Bruna Girvent

girvent@ece.neu.edu - www.ece.neu.edu/~girvent

Education

Northeastern University, Boston, USA *July 2014 - Present*

PhD Student in Electrical and Computer Engineering

Relevant courses: Applied Probability, Machine Learning, Numerical Optimization, Affective Computing

Technical University of Catalonia (UPC), Barcelona, Spain

MS in Electrical and Computer Engineering *December 2013*

Relevant courses: Signal Processing, Image Processing, Data Transmission, Telecommunication Systems, Multimedia Mobile Communications

BS in Electrical and Computer Engineering, specialization in Audiovisual Systems *July 2010*

Relevant courses: Audiovisual Communications, Systems and Signals, Speech and Audio Processing, Digital Image Processing, Multimedia Signals Transmission for Mobile Devices

Experience

Cognitive Systems Laboratory, Northeastern University, Boston, USA *July 2014 - Present*

Graduate Research Assistant

- Designing a temporal-dependent model for the RSVPKeyboard and matrix-P300 speller
- Implementing an auditory ERP-based detection system for binary communication
- Mentoring a capstone group project for delirium assessment in the ICU
- Lead a multimodal fusion system that combines facial expression and EEG signals for classification of affective states
- Analyzed EEG data related to affect states and detection of ERP for different stimulus and paradigms

Intel Labs, Santa Clara, USA September- *December 2015*

Research Intern

- Worked in EEG-based Brain Computer Interfaces (BCI) to enable people with disabilities to access the full capabilities of a computer
- Performed experiments with different presentation layouts to design an optimal paradigm for a suitable BCI
- Developed an ERP-based classification algorithm to detect the user's intended selection. Designed the model, performed data collection on different subjects and analyzed the results.

The Mamasú Agency, Barcelona, Spain *January - June 2014*

iOS Developer

- Built mobile applications for iPhone and iPad using iOS SDK, Cocoa Touch and Xcode IDE
- Implemented in-app purchases in iOS applications
- Integrated Cocos 2D games in iOS applications
- Contributed on the design of APIs in PHP and MySQL
- Integrated frontend and backend using PHP, and MySQL in LAMP environment

Mathworks SMART Laboratory, Northeastern University, Boston, USA *October 2012 - September 2013*

Research Scholar

- Developed *KiFall*, a fall detection system using smartphones and wireless camera sensors
- Implemented Kinect-based applications for detection of movement and gesture recognition

- Created Android applications using sensor fusion (accelerometer, gyroscope, compass, INS, GPS) for indoor positioning and navigation
- Implemented a PHP server and a transmission protocol for communication of the Kinect sensor and Android devices using wifi and cellular networks

Terrassa-TSC Department, Technical University of Catalonia (UPC), Barcelona, Spain *February - June 2010*
Student Intern

- Developed a VoD service for the iPhone that enables live video streaming with adaptive bitrate
- Analyzed client-server architecture systems for streaming of videos to mobile devices
- Implemented an HTTP streaming video server in Linux
- Built an iOS client app for playing streaming videos in real time and with adaptive bandwidth

Honors and Awards

- Dean's Fellowship, Northeastern University, 2014
- MS Thesis *"KiFall: a privacy preserving fall detection system using smartphones and wireless camera sensors"* graded with Highest Honors (10/10), 2013
- Google EMEA Grant for 6th European Congress of Mathematics, 2012
- BS Thesis "*Development of a VoD service for the iPhone"* graded with Highest Honors (10/10), 2010
- Ranked 2nd best student in BS Electrical and Computer Engineering, specialization in Audiovisual Systems and 3rd best student of the UPC School of Engineering (8.35/10), 2010
- Graduated with Highest Honors for Baccalaureate Degree (9.0/10), 2007
- Among Catalonia's 5% best marks in Cangur Mathematical Exam (88.5/100), 2007

Technical Skills

Github: github.com/nabrugir

Operating systems:	Windows, MacOS, Linux
Languages:	C, C++, C#, Java, Objective C, HMTL5, MySQL
SDKs:	iOS, Android, Kinect
IDEs:	Eclipse, XCode, Visual Studio, Matlab
General Software:	LaTeX, Photoshop, 3DsMax, Autocad, Flash

Languages

Catalan: native speaker **Spanish:** native speaker **English**: full professional proficiency

Papers submitted / in preparation

- **B. Girvent,** M. Moghadamfalahi, M. Akcakaya and D. Erdogmus, *Classifier Design for Event Related Potential Detection in Temporally Dependent EEG*
- **B. Girvent**, H. Nezamfar, M. Moghadamfalahi, M. Ackakaya and D.Erdogmus, *Auditory ERP Detection System for Binary Communication*
- S. Asghari-Esfeden, **B. Girvent,** P. Gonzalez-Navarro, S. Salehi, *Emotion Recognition Using EEG Signals and Facial Expressions*
- J. McLean, S. Rendall, G. Spiri, L. McCallister, W. Bertorelli, F. Quivira, **B. Girvent**, M. Moghadamfalahi and D. Erdogmus, *Somatosensory Brain Computer Interface for Binary Communications*
- J. McLean, S. Rendall, G. Spiri, L. McCallister, W. Bertorelli, F. Quivira, **B. Girvent**, M. Moghadamfalahi and D. Erdogmus, *Multi-Sensory Brain Computer Interface for Patients in the ICU*