynamic seasonality and trend with heteroscedastic and dependent errors. Part I: Tutorial and Introduction to Synchrosqueezing transform

  12:30 - 14:15 lunch break

  14:15 - 15:00 Bruno Torrésani
  Time-Frequency analysis for multi-channel and/or multi-trial signals

  15:00 - 15:30 Gianpaolo Evangelista
  Warped Frames: dispersive vs. non-dispersive sampling

  15:30 - 15:50 break

  15:50 - 16:50 Wojciech Czaja
  Data dependent operators for the spatial-spectral fusion problem

- **Tuesday, December 4, 2012**

  10:00 - 11:00 Mark Plumbley
  Sustainable Software and Data for Reproducible Research in Signal Processing

  11:00 - 11:30 coffee break

  11:30 - 12:30 Jonathan Harrington
  Acoustic techniques for measuring stability and change in spoken language communication

  12:30 - 14:00 lunch break

  14:00 - 14:30 Filip Sroubek
  Space-variant Blind Deconvolution in Image Processing

  14:30 - 15:15 Peter Balazs
  Frame Theory and its Acoustical Applications

  15:15 - 15:40 break

  15:40 - 16:20 Laurent Daudet
  Compressively sampling the plenacoustic function

  16:20 - 17:10 Hau-Tieng Wu
  Nonparametric and adaptive modeling of dynamic seasonality and trend with heteroscedastic and dependent errors. Part II: Applications

  19:30 - 22:30 Social Event
  at the Acoustics Research Institute, Wohllebengasse 12-14, 1st Floor, 1040 Vienna

---

- **Wednesday, December 5, 2012**
  10:00 - 11:00 Volker Hohmann
  Time-frequency analysis methods used in psychoacoustic research and auditory modeling
  11:00 - 11:30 coffee break
  11:30 - 12:00 Thibaud Necciari
  A perfectly invertible and perceptually motivated time-frequency transform for audio representation, analysis and synthesis
  12:00 - 14:00 lunch break
  14:00 - 15:00 Nam Sangnam
  Co-Sparsity (Tutorial)
  15:00 - 15:30 break
  15:30 - 16:15 Matthieu Kowalski
  Structured sparse decomposition via social sparsity shrinkage operator
  16:15 - 16:45 Kai Siedenburg
  Structured Shrinkage from an Audio Processing Perspective

- **Thursday, December 6, 2012**
  10:15 - 10:55 Cédric Févotte
  Itakura-Saito nonnegative matrix factorization and friends for music signal decomposition (Tutorial Part 1)
  10:55 - 11:10 coffee break
  11:10 - 11:50 Cédric Févotte
  Itakura-Saito nonnegative matrix factorization and friends for music signal decomposition (Tutorial Part 2)
  11:50 - 12:30 Götz Pfander
  Sampling of Operators: an overview
  12:30 - 14:15 lunch break
  14:15 - 15:15 Emmanuel Vincent
  Uncertainty handling for environment-robust speech recognition (Tutorial)
  15:15 - 15:30 break
  15:30 - 16:00 Christian Kasess
  Estimation of the vocal tract shape of nasals using variational Bayes
  16:00 - 16:30 Saso Musevic
  Variable Bandwidth Distribution Derivative method for robust estimation of highly modulated sinusoids with application to birdsong analysis

- **Friday, December 7, 2012**
  10:00 - 11:00 Philippe Depalle
  Audiosculpt, and of the structuring role of the phase in time-frequency representation (Tutorial)
  11:00 - 11:30 coffee break
  11:30 - 12:10 Emmanuel Vincent
  Covariance smoothing and consistent Wiener filtering for artifact reduction in audio source separation
  12:10 - 12:50 Joakim Andén
  Time-shift and Transposition Invariance for Audio Classification Using Scattering Coefficients
  12:50 - 14:00 lunch break
  14:00 - 14:45 Arthur Flexer
  Music Information Retrieval and AudioMiner
  14:45 - 15:30 Monika Dörfler
  Mathematical Signal Processing and AudioMiner
  15:30 - 16:00 break
  16:00 - 16:50 Thomas Grill
  Sound quality of textural audio: characterization, modeling and visualization

- **Saturday, December 8, 2012**
  10:00 - 10:45 Simon Dixon
  Digital Music processing: achievements and perspectives
  10:45 - 11:30 Gino A. Velasco
  The constant-Q transform via Gabor frames
  11:30 - 12:15 Nicki Holighaus
  Real-time implementation of frequency-adaptive transforms
  12:15 - 14:30 lunch break
  14:30 - 15:00 Andre Holzapfel
  Application of nonstationary Gabor transforms in beat tracking
  15:00 Ewa Matusiak
  Dictionary Learning and the identification of sound texture classes

  20:30 Social Programme at Porgy & Bess
  Riemergasse 11, 10 10 Wien

All lectures as well as the registration take place at the ESI Boltzmann Lecture Hall