

March 31, 2014

Mobile Communications Group  
Intel Corp

## Cover Letter

I hold a Computer Engineering degree and a Distributed Systems degree from the Engineering Faculty and the Mathematics Faculty respectively, both at the National University of Córdoba, Argentina. I would like to be considered for a position as a Software Engineer at the Intel's Mobile Communications Group organization.

My first work experience was at the Computer Architecture Laboratory of my faculty. I worked for two years there, and I focused on performance optimization of large scale finite element simulations of hydraulic systems. During this time, I also conducted work for my graduate thesis about the design of an embedded multi-core Java processor.

Using vectorization, OpenMP, and MPI programming techniques I optimized the running time of an hydrodynamical model which was used by civil engineers to predict the effect of constructing a bridge over the Paraná <sup>1</sup> River, in Argentina.

My Master thesis solved the problem of building a Java Virtual Machine as a multi-core system. At that time multicore processors were an emerging technology so my contribution was to propose solutions to problems such as Scheduling of Java threads, Synchronization, and Garbage Collection across multiple processors.

After completing my Masters thesis I left the Computer Architecture Laboratory and pursued a career in software development in industry. The first position I held was in Motorola Argentina, as an embedded software developer. I focused on software for communication systems such as Soft Switches that are built as a cluster of special purpose boards. I acquired valuable experience in software development in general, working with big amounts of code, collaborating with a team of people and planing work to meet deadlines. During this same period of time, I started to pursue a degree in Distributed Systems at the Faculty of Mathematics at National University of Córdoba.

After completing my second degree and acquiring more experience as an engineer I decide to look for positions more challenging on the technical side. The work at Motorola had become too tedious in the sense that too much attention was put by management on artificial quality goals rather than in actually trying to create better products.

In my search for real engineering challenges I joined Intel. I consider projects at Intel to be truly ambitious, and to really focus on delivering value. My work at Intel has been mainly on Context Awareness and CSP Services.

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<sup>1</sup>The Paraná is the second-longest river in South America, and the mentioned bridge will be the biggest bridge in the country once it's construction is finished during this year. Please check my resume for a link to a publication describing this work

The Context Awareness project was about providing APIs to developers of mobile apps so they can access high level states such as the physical activity or the user location<sup>2</sup>. This involved the development of a client engine to perform collection of raw sensor data such as accelerometers, gps, cameras and microphones. I led the development of the Android version of this client which involved both Java and C++<sup>3</sup> programming.

My work in CSP Services was divided into two parts; the Choices Service and the Recommender Service. The Recommender Service focused on the development of a large scale graph processing database which was used as a Knowledge Representation engine to allow the real time processing of user recommendations in the form of graph queries. We used the Scala programming language and the Akka framework to perform this development.

The work in the Choices Service involved the development of a Rest Web Service, using Python and Django. The mission of this service was to collect POIs<sup>4</sup> information from different providers such as Yelp or Factual and to provide a normalized data access interface to developers.

Finally, I also took part of some POC development related to the CSP Context Sensing Service. I developed two demos exploring novel features of HTML5 involving audio processing and written character recognition.

I thank you for taking the time to consider my application and I look forward to the opportunity of further discussing with you details of the position and the project. Should you have any question about my previous experience, please do not hesitate to contact me.

Sincerely,

Jose P. Alberto Andreotti.

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<sup>2</sup>The high level location would be a value in the set {home, work, other}, and the low level raw sensor data would include for example the GPS coordinates

<sup>3</sup>C++ coding was supported by Android's NDK.

<sup>4</sup>POIs: points of interest.