September 4, 2014

Data Science Center
Eindhoven University of Technology

## Motivation 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 apply for a PhD position in the Data Science Center; I'm interested in the Data Driven Value Proposition project and in the Continuous Personal Health project. My long term career goal is to hold a position as a research scientist in academia or in a research and development company.

The academic background I obtained from Computer Engineering is mainly on Communication Systems, Electronics and Software Development. 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. As a result, I acquired relevant skills for working with numeric problems and for performing performance optimization of code through parallel programming techniques.

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 and Cable Modem products. 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 the same period of time, I started to pursue a degree in Distributed Systems at the Faculty of Mathematics at National University of Córdoba.

Completing the above mentioned program helped me to broaden my view of Informatics as a discipline as I took contact with a wider set of ideas from Computer Science that were new to me as coming from a classical Computer Engineering education. This helped me to advance my career; shortly after completing the program I obtained a position at Intel Corporation as a Senior Software Engineer.

Projects at Intel are really ambitious; my work at Intel has been mainly on Context Awareness and Recommender Systems. The Context Awareness initiative within Intel involved the creation of a platform to allow user sensor information to be pushed into and analyzed in the cloud. This platform allows user applications to access a collection of high level states that were inferred from raw sensor data, captured from user mobile devices such as phones, laptops or other special purpose devices. The participation in this project, gave me the opportunity to apply several Machine Learning techniques to perform mining of raw sensor data such as accelerometers, gps, cameras and microphones.

My work in Recommender Systems focused on the development of a large scale graph processing database which was used as a Knowledge Representation engine to generate user recommendations in real time. In this context, nodes in the graph would represent consumer items such as books or songs and arcs in the graph would represent relationships among these items. I worked both developing the infrastructure for this database and performing the required data mining activities on different datasets. As a consequence, I acquired relevant experience in both creating a robust distributed infrastructure and applying machine learning algorithms to big data sets.
I find the topic of this PhD particularly interesting. Having followed, and taken part in the field for the past five years, I believe that the key for Data Science to really provide value in the future will be to proactively push the value from data to users even before users themselves know they need it. Also, I feel that my most important strength besides my practical experience is my ability to understand the field as whole, from the signal processing taking part right after the sensors to the algorithms running over big datasets on top of distributed clusters.
Should you require further information or clarification on the above information please do not hesitate to contact me. Thank you for taking the time to consider my application, and I look forward to your reply.

Sincerely,

Jose P. Alberto Andreotti.